

The impact of socioeconomic inequalities in the distribution of oral pathology in a disadvantaged group in Cluj Napoca, Romania

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Abstract. Objectives: This paper aims to assess dental health and its impact on disadvantaged people in the city of Cluj-Napoca, Romania. Material and Methods: This research aimed to achieve a distribution of the patients considered and treated within Sanodontaprim I-III program between 2010 and 2012, taking into account certain criteria: occupation, area of origin, level of education, reasons for dental examination, consumption of toxic agents, existing orodental pathology, dental treatments performed. The retrospective study consisted of 700 patients (men and women), as part of “Sanodontaprim” I-III program carried out by Cluj-Napoca City Hall and “Iuliu Hatieganu” University of Medicine and Pharmacy, Cluj-Napoca, between 2010 and 2012. Interventions consisted in diagnosing and treating each case. Results and main outcome measurements: Most patients (81,72%) enrolled in Sanodontaprim I-III program were those with primary and secondary education. Pain and aesthetic disorders were the main reasons for the dental exam in over three quarters (78.28%) of the patients enrolled in the program. The most common risk factors were smoking (47.72%) and dental plaque (60.86%). Dental filling (54.71%), removal of tooth calculus (60.86%) and dental extraction (51.57%) were the most common therapeutic procedures applied to patients. Conclusions: The high percentage of dental and periodontal diseases present in patients in this study reveals the importance of implementing such programs of orodental health care in socially disadvantaged groups. Due to these results, Sanodontaprim program continued with editions IV (2013-2014) and V (2014-2015).

Key Words: community dental health, disadvantaged group, oral rehabilitation needs.

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Introduction

Population health depends on social equity, which can create or solve material inequities, resulting in sociocultural inequities, which together affect the health of the individual. Disparities in access to healthcare appear as a result of at least four reasons: ethnic or racial, economic - including the direct costs borne by individuals (copayments, cost of treatment and hospitalization) and the indirect ones (transport costs, waiting time), inadequate geographical location of healthcare facilities, uneven quality of the same type of services.

The interest in the problems of disadvantaged groups has increased as the living conditions of these groups make them prone to phenomena such as unemployment, stigmatization, social exclusion, drug addiction or homelessness, which could be dimmed or completely eliminated by both state intervention and active involvement of all the members of the community. Poor health reduces the abilities of the individual, lowers the incomes, affecting quality of life and resulting in the maintenance of poverty. As a result, poor health is both a cause and a consequence of poverty.

Similar to other countries, the health system in Romania aims to promote overall health and oral health, respectively. The drawback of insufficient funds makes the access to dental services

restrictive for patients from disadvantaged social groups, the elderly and young people under the age of 18. In this context, “Iuliu Hatieganu” University of Medicine and Pharmacy in Cluj-Napoca, Romania, initiated Sanodontaprim program in partnership with the Municipality of Cluj-Napoca. It is the only program of its kind in Romania and aims to identify major oral health problems and treat them in deprived people in the City of Cluj-Napoca. Sanodontaprim program has been carried out since 2010. It is now the 5th edition covering the period between May 2014 and May 2015.

The program includes patients listed in the Department of Social Assistance (those with the minimum income, pensioners, unemployed, disabled people, people with no income). The program involves identifying the individual as belonging to the disadvantaged group, diagnosing the oral disease and treating it. Therefore this paper aims to emphasize the main orodental problems encountered in a disadvantaged group from Cluj-Napoca, Romania.

Materials and methods

The descriptive retrospective study was conducted on 700 patients (men and women), part of “Sanodontaprim I, II, III” programs carried out between 2010 and 2012. All patients included in the

Sanodontaprim program signed an informed consent for completion of all the procedures required by the undergoing program. This research was based on establishing a distribution of the patients considered and treated as part of Sanodontaprim I-III, taking into account certain criteria: gender, age (when included in the program), occupation, area of origin, level of education, reason for dental check-up, dental check-up frequency, consumption of toxic agents, existing orodental pathologies, dental treatments performed.

Results

Characteristics of the study population

The study consisted of 404 women, 57.71% of all patients in the study group, the rest being male patients. The survey revealed that the age group with the most frequent dental check-ups was the one between 51 and 60 years of age, 229 patients (32.70%). The 700 patients were classified into the following categories of activities, based on the following dimensions: occupational distribution, socioeconomic status - level of education, based on the reasons for dental check-up, based on dental check-up frequency, consumption of toxic agents, dental health problems, treatment (Table 1).

Level of education and social group affiliation

Of the total number of patients studied, only 18.82% had higher levels of education, most of them being retired (108 pensioners out of 325). The rest of the population with higher levels of education were students whose incomes were below average. Much of the population studied was represented by unemployed people with secondary education.

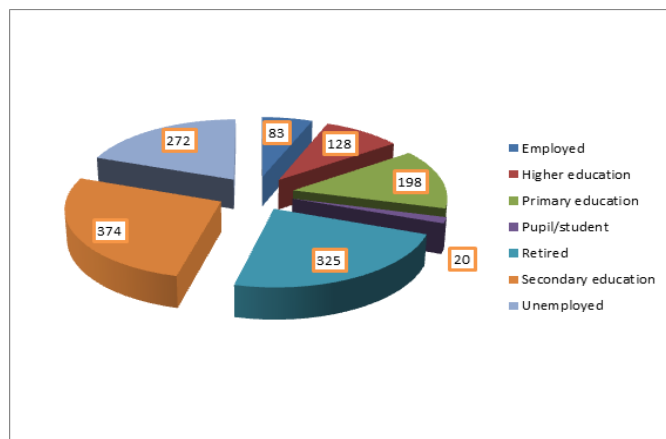


Figure 1. Occupational distribution of patients in the study group and the level of education

Distribution of patients based on the reasons for the dental check-up within Sanodontaprim program and the dental check-up frequency before enrolling in the program

Among the 700 patients in the study group, 87 declared that they have never been to the dentist before (Table 1, Figure 2).

Distribution of patients based on the consumption of toxic agents

Of the 700 patients in the study group, the following declared themselves as consumers of alcohol and tobacco (Table 1). Of the patients studied, 38.28% drink alcohol and 61.72% don't drink alcohol. Of the patients in the study, 47.72% were smokers.

Out of these, 2.44% smoke more than one pack of cigarettes per day, 17.44% a pack a day, and 28.14% smoke 1-10 cigarettes per day. There was a percentage of 52.2% non-smokers.

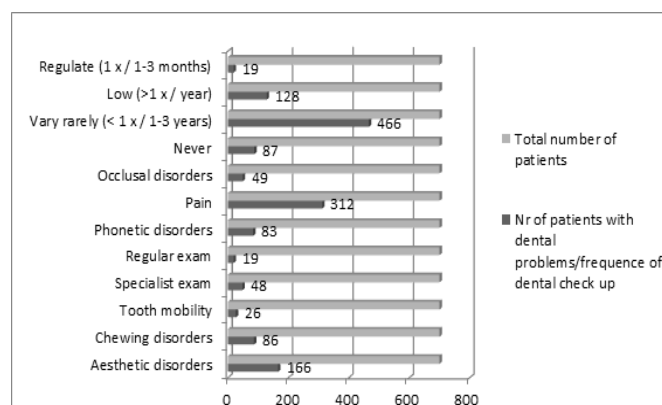


Figure 2. Distribution of patients in the study group based on dental check-up frequency and the reason for the dental check-up

Distribution of patients based on dental pathology and on the type of clinical treatment performed

The following conditions were present in the 700 patients in the study group during the dental exam. The 700 patients in the study group required the application of multiple treatments. Therefore, more treatments were carried out in a single patient (Table 1, Figure. 3)

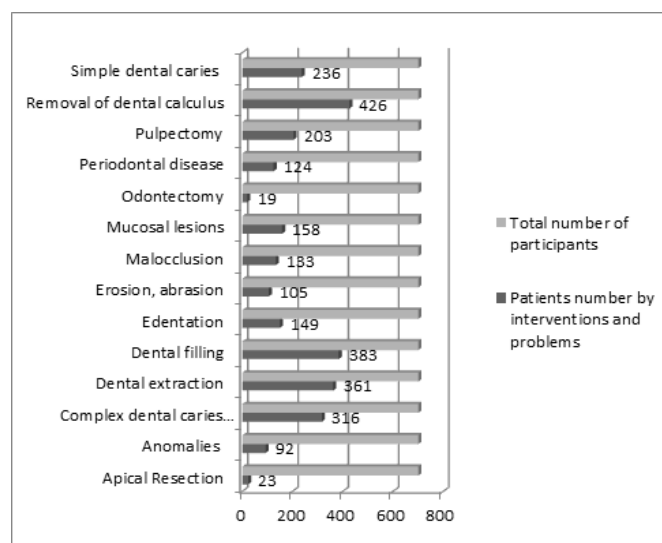


Figure 3. Distribution of patients based on dental pathology and on the type of clinical treatment performed

Discussions

Over 50% (57.71%) of patients having a dental check-up within this program were females. The difference is not large compared to males, this being attributed to certain psychological factors, a higher persistence in continuing dental treatment and a more intense concern for self-image and social interaction. Literature data are highly variable, generally indicating a higher percentage of females (Osterberg et al 1998) in terms of their request for dental services, depending on the population studied. In this study, almost half of the patients (49.71%) belonged to the age group of 41-60 years (41-50 years - 19%, 51-60 years - 32.71 %).

Table 1. Characteristics of the study population

Occupation	% in percentage	Level of education		%	Reason	%
Retired	46.42%	Higher education (University level)		18.28%	Pain	44.57%
Unemployed	38.86%	Secondary education (High school)		53.43%	Aesthetic disorders	23.71%
Employed	11.86%	Primary education (middle school)		28.29%	Phonetic disorders	11.86%
Pupil/student	2.86%				Chewing disorders	12.29%
					Occlusal disorders	7%
					Regular exam	2.71%
					Tooth mobility	3.71%
Dental check-up frequency	%	Consumption of toxic agents		%	Dental health problems	%
Never	12.43%	Alcohol	No	61.72%	Simple dental caries	33.71%
Very rarely (< 1 x / 1-3 years)	66.58%		yes	38.28%	Complex dental caries (pulpitis)	45.14%
Low (>1 x / year)	18.28%		No	52.28%	Edentation	21.28%
Regulate (1 x / 1-3 months)	2.71%	Tobacco	1-10 cigarettes/day	28.14%	Malocclusion	19%
			1 packet/day	17.14%	Erosion. abrasion	15%
			> 1 packet/day	2.44%	Periodontal disease	17.71%
					Anomalies	13.14%
					Mucosal lesions	22.57%
					Treatment	%
					Dental filling	54.71%
					Removal of dental calculus	60.86%
					Dental extraction	51.57%
					Pulpectomy	29%
					Apical Resection	3.28%

Even if it is obvious that dental health problems increase with age, the lower number of patients over the age of 61 included in this study (15%) may be due to several factors: multiple comorbidities, more difficult access to information, socioeconomic decline.

Looking at things from a psychosocial perspective, social relations are linked to oral health status at all ages. People who live alone, with fewer social relations, especially the elderly, have numerous and more serious dental diseases than socially active individuals (Avlund et al 2003). However, this is strongly correlated with psychological factors such as personality and with socioeconomic factors.

The requirement for dental care may also decrease with age due to the psychological factor, as the elderly need to be convinced about the importance of regular dental care (Tennstedt et al 1994). Age influences the type of dental pathology, edentation being more common in the elderly (in the study group, 21.28% of the patients were diagnosed with edentation). But with age, there is also a decrease in the frequency of reporting symptoms (McMillan et al 2003).

Socioeconomic factors play an important role in determining the perception of dental health (Newton et al 2000). Most patients (85.28%) were retired (46.42%) and unemployed (38.86%).

Occupational activity is a positive stimulus especially in employed people due to occupational prestige, mainly in those dealing with the public (Mundt et al 2009).

Regarding the level of education, a very similar percentage of patients (81.72%) had average and lower levels (secondary education - 53.43%, primary education - 28.29%).

The risk of not visiting a dentist in the previous year, adjusted according to age, gender and even dental condition, is higher in people with lower levels of education, income, physical and social activity, smokers (Giordani et al 2011; Osterberg et al 1998). Regardless of age, the low level of education has a negative impact on oral health-related quality of life (OHRQoL) (Tsakos et al 2009).

Even at a young age, social and ethnic inequities have a clear influence on dental pathology (Page & Thomson 2011) due to numerous factors (access to treatment, oral hygiene status, level of education of parents, etc.). From this life course perspective, it can be assumed that children from families with low socioeconomic status at an early age will also have lower access to dental services and will be more likely to develop harmful dental health behaviors later in their life (Bastos et al 2008).

Income levels and jobs with lower incomes are socio-demographic variables significantly associated with dental status

(Fischer *et al* 1998). Throughout a person's life, socio-economic deterioration is associated with an increased frequency of oral diseases (Astrøm *et al* 2011). Monthly income is also linked to the use of more expensive dental care products, of better quality and more efficient (for example, regular use of self-applied fluoride gels) (Stokes *et al* 2011).

Among the reasons determining the patients in the study group to have a dental check-up for this program, the main reason was pain in almost half of the patients (44.57% of patients).

The second reason for the consultation was represented by aesthetic disorders (23.71% of patients). In lower percentages, 11.86% of patients accused phonetic problems and 12.29% masticatory disorders.

The least common reasons for consultation were abnormal occlusion (7% of patients), professional check-up (6.86% of patients), tooth mobility (3.71% of patients) and periodic check-up (2.71% of patients).

From the patients enrolled in the study, 38.28% claimed to consume alcohol and 47.72% were smokers (1-10 cigarettes/day - 28.14% patients, 1 pack/day - 17.14% patients, >1 pack/day - 2.44% of patients).

Smoking reduces oral health-related quality of life (OHRQoL), but its perception is also related to age (middle-aged patients assess their own OHRQoL as low) (22).

Smoking causes increased frequency of dental plaque, calculus and periodontal attachment loss (Paidí *et al.*, 1999), a higher rate of edentation and increased alveolar ridge resorption (Levin & Schwartz 2005). Disease progression can be slowed down by quitting smoking.

It is well-known that alcohol and especially smoking can cause oral cavity cancer, but even if this is known by patients, they don't think that it might happen to them (Grant *et al* 2010). Smoking is a causative factor of squamous cell carcinoma (Krüskemper & Handschel 2011).

Moreover, dental treatments performed in smokers have a shorter resistance in time (for example, lower implant survival, with higher marginal bone loss) (Aglietta M *et al* 2011).

Alcoholic beverages, especially cheap ones, of poor quality, contain aromatic compounds with mutagenic and carcinogenic effects. Alcohol itself alters the permeability of oral mucosa, increasing the rate of penetration of substances from the environment. Chronic exposure to alcohol causes mucosal atrophy, reduced salivary flow, compromised liver function, associated systemic diseases and psychological problems, all of which can cause and worsen the progression of oral diseases (Rooban *et al* 2009).

Drinkers often have a low level of oral hygiene and present the risk of developing periodontal disease, oral mucosal lesions (Rooban *et al* 2009), or dental erosive lesions of reduced severity (Manarte *et al* 2009).

In the 700 patients in the study group, the dental check-up revealed the presence of the following conditions: over 75% (78.85%) of patients had dental caries (simple caries 33.71%, complicated caries (pulpitis) 45.14%), followed, in order of frequency, by edentation (21.28% of patients), malocclusion (19% of patients), erosion, abrasion (15% of patients), periodontal disease (17.71% of patients), dental and jaw abnormalities (13.14% of patients), mucosal lesions (22.57% of patients). The following treatments have been carried out in the clinic: fillings - 54.71% of patients, scaling - 60.86% of patients, extraction

- 51.57% of patients, pulpectomy - 29% of patients, resection - 3.28% of patients, and odontectomy - 2.71% of the patients.

The presence of dental diseases can cause the emergence of a complex dental pathology. Periodontal diseases particularly, dental caries and other medical and psychosocial factors increase the risk of lifelong edentation (Thorstensson & Johansson 2010). Oral health status affects overall body health. Dental diseases can cause systemic diseases.

The frequency of edentation is particularly influenced by socio-demographic factors, mainly by social class, which also determines the access to prosthetic rehabilitation treatment (McGrath & Bedi 2003; Tchicaya & Lorentz 2014). Partial and total dental prosthesis is more frequently worn by those who have higher income levels or enough money for their needs (Maupomé & MacEntee 1998).

Patients with dental caries, especially coronary caries, are more likely to have a negative impact on daily life, with a decrease in its quality (Gomes *et al* 2009).

The results discussed above are consistent with the model of sanogenesis and pathogenesis proposed by Naidoo and Wills (1978). According to this model, the link between risk and disease is determined by a number of factors including: risk conditions, risk groups, risk behaviors, increasing rate of diseases which could be prevented, risk factors.

Conclusion

Middle-aged women (40-60 years of age) represent the majority of those who use free dental care in the disadvantaged group. Most patients enrolled in Sanodontaprim program have secondary or primary education levels. Pain and aesthetic disorders were the main reasons for visiting the dentist in over three quarters of the patients enrolled in the program. An unsatisfactory level of oral hygiene was observed in more than 3/4 of the patients. The most common risk factors were smoking and dental calculus. Fillings, scaling and extraction were the most common therapeutic procedures applied to patients in the group studied. There has been an increased interest in the problems of disadvantaged groups as, due to living conditions, these groups are prone to phenomena such as unemployment, stigmatization, social marginalization, drug addiction or vagrancy, which could be dimmed or completely eliminated by both state intervention and active involvement of all community members.

The practitioner should consider the long-term implications of the treatment plan, assessing the expected therapeutic benefit: the relationship between the cost (structural, financial, emotional) and the benefit predicted for the patient.

Taking into account all the aspects presented above, the University of Medicine and Pharmacy, Cluj-Napoca, in partnership with Cluj-Napoca City Hall initiated this healthcare program within a disadvantaged social group in 2010 and due to the increased request for dental care in people included in this program, the program continues today. Such a program enhances oral health standards and improves quality of life.

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