

THE BURDEN OF ORAL DISEASE AND RISKS TO ORAL HEALTH AT GLOBAL AND REGIONAL LEVELS

Summary

The objectives of the paper are to outline the burden of oral diseases at global and regional levels and to emphasize the influence of major socio-behavioural risk factors in oral health. Despite great improvements in the oral health of populations in several countries, global problems still persist. The burden of oral disease is particularly high on the disadvantaged and poor population groups in both developing and developed countries. Oral diseases such as dental caries, periodontal disease, tooth loss, oral cavity cancer, HIV/AIDS related oral disease and oro-dental trauma are major public health problems worldwide and poor oral health has a profound effect on general health and quality of life of people at all ages. The diversity of oral diseases and patterns and development trends across countries and regions reflect distinct risk profiles and establishment of preventive oral health care programmes. The important role of socio-behavioural and environmental factors in oral health and disease are shown in a large number of socio-epidemiological surveys. In addition to poor living conditions, the major risk factors to oral health relate to unhealthy lifestyles (i.e. diet, nutrition, tobacco, alcohol, oral hygiene), and low availability and accessibility of oral health services. Several oral diseases are linked to non-communicable chronic diseases primarily because of common risk factors. Moreover, general diseases often have oral manifestations (e.g. diabetes or HIV/AIDS). Worldwide strengthening of public health intervention through implementation of integrated disease prevention measures, Primary (oral) Health Care, and health promotion is urgently needed. The challenges to oral health improvement are particularly high in developing countries.

Key words: *Dental diseases, tooth loss, oral cancer, HIV/AIDS related oral diseases, quality of life, socio-behavioural risk factors, social inequity, primary oral health care, oral health systems, public health.*

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Rezumat

POVARA AFECȚIUNII ORALE ȘI RISCUL SĂNĂTĂȚII ORALE LA NIVEL GLOBAL ȘI REGIONAL

Obiectivele lucrării țin să sublinieze importanța poverii afecțiunilor orale la nivel global și regional, cât și să indice influența majoră a factorilor de risc socio-comportamental ai sănătății orale.

În ciuda îmbunătățirii majore a sănătății orale a populației din mai multe țări, problemele globale încă persistă. Povara afecțiunilor orale este deosebit de mare pentru persoanele defavorizate și sărăce, care aparțin grupurilor de populație din țările în curs de dezvoltare și dezvoltate.

Afecțiunile orale, cum ar fi: cariile dentare, bolile parodontale, pierderea dinților, cancerul cavității orale, HIV/SIDA și traumatisme oro-dentare sunt probleme majore de sănătate publică în întreaga lume. Sănătatea orală deficitară are un efect predominant asupra stării generale de sănătate și asupra calității vieții oamenilor de toate vârstele. Diversitatea bolilor orale, a modelelor și tendințelor de dezvoltare în diferite țări și regiuni, reflectă diverse profiluri de risc, cât și stabilirea programelor de prevenție a sănătății orale.

Rolul important al factorilor socio-comportamentali și de mediu în domeniul sănătății orale este demonstrat prin numărul mare de anchete socio-epidemiologice. Pe lângă condițiile de trai precare, factorii majori de risc pentru sănătatea orală se referă la un stil de viață nesănătos (dietă, nutriție, tutun, alcool, igiena orală precară), precum și disponibilitatea redusă, și accesibilitatea serviciilor de sănătate orală. Mai multe tipuri de afecțiuni orale se atribuie bolilor netransmisibile cronice, în primul rând, datorită

factorilor de risc comuni. Mai mult decât atât, boli generale au adesea manifestări orale (de exemplu: diabet zaharat sau HIV/SIDA). Este necesară consolidarea de urgență, la nivel mondial, a intervenției sănătății publice prin aplicarea măsurilor de prevenire a afecțiunilor orale și îngrijirea primară a sănătății orale, dar și promovarea sănătății. Provocările pentru îmbunătățirea stării de sănătate orală sunt vizibile în țările în curs de dezvoltare.

Cuvinte cheie: *Boli dentare, pierderea dinților, cancer oral, HIV/SIDA, calitatea vieții, factorii de risc socio-comportamentali, inechitatea socială, îngrijire primară a sănătății orale, sănătate publică.*

Introduction

Despite great improvements in the oral health of populations in several countries, global problems still persist. Oral disease conditions such as dental caries (tooth decay), periodontal disease (gum disease), tooth loss, oral cavity cancers, HIV/AIDS related oral disease and oro-dental trauma are major public health problems around the world. Poor oral health may be a profound effect on general health. The experience of pain and discomfort from the mouth, problems with eating, chewing, smiling and communication due to missing, discoloured or damaged teeth have a major impact on people's daily lives and wellbeing. Furthermore, oral diseases restrict activities in school, at work, and at home causing millions of school and work hours to be lost each year the world over.

The objectives of the present paper are to describe the oral disease burden at global and regional levels and to highlight the influence of major socio-behavioural risk factors related to oral health. Sources of information are the World Health Organization (WHO) Global Oral Health Data Bank [20], including scientific reports from population studies carried out in various countries. In the majority of these countries, the WHO standard survey methods for clinical registration of oral disease conditions are applied for obtaining quality data [21]; calibration trials are conducted for effective control of inter-examiner variability. Country data are updated regularly for oral health surveillance and appropriate public health intervention. In addition, WHO has developed research tools for oral health questionnaires relevant to analyses of social determinants in oral health [21].

Social determinants

The current global and regional patterns of oral disease essentially reflect risk profiles which relates to living conditions, lifestyles and existence of oral health systems. The significant role of structural, socio-behavioural and environmental factors in oral disease and health is shown in a large number of epidemiological surveys. Predominantly, surveys of dental diseases have been carried out in both developed

and developing countries and these studies indicate that many people around the globe suffer from pain or discomfort from tooth decay and periodontal disease. Diseases of teeth and mouth affect people of all ages and for both developing and developed countries the disease prevalence is particularly high amongst the poor or disadvantaged population groups.

In Belarus, Moldova and other CIS there are not sufficient data on differences in dental caries prevalence between people with different incomes. Meanwhile, the dental caries level among children living in nursery houses is lower than in children living with parents. In countries of Eastern Europe as well as in West European countries, WHO global studies on dentate status document that complete loss of natural teeth is more prevalent among adults with low education than among adults with high education. Particularly, differences in numbers of edentulous people are found at old age [11].

A core group of modifiable risk factors is common to many chronic diseases and injuries. Oral diseases have risk factors in common with the four most prominent non-communicable diseases, i.e. cardiovascular diseases, diabetes, cancer and chronic obstructive pulmonary diseases. The key risk factors relate to unhealthy lifestyles (e.g. diet, nutrition, tobacco, and alcohol). Diet rich in sugars is significant risk factor to dental caries and other chronic diseases and tobacco use and excessive consumption of alcohol are causal factors in development of periodontal disease and oral cancer. The strong correlation between several oral diseases and other chronic diseases is primarily a result of the common risk factors that tend to cluster in underprivileged population groups. Meanwhile, general disease conditions also have oral manifestations (e.g. HIV/AIDS) and oral disease may prompt general disease, as is the case with severe periodontal disease and diabetes.

The burden of dental caries

Dental caries and periodontal disease are historically considered the most important components of the global oral disease burden. Dental caries is still a major health problem in most industrialized countries as the disease affects 60-90% of school-aged children and the vast majority of adults [20]. At present, the distribution and severity of dental caries vary in different parts of the world and within the same region or country. **Fig. 1.** illustrates the dental caries experience levels (severity) of permanent teeth of children aged 12 years, as measured by the Decayed, Missing due to caries and Filled Teeth index (DMFT). The DMFT >4.4 designates high amount of dental caries, DMFT 2.7-4.4 is moderate level, DMFT 1.2-2.6 is low, while DMFT less than 1.2 indicates countries with low level of dental caries. Thus, the disease level in children is relatively high in the American and European regions whereas it is less common or less severe in the African region [20].

In CIS countries, Central and East Europe the prevalence of dental caries is varying from DMFT 2.0 in Georgia to DMFT 6.9 in Macedonia. **Fig. 2** provides in-

formation from dental caries epidemiology based on reports from the years 2013—2016 and illustrate that the mean DMFT of 12-year-children in these countries was 3.4, which is more than the WHO Global Goal by the year 2000. Thus, there are unsolved problems of dental caries prevention even in countries in Europe Region.

Fig. 3 illustrates the time trends in dental caries experience of 12-year-old children in developing and developed countries. In most developing countries, dental caries severity levels have been low until recent years while now dental caries prevalence rates and dental caries experience tend to increase rapidly. This is particularly due to the undergoing transition of nutrition and the growing consumption of sugars, unhealthy lifestyles, limited regular dental care, and inadequate exposure to fluoride. In contrast, a caries decline among children has been observed in most industrialized countries over the past 30 years or so. This new pattern is considered a response to a number of public health measures, including school oral health programmes, effective use of fluoride, and improved self-care practices, coupled with changing living conditions and adoption of healthy lifestyles.

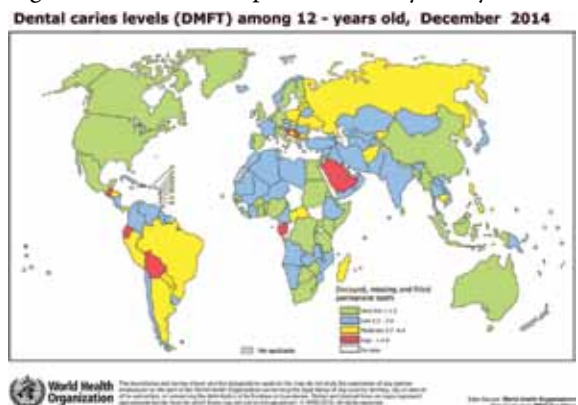


Fig. 1. Dental caries levels in countries as expressed by the mean number of Decayed, Missing due to caries, and Filled Teeth (DMFT) of 12 year old children around the globe [20]

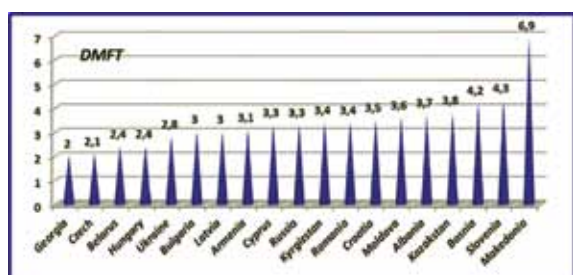


Fig. 2. DMFT of 12 yrs. in CIS and East Europe as published in 2013—2016. References:

- Albania — Hysi D. et al., 2014; Armenia — Manrikjan M.E., 2013;
- Belarus — Tserekhiva T.N. и др., 2015; Bulgaria — Katrova L., 2014;
- Bosnia — Markovic N. et al., 2013; Hungary — Madlena M. 2014;
- Georgia — Sgan-Cohen H.D., et al., 2014; Kzakstan — Ordabaeva J.O., 2012; Cyprus — Korun S. et al., 2014; Kyrgistan — Cholokova G.S., 2014; Ltvia — Senakola E., 2014; Makedonia — Nikolovska J., 2014; Moldova — Spinei A., 2014; Russia — Leous P.A., 2016;
- Romania (11-13 yrs.) — Baciu D. et al., 2015; Slovenia- Dianiskova S., 2014; Ukraine — Marino B. et al., 2012; Croatia — Petricevic N., 2014; Czech — Broukal Z. et al., 2014

Dental caries trends in 12-year-olds

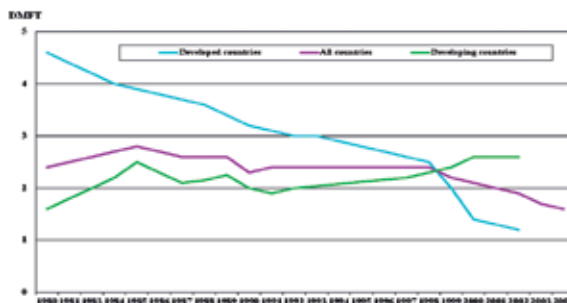


Fig. 3. Changing levels of dental caries experience (DMFT) among 12-year-olds in developed and developing countries [20]

Across the world, the occurrence of dental caries is high among adults as the disease affects nearly 100% of the population in the majority of countries. *Fig. 4* outlines the experience of dental caries *in the World* at age 35-44 years, as measured by the mean DMFT index. Most industrialized countries and some countries of Latin America still show high DMFT values (i.e. 14 teeth or more) while at present the amount of dental caries is low in the developing countries of Africa and Asia.

In concrete figures of the recent publications, *Fig. 5* illustrates DMFT of people 35-44 yrs of age in selected countries of the world and shows differences in caries disease prevalence. A very low caries is observed in China and Thailand, a very high — in Denmark and Hungary. As it known, oral care in Denmark is one of best in the world [12]. Obviously, the economic level of country has no the direct effect on oral health of the population but first reduces the needs for dental care. As shown in *Fig. 6*, older people of the European region disclose high scores of dental caries; this is primarily ascribed to the high levels of teeth missing due to dental caries [11]. In the Africa region facilities for dental care is seldom available, however it is important to note that the DMFT in 65+ people is extraordinary low. In several industrialized countries older people often have had their teeth extracted early in life because of painful severe tooth decay and limited access to dental care. The proportion of adults aged 65 years or more with complete tooth loss is still prominent in high income countries but during recent years middle income countries show the uppermost scores of complete tooth loss. *Fig. 7* illustrates the recent data on apparent differences in edentulism among older people in countries with different economic levels and oral care systems. In middle income countries tooth decay has grown dramatically and tooth extraction has become frequent due to shortage of dentists and the high cost of restorative dental care. In contrast, many industrialized countries demonstrate a continuous reduction of tooth loss among older people [11]. The improvement of dentate status is particularly found in Scandinavian countries with advanced oral health services oriented towards prevention and health promotion. The case of Denmark [12] illustrates such positive trend towards elimination of tooth loss and more people now preserve a functional dentition consisting of 20 teeth or

more. Worth noting however, the prominent social inequality in dentate status persists over time.



Fig. 4 Dental caries levels in countries as expressed by the mean number of Decayed, Missing due to caries, and Filled Teeth (DMFT) of 35-44-year-olds around the globe [20]

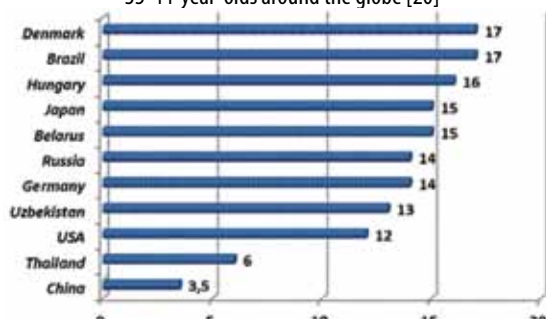


Fig. 5. DMFT of 35-44 olds in selected countries according to recent publications 2009 — 2015. References: Brazil, Denmark, Hungary, China, Thailand, USA, Japan — Petersen P.E., 2014; Belarus -Yudina N.A., 2013; Germany — Schiffner U. et al., 2009; Russia, — Kuzmina E.M., 2009; Uzbekistan — Bekjanova O.E. et al., 2015

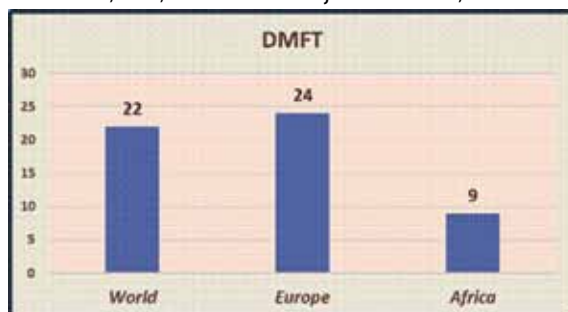


Fig. 6. Prevalence of dental caries (mean DMFT) among people 65 yrs. and older [11]

Periodontal health

Premature loss of teeth may also be caused by poor periodontal health. Severe periodontitis is found in 5-20% of young adults around the world [13]. There are even more differences in prevalence of the less severe symptoms of periodontal disease. For example, in the East European region, Belarus and Russia reports the prevalence of periodontal disease symptoms among 15-year-old children was as 98.8% and 41% accordingly, and the intensity was 5.1 and 1.4 sextants [22, 23]. Apparently, a similar diversity exists when observing the number of healthy sextants (CPITN=0) in 15-year-old children in Germany (7%) and France (45%) [6]; low percentage of adolescents with gum bleeding in Chisinau (Moldova) [16]. Variations might

occur due to lack of appropriate clinical calibration of examiners and absent (in most sites in CIS) a special CPI periodontal probe. In the last edition of the OHS methods (WHO-2013) there are recommendation of the modification of the CPI index. Using these methods, within the international project, the large prevalence of gum bleeding was noted among 12 — and 15 — year -old children in 13 localities of six countries (Table 1). These data may indicate that in a global perspective many children and adolescents have signs of gingivitis. Symptoms of periodontal disease are highly prevalent among older adults within all regions [13].



Fig. 7. Percentage of elderly edentulous by publications 2012—2015: **1** — Belarus, Yudina N. et al., 2013; **2** — Russia, Khamadeeva A.M., 2016; **3** — Sweden (av. 88.3 yrs.) — Hansson L.T., 2014; **4** — Iran (65 yrs.+) — Hessari H. et al., 2015; **5** — Germany — Schiffner U. et al., 2009; **6** — Turkey (65 yrs.+) — Guciz Dogan B. et al., 2015; **7** — France (64-104 yrs., av. 82.5) — Radoi L. et al., 2015; **8** — Island, Agustsdottir H. et al., 2010; **9** — Japan (av. 81.1 yrs.), Iwasaki M. et al., 2015; **10** — Greece (65 yrs.+), Damaskinos H., 2014; **11** — Romania (av. 76 yrs.) — Zusman S.P. et al., 2015

Tab. 1. Percentage of 12-15 — year — old children with gums bleeding in 13 localities of six CIS countries [8]

Locality	Age (yrs)	n	Gum bleeding	Researchers	Date
Bishkek	12	100	39%	A.Kalbaev	2013
<i>Kirgizstan</i>	15	100	49%		
Chisinau	12	100	7%	I. Lupan et al.	2015
<i>Moldova</i>	15	100	15%		
Erevan	12	100	38%	M.Manrikjan	2013
<i>Armenia</i>	15	100	44%		
Kirov	12	250	32%	A. Sinicina	2016*
<i>Russia</i>	15	250	42%		
Carpineni	12	100	31%	A.Spinei	2013
<i>Moldova</i>	15	100	59%		
Lvov	12	100	21%	N.Smoljar et al.	2013
<i>Ukraine</i>	15	100	25%		
Minsk	12	269	14%	A.Omelchenko	2013
<i>Belarus</i>	12	60	20%		
Moscow	12	100	41%	I.Kiselnikova et al.	2013
<i>Russia</i>	15	100	37%		
Novosibirsk	12	150	12%	A.Narikova	2013
<i>Russia</i>	15	150	22%		
Odessa	12	50	44%	O.Denga., D.Kosenko	2013
<i>Ukraine</i>	15	50	74%		
Omsk	12	100	61%	G.Skripkina	2016*
<i>Russia</i>	15	100	74%		
Samara	12	102	63%	A.Khamadeeva et al.	2013
<i>Russia</i>	15	100	70%		
St.-Petersburg	12	348	58%	A.Satigo	2014
<i>Russia</i>	15	353	59%		

Note: *in press

Oral cancer

The prevalence of oral cavity cancer is particularly high among men, the eighth most common cancer worldwide [14]. In south-central Asia, cancer of the oral cavity ranks among the three most common types of cancer. In India, the age standardized incidence rate (ASR) of oral cancer is 12.6 per 100 000 population. In this region the frequent occurrence of oral cancer particularly relates to consumption of smokeless tobacco such as betel quid, areca or pan. It is noteworthy that sharp increases in the incidence rate of oral cancers have been reported for several high income countries and regions such as Denmark, France, Germany, Scotland, central and eastern European and to a lesser extent Australia, Japan, New Zealand and the USA. Oral cavity cancer is high among underprivileged population groups reflecting a high level of tobacco use and excessive alcohol consumption in these population groups.

Oral health in HIV/AIDS

A number of studies have demonstrated the negative impact on oral health of HIV infection. Approximately 40-50% of HIV positive persons are reported to have oral fungal, bacterial or viral infections often occurring early in the course of the disease. Oral lesions strongly associated with HIV infection are pseudo-membranous oral candidiasis, oral hairy leukoplakia, HIV gingivitis and periodontitis, Kaposi sarcoma, and non-Hodgkin lymphoma. Dry mouth as a result of decreased salivary flow rate may not only increase the risk of dental caries but negatively impact quality of life because of difficulty in chewing, swallowing and tasting food. The need for oral health care in terms of immediate care and referral, treatment of manifest oral disease, prevention and health promotion is predominant among the underserved, disadvantaged population groups of developing countries, including HIV-infected people. In Belarus, people suffering from oral symptoms of HIV infection rarely attend a dentist.

Oro-dental trauma

In contrast to dental caries and periodontal disease, reliable data on the frequency and severity of oro-dental trauma are still lacking in most countries, largely in developing countries. Some countries in Latin America report dental trauma in about 15% of schoolchildren, while prevalence rates of 5-12% are found in children aged 6-12 years in the Middle East. Furthermore, studies from certain industrialized countries reveal that the prevalence of dental traumatic injuries is on the increase, ranging from 16% to 40% among 6-year-old children and in 4-33% among 12-14-year-old children [1]. A significant proportion of dental trauma relates to sports, unsafe playgrounds or schools, road accidents or violence.

Dental erosion

Dental erosion is the progressive, irreversible loss of dental hard tissue that is chemically etched away from the tooth surface by extrinsic and/or intrinsic acids. Dental erosion appears to be a growing global problem, affecting 6-50% among 2-5 year-olds and about 10% of youth and adults [17]. The increasing levels are presumably due to the escalating consumption of sugary

drinks and acidic beverages. Worldwide, there is a need for more systematic population-based studies on the prevalence of dental erosion using a standard index of measurement. The prevalence of dental erosion (K03.2) was detected at 3.2% [7] among medical students (18-22 yrs. old) in Moscow medical stomatological institute in 1971. In modern population studies, the prevalence dental erosion is much higher, but in several reports, diagnoses made for dental erosion are not clear. For example, in Belarus, the prevalence of DDE among 15-24-yrs. people in 1998 was 74% [9], but defects of teeth were found only in 23% of surveyed older people [2]. In Russia, so called "non-carious teeth" were diseases observed in 41.7% of 15-year-old children [5].

Developmental disorders

Congenital diseases of the enamel or dentine of teeth, problems related to the number, size and shape of teeth, and craniofacial birth defects such as cleft lip and/or palate (CL/P) are important components of the oral disease burden. The incidence of CL/P varies tremendously worldwide. Native Americans show the highest incidence rates at 3.74 per 1000 live births, while a fairly uniform incidence of 1:600 to 1:700 live births are reported among Europeans [19]. The incidence rates appear high among Asians (0.82 — 4.04 per 1000 live births), intermediate in Caucasians (0.9 — 2.69 per 1000 live births) and low in Africans (0.18 — 1.67 per 1000 live births). The causes of CL/P are complex involving multiple genetic and environmental risk factors. Risk factors such as folic acid deficiency, maternal smoking and maternal age have particularly been implicated in the formation of clefts.

Malocclusion is not a disease but rather a set of dental deviations which in some cases can influence quality of life. Estimates of different traits of malocclusion are available from a number of countries, primarily in northern Europe and North America. For example, prevalence rates of dento-facial anomalies are reported at about 10%, according to the Dental Aesthetic Index. Other conditions that may lead to special health care needs include Down syndrome, cerebral palsy, learning and developmental disabilities, and genetic and hereditary disorders with orofacial defects.

There is no consistent evidence of time trends in development disorders, nor is there consistent variation by socio-economic status, but these aspects have not been adequately studied [19]. In addition, there are many parts of the world in which there is little or no information available on the frequency of developmental disorders, in particular parts of Africa, central Asia, Latin America, the Middle East and Eastern Europe.

Fluorosis of teeth

Enamel fluorosis develops during formation of teeth when children are young. Drinking water with more than 1.5 ppm (parts per million) of fluoride can give rise to enamel defects and discolouration of teeth leading to endemic fluorosis in the population. These may differ in intensity from mild to severe. For example, in the Great Rift Valley area of East Africa and in some parts of India and north Thailand, the groundwater has very high

levels of fluoride. In such areas, enamel fluorosis may be found in the majority of people. Fluorosis of teeth can also occur in individuals in developed countries due to widespread use of certain forms of fluorides for prevention of dental caries, although the degree of fluorosis is mostly very mild when compared to endemic fluorosis. A number of areas of endemic fluorosis exist in Moldova, Russia and Ukraine [4, 5, 16]. In epidemiological studies conducted in certain localities of Russia, it was reported that fluoride concentration in drinking water were more than 0.5 mg/l, and the prevalence of mild fluorosis in 12-15-year-old children was 25-27% [5]. There is no endemic fluorosis in Belarus, only rare cases recorded among dental patients.

Oral health care

Treatment of oral disease is extremely costly to the individual and the society. In many high income countries 5-10% of public health expenditure relates to oral health. Importantly, savings in dental expenditures and lower prevalence of oral disease are noted for countries having invested in disease prevention. Traditionally, the burden of oral disease has been tackled in high income countries by establishment of treatment-oriented oral health systems. Systems are based on demand for oral health care which is offered to patients by private dental practitioners; worth noting is also that certain countries have introduced third-party payment schemes. Public health services exist only in a few high income countries and they are particularly providing oral health care to children and disadvantaged population groups.

Policy for oral health and economic investment in health care are given low priority in low and middle-income countries. If services are available, resources are primarily allocated to emergency oral care. Among people suffering from severe tooth decay, either teeth are left untreated or they are extracted to relieve pain or discomfort. According to WHO, it is a human right that people suffering from poor oral health would be served by Primary oral Health Care for ensuring quality of life. However, in low and middle income countries substantial proportions of the population are not covered by primary health care. There is critical shortage of dentists and other oral health personnel, especially in rural areas. Care for oral disease is mostly offered from regional or central hospitals of urban centres. Hence, primary health care workers specially trained in oral health and other ancillary staff may assist in early detection of illness or disease and provide essential care.

The shortage of health personnel is just one reason of the low coverage in oral health care observed in developing countries. The high cost of care is another important factor which imposes a heavy barrier in use of services to many poor people. The huge differences in oral health care between countries and within countries are primarily due to unfair financial systems [3]. Among older people with expressed need for care because of symptoms or problems from teeth or mouth, the oral health coverage is substantially lower in low-income countries compared with the situation in high-income countries. Moreover, low-income countries

demonstrate a remarkable difference in oral health care between urban and rural people while such difference is not observable in high-income countries.

In Western Europe, the dental attendance rate among older people (65-74 years) varies from 69.7% in the Netherlands to 96.1% in Germany; in parallel in Central and Eastern Europe, the receiving of dental care varies from 33.2% in Georgia to 85.4% in the Czech Republic [3]. In both sections of the region, significant inequalities by education and income exist due to the strong effect of social determinants. Recent studies in twenty localities of 8 CIS countries have shown a large variety of dental attendance percentage among school-age children: from 50% to 99%, about 75% in average [8, 10, 16, 18]. An obvious effect of the social determinants on the use of oral health care for children in that region was not documented yet.

Conclusion

Given the extent of the problem, oral diseases are major public health problems in all regions of the world. Their impact on individuals and communities as a result of pain and suffering, impairment of function and reduced quality of life, is considerable. Globally, the greatest burden of oral diseases is on the disadvantaged and poor population groups. The current pattern of oral disease reflects distinct risk profiles across countries related to living conditions, lifestyles and environmental factors, and the existence or lack of oral health systems. ***In 2007, the WHO World Health Assembly Resolution WHA60.17 established a global action plan for oral health which emphasizes the incorporation of oral disease prevention and health promotion into national public health programmes.*** The statement underlines the relevance of applying the common risk factors approach. Primary oral Health Care is urgently needed particularly in low and middle income countries. Importantly, the universal social inequity in oral health should be addressed effectively through the establishment of financially fair essential care.

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