

Department of Prosthetic Dentistry with the Subdepartment of Craniomandibular Dysfunctions
Medical University of Lublin

BEATA PIÓRKOWSKA-SKRABUCHA, ELŻBIETA CZELEJ-PISZCZ,
MONIKA LITKO, B. JOLANTA ROBAK, JANUSZ KLEINROK

*An analysis of the prevalence of treatment appeals of patients
with mandibular dysfunction in the years 1995–2004*

Mandibular dysfunctions constitute the third most common dental problem of the masticatory apparatus, following caries and periodontal diseases. In the light of the epidemiological research, the symptoms prevail in 40-90% of children and youth and in 60–90% of adult patients according to different authors, depending on the criteria applied (5, 20).

Multifactorial etiology of the mandibular dysfunction, where the crucial role is played by the psychogenic factor, makes the number of patients rise constantly (6, 20). In stressful situations there comes to the intensified activity not only of the mimic muscles but also the muscles of mastication and there occurs the decrease in adaptation of the masticatory apparatus motor system to dysfunctions taking place. Oral parafunctions, harmful motor habits, are the way of eliminating emotional stress. In such stressful situations there occurs the intensification of frequency of habitual occlusal parafunctions with the contact of the teeth (clenching and gnashing of teeth) and of non-occlusal character effected without the contact of the teeth (biting of strange objects, habitual gum chewing, nail biting, cuticle biting, cheek mucous membrane biting, tongue parafunctions). Long-term disturbances in physiological activity of the masticatory apparatus motor system may lead to the occurrence of many painless and painful symptoms called dysfunction symptoms not only in the masticatory apparatus itself but also in the whole region of the face, head, cervix, neck, shoulder girdle, vertebral column, upper and lower extremities and the chest muscles. Chronic disturbance can lead in many cases to advanced morphological changes in the masticatory apparatus (15, 17).

Main painless clinical symptoms of the mandibular dysfunction are: disturbances in the mandibular movements, joint sounds (cracking, crackling) in the temporomandibular joints (TMJs) and pathological attrition of individual teeth or general attrition. Among the painful symptoms one can mention the pain of the muscles of mastication, neighbouring muscles and TMJs pain. All these symptoms (painless and painful ones) may occur individually or as syndromes (10, 12, 14, 16, 20).

Clinical observations in the recent years point to the increase of the number of patients admitted annually to the Subdepartment of Craniomandibular Dysfunctions in the Department of Prosthetic Dentistry, Medical University of Lublin. In this connection it was necessary to conduct the analysis pertaining to the frequency and reasons of patients' appeals for treatment to the Subdepartment in the years 2000–2004.

MATERIAL AND METHODS

An analysis of 3,087 records of patients who were treated in the Subdepartment of Craniomandibular Dysfunctions in the Department of Prosthetic Dentistry, Medical University of Lublin from 1995 to 2004 was done. Two periods were distinguished: the years 1995–1999 and 2000–2004. The frequency of admittance of female and male patients to the Subdepartment in these two periods was compared.

A detailed analysis was performed in 1,674 patients treated for the mandibular dysfunction in the years 2000–2004 with regard to: gender, age and the place of living (city or country); oral parafunctions (occlusal and non-occlusal ones); mandibular dysfunction pain syndrome, mandibular dysfunction non-pain syndrome and single mandibular dysfunction symptoms.

The presence of joint sounds (cracking, crackling) in TMJs without pain in the muscles of mastication or in TMJs was described as the mandibular dysfunction non-pain syndrome. In such cases accompanied by pain – the mandibular dysfunction pain syndrome was recognized.

In the present study, single mandibular dysfunction symptoms in the form of pathological attrition were reported (20). In statistical analysis of the obtained results, the test of significance of two different mean values of t-Student test were applied as well as the “u” test of difference significance between two fractions for the big trials and the Fp test comparing frequencies for independent m trials of Goralski. The significance level was accepted as 0.05, 0.01 and 0.001.

RESULTS

The analysis of 3,087 records of patients showed that 1,413 patients were seeking treatment because of the mandibular dysfunction in the Subdepartment of Craniomandibular Dysfunctions in the Department of Prosthetic Dentistry, Medical University of Lublin in the years 1995–1999; out of which 76.9% were female patients and 23.1% male patients. In the years 2000–2004, the percentage was respectively: 77.2% of female patients and 22.8% of male patients, and these differences were statistically significant in these time periods ($p < 0.001$ – Table 1, Table 2).

Table 1. The compilation of patients treated because of the mandibular dysfunction in the years 1995–1999 and 2000–2004 with regard to gender

Years	Total	The mean number of patients/year	Gender			
			females		males	
			n	%	n	%
1995–1999	1,413	282.6*	1,087	76.9**	326	23.1**
2000–2004	1,674	334.8*	1,292	77.2***	382	22.8***

* $p < 0.05$, ** $p < 0.001$, *** $p < 0.001$

The comparison of the mean count of the treated patients in two time periods showed the increase in the mean count of patients reporting in one-year time. The mean count of patients increased from the value of 282.6 in the years 1995–1999 to 334.8 in the years 2000–2004. This difference appeared to be statistically significant ($p < 0.05$ – Table 1).

A detailed analysis of 1,674 records of patients treated in years 2000–2004 pointed out that the mean age of female patients was 31.5 years (from 8 to 80 years of age) and male patients – 29.8 (from 8–87 years of age). Statistically significant differentiation between the age groups in the frequency of reporting to the clinic was observed ($p < 0.01$). Both in female patients and in male patients the

greatest percentage were patients in the age range 19–30 which respectively is 36.7% and 39.8% of the whole number of examined patients (Table 3).

Table 2. The compilation of patients treated because of the mandibular dysfunction in the years 2000–2004 with regard to gender

Year	Total	Gender			
		females		males	
		n	%	n	%
1995	290	227	78.3	63	21.7
1996	343	253	73.8	90	26.2
1997	260	193	74.2	67	25.8
1998	220	171	77.7	49	22.3
1999	300	243	81.0	57	19.0
2000	290	228	78.6	62	21.4
2001	300	239	79.7	61	20.3
2002	366	285	77.9	81	22.1
2003	383	290	75.7	93	24.3
2004	335	250	74.6	85	25.4
Total	1,674	1,292	77.2	382	22.8

Table 3. The compilation of patients treated because of the mandibular dysfunction in the years 2000–2004 with regard to age

Gender	Total	Age intervals (years)					
		<18	19–30	31–40	41–50	51–60	>61
Females	1,292	21.6%* (279)	36.7%* (474)	16.5%* (213)	11.7%* (151)	8.3%* (107)	5.2%* (68)
Males	382	22.5%** (86)	39.8%** (152)	16.0%** (61)	12.8%** (49)	5.2%** (20)	3.7%** (14)

* $p < 0.01$, ** $p < 0.01$

Table 4. The compilation of patients treated because of the mandibular dysfunction in the years 2000–2004 with regard to gender and the place of living

Gender	Total	The place of living			
		city area		rural area	
		n	%	n	%
Females	1,292	953	73.8*	339	26.2*
Males	382	294	77.0**	88	23.0**
Total	1,674	1,247	74.5***	427	25.5***

* $p < 0.001$, ** $p < 0.001$, *** $p < 0.001$

In the analysis of the frequency of patients reporting to the clinic in the years 2000–2004 with respect of the place of living, it was found that the percentage of city dwellers (74.5%) was almost three times greater than the percentage of the rural dwellers (25.5%). The difference was statistically significant both in case of the total number of patients and in case of sex difference ($p < 0.001$ – Table 4). Comparison of the frequency of patients reporting to the clinic in the period of the last five years points to the gradual increase in the number of patients being the rural dwellers (Fig. 1a, 1b).

The clinical study conducted on the group of 1,674 patients showed that 1,449 patients (86.6%) practised oral parafunctions. In 24.1% – occlusal, in 14.6% non-occlusal and in 47.7% both parafunctions: occlusal and non-occlusal were noted (Table 5).

Table 5. The frequency of oral parafunctions in patients treated because of the mandibular dysfunction in the years 2000–2004

Gender	Total	Oral parafunctions*						Absence of oral parafunctions *	
		occlusal		non-occlusal		occlusal and non-occlusal		n	%
		n	%	n	%	n	%		
Females	1,292	308	23.8	184	14.2	622	48.2	178	13.8
Males	382	95	24.9	63	16.5	177	46.3	47	12.3
Total	1,674	403	24.1	247	14.8	799	47.7	225	13.4

* $p < 0.001$

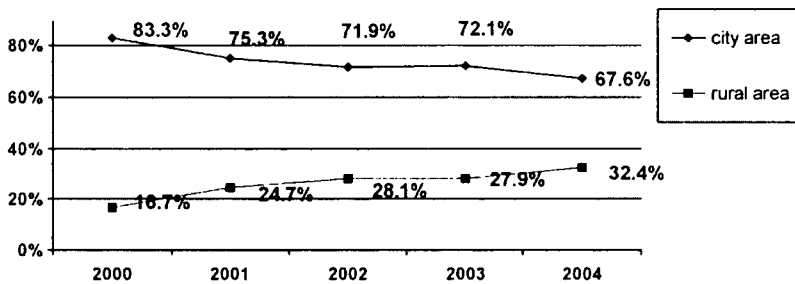


Fig. 1a. The compilation of females treated because of the mandibular dysfunction with regard to the place of living

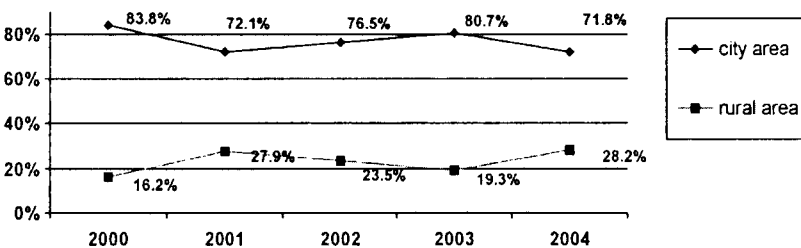


Fig. 1b. The compilation of males treated because of the mandibular dysfunction in the years 2000–2004 with regard to the place of living

In 65.9% of the patients the mandibular dysfunction pain syndrome was recognized. Both in female and male patients the mandibular dysfunction pain syndrome was significantly more frequent than the mandibular dysfunction non-pain syndrome ($p < 0.001$). In 10.6% of cases the reason of reporting to the clinic was the occurrence of the single symptoms of dysfunction in the form of the pathological attrition of teeth (Table 6).

Table 6. The frequency of the mandibular dysfunction pain and non-pain syndrome and single symptoms of the mandibular dysfunction in patients treated in the years 2000–2004

Gender	Total	Mandibular dysfunction					
		pain syndrome		non-pain syndrome		single symptoms	
		n	%	n	%	n	%
Females	1,292	869	67.3	306	23.7	117	9.0
Males	382	234	61.3	88	23.0	60	15.7
Total	1,674	1,103	65.9*	394	23.5*	177	10.6

* $p < 0.001$

DISCUSSION

The literature data and our own observations point to the steadily increasing number of patients reporting for dental treatment because of mandibular dysfunction. This testifies to the existence of a considerable health problem (6, 20).

It is disturbing that not only the number of patients is increasing but the age range is lowered as well; some patients reported with very advanced forms of mandibular dysfunction in the form of a pain syndrome. In the studies performed, the patients below the age of 30, that is the patients in the greatest professional activity range and with personal life changes period, constituted 55% of the total number of patients treated in the years 2000–2004 in the Subdepartment of Craniomandibular Dysfunctions in the Department of Prosthetic Dentistry, Medical University of Lublin (Table 3).

The analysis showed that among the patients treated because of the mandibular dysfunction the number of registered female patients was three times higher than that of male patients. It confirms the results of clinical studies of other authors, according to which the ratio of percentage of female patients to male patients treated for dysfunction fluctuates between 3:1 and 8:1 (4, 8). However, numerous epidemiological studies have not pointed to any significant dependencies between the gender and the frequency of the mandibular dysfunction. The differences probably result from the methodology of the presented studies, which in case of clinical investigations cover a selected group of patients reporting for treatment and not a casual population. It is well known from the available literature on the subject as well as from clinical observations that medical counseling is more often wanted by young women, which may be caused by biological factors, psychosocial way of pain perception and its strengthening (4, 7, 8). In relation to this, the occurrence of disturbances in the masticatory apparatus may not be claimed as sex-dependent (7).

The results showed that both in male and female patients, it was the city patients who reported to the clinic significantly more frequently ($p < 0.001$ – Table 4). This, in turn, may be caused by the greater health consciousness and motivation for health treatment of city community as well as the easier access to specialized clinics.

Among the patients seeking for the treatment, there was a prevalence of the patients with the mandibular dysfunction pain syndrome. They constituted 65.9% of the total number of patients (Table 6). The studies of other authors confirm that the pain is the principle cause of patients reporting to the clinic for treatment. According to Kleinrok, in the clinical material, about 70% of patients are the ones with a variety of painful symptoms (2, 10, 14, 16, 20).

The main reason standing behind the mandibular dysfunction is civilization stress (19, 20). The literature studies point to the increased level of stress in patients with the mandibular dysfunction (3). In moments of emotional stress, there comes to the increase of intensification of practising occlusal and non-occlusal parafunctions leading to improper loading of the masticatory apparatus motor

system and lowering of the adaptation capabilities of the TMJ, muscles of mastication, teeth and parodontium against harming factors (20, 21).

The present study indicates that the percentage of patients practising oral parafunctions is 86.6% (Table 5). The high percentage of patients in which the symptoms of dysfunction coexisted with the fact of practising harmful motor habits in the masticatory apparatus confirms the opinion of a dominating role of parafunctions in etiology of the mandibular dysfunction (16, 18).

Our own clinical observations point out that in some groups of patients there exist non-realized oral parafunctions, when the patients are simply not aware of them. This also points to the necessity of taking into account such parafunctions and the necessity of analyzing the masticatory apparatus motor system in periodic examinations conducted not only by dentists but medical doctors as well.

The present study shows that the problem of the mandibular dysfunction is on steady increase. In connection with that it is necessary to make the public aware of the reasons for such dysfunctions and problems connected with them. Furthermore, the cooperation of dentists and other specialists in this cause seems to be indispensable as for further recognition, prevention and treatment of the mandibular dysfunction (17, 20).

CONCLUSIONS

The present study and the literature data allow us to formulate the following conclusions:

- The majority of patients reporting to the dental clinic because of the mandibular dysfunction are young women up to 30 years of age
- The more frequent patients are the city dwellers
- Among the patients reporting to the dental clinic there is a prevalence of patients with advanced changes of the masticatory apparatus motor system in the form of the mandibular dysfunction pain syndrome
- In periodic examinations conducted by dentists and also medical doctors, the occurrence of oral parafunctions and the early symptoms of the mandibular dysfunction should be stressed
- Early prevention of the mandibular dysfunction seems to be necessary mainly through battling against oral parafunctions.

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SUMMARY

An analysis of 3,087 records of patients who were treated in the Subdepartment of Craniomandibular Dysfunctions in the Department of Prosthetic Dentistry, Medical University of Lublin, Poland from 1995 to 2004 was done. Two periods were distinguished: the years 1995–1999 and 2000–2004, and the frequency of admittance of female and male patients in these two periods was compared. A detailed analysis was carried out in 1,674 records of patients in the years 2000–2004. Gender, age, place of living, oral parafunctions and the presence of painless, painful and single symptoms of the mandibular dysfunction were considered. The investigations have shown the prevalence of females (77.2%) in the group of patients. The patients in the age of 19–30 years and patients who live in cities made the highest proportion. Oral parafunctions were noted in 86.2% of females and 87.7% of males. Both in the group of females and in the group of males the greatest number of patients consisted of those with the mandibular dysfunction pain syndrome. The present study confirms that the mass information of society is necessary, concerning the causes of the mandibular dysfunction and ailments connected with it and that the cooperation of dentists and medical doctors in prevention and diagnosing and treating these illnesses is desirable.

Analiza kart chorych zgłaszających się do leczenia z powodu dysfunkcji narządu żucia
w latach 1995–2004

Zaburzenia czynnościowe narządu żucia stanowią po próchnicy i chorobach przyzębia trzecie najczęstsze schorzenie układu ruchowego narządu żucia. W świetle badań epidemiologicznych objawy występują u 40–90% dzieci i młodzieży oraz u 60–90% osób dorosłych według różnych autorów. Dane z piśmiennictwa oraz własne obserwacje wskazują na to, że stale zwiększa się liczba chorych zgłaszających się do stomatologa z powodu zaburzeń czynnościowych narządu żucia. Świadczy to o wciąż narastającym problemie zdrowotnym. Przeprowadzono analizę 3087 kart chorych leczonych w Pracowni Zaburzeń Czynnościowych AM w Lublinie w latach 1995–2004. Przeprowadzone badania oraz dane z piśmiennictwa pozwoliły sformułować wnioski: większość chorych zgłaszających się do leczenia z powodu dysfunkcji narządu żucia stanowią młode kobiety do 30 roku życia, częściej do leczenia zgłaszają się mieszkańcy miast, wśród chorych zgłaszających się do leczenia przeważają chorzy z zaawansowanymi zmianami w układzie ruchowym narządu żucia w postaci bólowego zespołu dysfunkcji. W badaniach okresowych przeprowadzanych przez lekarzy stomatologów, a także lekarzy medycyny należy zwracać uwagę na występowanie parafunkcji oraz wczesnych objawów dysfunkcji narządu żucia, konieczne jest jak najwcześniejsze zapobieganie zaburzeniom czynnościowym układu ruchowego narządu żucia, głównie poprzez zwalczanie parafunkcji narządu żucia.