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Oral health among children in the Barents region

Study on determinants of oral health, their oral health related quality of life and quality of dental care

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A dissertation for the degree of
Philosophiae Doctor

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Every tooth in a man's head is more valuable than a diamond.

Miguel de Cervantes,
Don Quixote, 1605.

Table of Contents

ACKNOWLEDGEMENTS

LIST OF ABBREVIATIONS

ANOVA – One Way Analysis of Variance

BEAC –The Barents Euro-Arctic Council

BEAR –The Barents Euro-Arctic Region

CECDO – The Council of European Chief Dental Officers

CPQ11-14 – Child Perceptions Questionnaire

CI – Confidence Interval

DMFT/S – Number of Decayed, Missing, and Filled permanent Teeth/Surfaces

EU – European Union

GDP – Gross Domestic Product

GNP – Gross National Product

GRP – Gross Regional Product

HDI – Human Development Index

IOTN – Index for Orthodontic Treatment Need

OECD- Organisation for Economic Co-operation and Development

OR – Odds Ratio

OHRQoL – Oral Health Related Quality of Life

OHI-S – Oral Hygiene Index-Simplified

PDS – Public Dental Service

SiC – Significant Caries Index

SPSS – Statistical Package for Social Sciences

UNDPI– National Human Development Report in the Russian Federation

WHO – World Health Organisation

LIST OF PAPERS

I. **Koposova N**, Widström E, Eisemann M, Koposov R, Eriksen HM. (2010). Oral health and quality of life in Norwegian and Russian school children: a pilot study. *Stomatologija: Baltic Dental and Maxillofacial Journal*, 12, 10-16.

II. **Koposova N,** Eriksen HM, Widström E., Handegård BH, Pastbin M, Koposov R. (2012). Caries prevalence and determinants among 12-year-olds in North-West Russia and Northern Norway. Submitted to the *Stomatologija: Baltic Dental and Maxillofacial Journal.*

III. **Koposova N,** Eriksen HM, Widström E, Eisemann M, Opravin A, Koposov R. (2012). Oral health-related quality of life among 12-year olds in Northern Norway and North-West Russia. *Oral Health and Dental Management.* 11, 206-214.

IV. Widström E, **Koposova N,** Nordengen R, Bergdahl M, Eriksen HM, Fabrikant E. (2010). Oral health care and dental treatment needs in the Barents region. *International Journal of Circumpolar Health*, 69, 486-499.

1. ABSTRACT

In most industrialised countries, children's and adolescents' oral health has improved during the past 15 years. This is especially the case in the Nordic and Western European countries. The aim of the present series of studies was to assess the dental status, its determinants and oral health related quality of life in 12-year olds children from two regions in the Barents area, in Northern Norway and in North-West Russia. One study also analysed the oral health care provision systems and their performance in all countries in the Barents region.

Four studies based on three data sets were undertaken. A pilot study comprising of questionnaires to 12-year olds children and their parents and a clinical examination of the children was undertaken in Severodvinsk (n=70) and in Tromsø (n=78) in 2009. A new clinical study, modified according to the findings of the pilot study, was conducted during 2010-2011 on 590 children in Arkhangelsk and 246 in Tromsø. Participants were selected using a stratified cluster sample procedure. Clinical examinations used methods recommended by the WHO. Both the children and their parents filled in questionnaires about determinants of dental caries and perceived oral health related quality of life of the children. The participation rate was 87% in Russia and 47% in Norway. Conventional statistical methods were used in the analyses. For the fourth study, the data were collected from national and local reports, supplemented by questions to local experts and chief dentists. Comparative case studies were provided.

The results revealed that the mean DMFT and DMFS-scores were significantly higher in schoolchildren in Arkhangelsk (respectively 3.0 and 4.4) than in Tromsø (1.2 and 1.5, $p<0.001$). Half of the Norwegian (52%) but only 16% of the Russian children were caries free and the Norwegian children also had better oral hygiene than the Russian ones. Most parents in Russia (65%) and a third (31%) of the Norwegian parents were dissatisfied with the school dental service. The strongest predictor of bad oral health among the study subjects was being of Russian origin; both the questions put to the children (OR=3.8) and to the parents (OR=2.4) were consistent with this. Other strong predictors were (from questions to children) the child having had filling therapy during the latest dental visit (OR=5.0) and (from questions to parents) the parent having had problems with teeth during the last two years (OR=1.8) Most Russian 12-year-olds were found to be less satisfied with their oral health compared with the Norwegians and the oral health related quality of life (CPQ_{11-14}) overall score was 9.9 for the Norwegian and 19.5 for the Russian children ($p <0.001$).

In all countries, except Sweden, the mean 12-year-olds DMFT values were higher in the Barents region than in the more central parts of each country. Furthermore, fewer resources were available for dental care. The study revealed a great need for preventive efforts in dental care especially in the Russian parts of the Barents area.

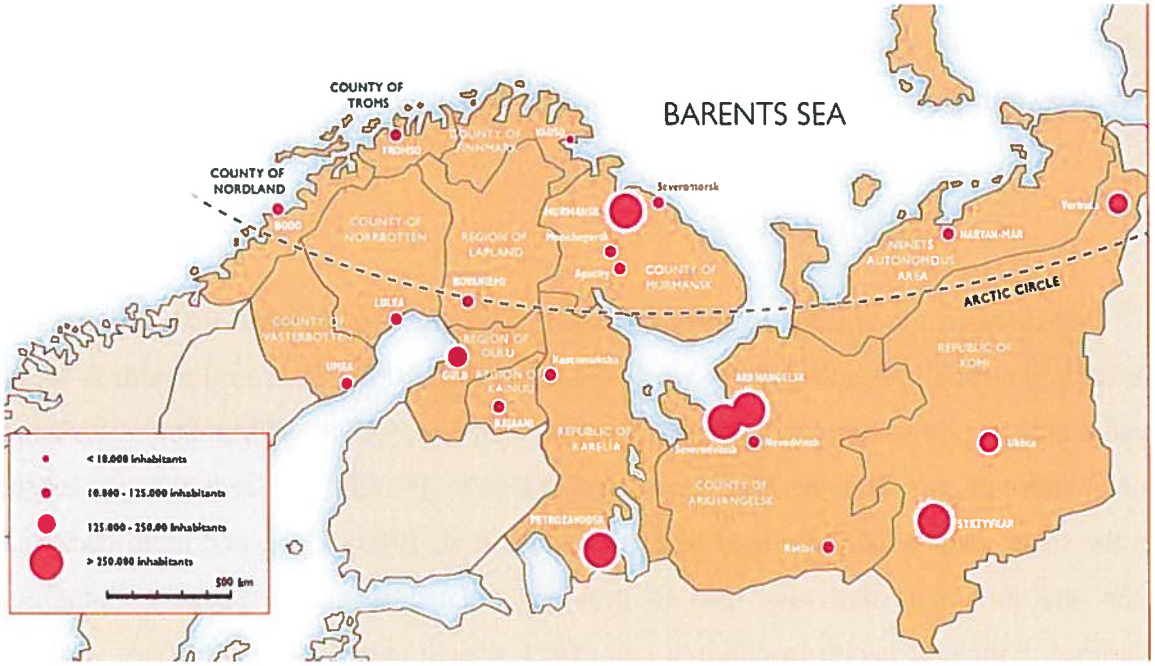
2. INTRODUCTION

Oral diseases are among the most common of all chronic ailments, making dental health an important public health priority worldwide (Petersen 2005). Poor oral health is in itself a health problem, impacting on a person's overall health and quality of life. Oral disorders are a major cause of pain (Reisine 1985) and can also lead to disability and reduced life satisfaction in the same way as other kinds of diseases (Shaw et al. 1980). Untreated tooth decay causes pain and infections that may lead to problems related to eating, speaking, playing and learning. Poor oral health in children can affect growth and school attendance, can lead to medical complications of untreated disease and results in poor social outcomes including psychological, emotional and learning problems. There are no previous studies on the impact of oral health on the quality of a child's life in the Barents region.

1.1. The Barents Euro-Arctic Region (BEAR)

In a geographical context, the northernmost areas of Norway, Sweden, Finland and Russia (the Barents Euro-Arctic Region, BEAR) make up Europe's largest region for inter-regional cooperation (Figure 1). The region is characterised by harsh climatic conditions, a vulnerable environment and long distances that challenge people, businesses and authorities. To develop the region economically and socially, intergovernmental cooperation in the region was established, and the Barents Euro-Arctic Council was formalized in the early 1990s. The region is also included in the Northern Dimension EU collaboration, which aims to strengthen co-operation among the EU member states, the Nordic countries associated with the EU under the European Economic Area (Norway and Iceland) and Russia. In this cooperation, health has been mentioned as one of the areas to be developed (http://www.beac.st/?DeptID=8556).

Figure 1. The Barents Euro-Arctic Region (http://www.barentsinfo.fi/barentsmap.htm).



The goal of the Barents Euro-Arctic Council (BEAC), which was established for better Nordic cooperation and cooperation with the EU, is to promote sustainable economic and social development in the Barents Region and thus contribute to peaceful development in the northernmost part of Europe. BEAC is a forum for promoting interregional contacts in the northernmost parts of Norway, Russia, Finland and Sweden with the objective of working together to facilitate the development of the Barents Region. The Barents Cooperation promotes, first of all, people-to-people contacts and economic development and creates good conditions for interregional exchange in many different fields; e.g., culture, indigenous peoples, education, youth, trade, information, environment, health and transport (http://www.beac.st/in_English/Barents_Euro-Arctic_Council.iw3).

Of the countries constituting the BEAR, Norway and Russia have probably the strongest cooperation in different areas where the cooperation in health and social fields plays an important role. For this and many other reasons, the background and focus of the present study will be on these two BEAR regions – Northern Norway and North-West Russia.

1.1.1. Demography and standard of living

The BEAR region has a total area of 1.75 million persons per km², a population of 5.5 million and population density in the whole area of 3.5 inhabitants per km². There are 13 provinces or territories in the BEAR region. In Norway, these are Nordland, Troms and

Finnmark counties, with a total estimated population of 460,000 in 2009. The Russian BEAR area consists of Arkhangelsk and Murmansk counties, the Republics of Karelia and Komi, and the Nenets Autonomous Area, with a total population of about 3,800,000 according to 2010 estimates.

Northern Norway, located at the very northern periphery of Europe, represents about one third of Norway by area. Nineteen per cent of the inhabitants are between 0–14 years, 66% between 15–64 years and 16% are older than 65 years. The population has steadily increased during recent decades. This is the converse of the situation in Russia, where the North-West part is under the threat of depopulation. Since the year 2000, the population in the Russian part of the Barents region decreased by 462,000 persons or by almost 11%. The negative demographic statistics are not only a result of a high mortality rate and low birth rate but also due to people moving from the regions with harsh weather conditions (Barents Observer 2011). According to the annual demographic report from the Russian Federal Service of State Statistics (http://www.gks.ru/wps/wcm/connect/rosstat/rosstatsite/main), the Russian territories of the Barents region had 31,000 inhabitants less than one year earlier at the beginning of 2010.

When assessing the standard of living in Norway and Russia, the Human Development Index (HDI) may be used. The HDI is a composite statistic used to rank countries by level of human development, considered a synonym for the older term "standard of living" or "quality of life", and distinguishes between "very high human development", "high human development", "medium human development", and "low human development" countries. HDI was devised and launched in 1990 (McGillivray 1991) and presents the comparative measure of life expectancy, literacy, education, and standard of living for countries worldwide. It is a standard means of measuring well-being, especially child welfare. It is used to characterise to what extent the country is developed, developing or under-developed and also to measure the impact of economic policies on quality of life. In 2010, the Arctic Human Development Report II was released (Larsen 2010) with HDI values calculated based on estimates for 2010. According to this report, Norway was ranked first while Russia was placed in the 66th position. Norway has held the first place in this ranking since 1999, demonstrating regularly increasing standard of living of the population and a strongly integrated welfare system.

1.1.2. Economy

Historically and in spite of enormous natural resources, the Barents region has been less economically and educationally developed and has had higher unemployment rate than the southern and central parts of the host countries (Välkky et al. 2008). The main economic activities in the Barents region countries are activities related to oil and natural gas, forestry and wood processing, pulp and paper production, shipbuilding and maintenance, coal mining, electricity generation and fishing (Duhaime and Caron 2009).

Norway has a developed mixed economy with heavy state ownership in strategic areas of the economy. Although sensitive to global business cycles, the economy of Norway has shown robust growth since the start of the industrial era. Shipping has long been a support of Norway's export sector, but much of Norway's economic growth has been supported by an abundance of natural resources, including petroleum exploration and production and hydroelectric power. Agriculture and traditional heavy manufacturing have suffered a relative decline compared with services and the oil-related industries and the public sector is among the largest in the world as a proportion of overall Gross Domestic Product (GDP). In addition to the oil and gas industries, Norway is also the world's second largest exporter of fish (in value, after China) (Ministry of Foreign Affairs 2011).

Norway (after Luxembourg) has the world's second highest GDP per capita. Continued oil and gas exports, coupled with a healthy economy and substantial accumulated wealth, supports the conclusion that Norway will remain among the richest countries in the world in the foreseeable future. Foreign Policy Magazine ranks Norway last in its Failed States Index for 2009, judging Norway to be the world's best-functioning and most stable country. Norway has a very low unemployment rate, currently 3.1% (Norwaypost.no 2010). Thirty per cent of the labour force is employed by the government, the highest rate in the Organization for Economic Co-operation and Development (OECD). The counties used NOK 582 per person to provide public dental health care. In 2011, the total expenditure for the 19 counties for organizing the public dental care was approximately NOK 2.9 billion, which is an increase by NOK 152 million from 2010 (Statistics Norway 2012) (Figure 2). The gross expenditure in private dental health care continues also to increase. From 2010 to 2011, the gross expenditure increased by 6.6 per cent (from NOK 9.322 billion to NOK 9.939 billion) (Statistics Norway 2012).

The average economic growth in Russia in the past years has been very high with an estimated annual 7.2 per cent growth rate. The magnitude of the Russian Gross Domestic

Product (GDP) recently has been mostly related to the export of natural resources (oil and gas). According to the 2012 estimates, the inflation rate was 3.7 per cent and the unemployment rate in Russia was last reported to be 6.5 per cent in March 2012 (http://www.tradingeconomics.com/russia/unemployment-rate). Despite some general improvement in the economic situation, the level of investments in the main capital still remains at a low level compared with the prosperous previous years. Like other parts of North-West Russia, the Arkhangelsk region could not avoid a strong drop in Gross Regional Product during the crisis period 2008-2009, when the GRP decreased by almost 12 per cent in the Arkhangelsk region. At the same time, already at the end of the 2010, the Arkhangelsk region had experienced the highest economic growth of the Russian BEAR regions (Barents Observer 2011). According to the regional Ministry of Economic Development, the GRP of the Arkhangelsk region grew by 11% in 2010 (www.dvinainform.ru).

1.1.3. General and oral health services – manpower and organisation

At present, with a total population of around 5 million, Norway represents a wealthy and stable market economy with well-developed democratic and judicial systems. The concept of common access to health care in Norway derives from the idea that all citizens are entitled to care on equal terms and that care should be provided according to needs. In addition, there is a considerable governmental participation at both central and local level in the delivery of education, health services, social services and also oral health care (Hausen, Seppä and Fejerskov 1994; Holst 1997).

Most dentists in Norway work in the private sector. Nineteen county councils are responsible for planning and organising public dental services. Historically, the Public Dental Service (PDS) was first established in the north of Norway in 1947, because of a shortage of dentists, and for a period the PDS was responsible for the whole population there. Today, dental care in the PDS is restricted to children and special needs groups and most adults are expected to use and pay for private services. The PDS offers free treatment for children up to 19 years of age but parents have to contribute to the cost of orthodontic care.

In Russia, the health sector presents a major challenge to social welfare, mostly due to misdirected reforms in the past decade after the perestroika, which resulted in inefficient allocation of resources at the regional level and inequities across and within the regions regarding health care. The most distant regions were obtaining fewer resources compared with the central regions (Men et al. 2003) and consequently general and oral health care has

not improved in the Russian part of the Barents Euro-Arctic Region (BEAR), compared with the more central areas of Russia (Leon et al. 2009). North-West Russia presents the most challenging region in the Barents regions compared with the Nordic parts (Shishkin and Vlasov 2009; Widström et al. 2010) because of lower living standard and quality of life, persistent health problems related to bad health habits (e.g., high alcohol consumption) and high mortality rates (Men et al. 2003; Leon et al. 2009). In addition, North-West Russia has more inhabitants per dentist than Northern Norway in the Barents region (1.387 in Russia vs. 1.298 in Norway), which makes it more difficult to provide oral health care to all people in need of dental care (Table 1).

Table 1. Population, number of active dentists or stomatologists and dental doctors by treatment sector, numbers of dental hygienists, dental technicians and inhabitants per dentist or dental technician ratios by country/territory and host country in the Barents region.

Country	Region or province	Inhabitants	Registered, working-aged dentists or stomatologists and dental doctors, n	Year	Working in public dental service n	Working in public dental service %	Registered dental hygienists n	Registered dental technicians n	Inhabitants per dentist	Inhabitants per technician
Norway	Nordland county	235,380	182	2008	65	36	53	24	1,293	9,808
	Troms county	155,553	125	2008	57	46	61	13	1,244	11,966
	Finnmark county	72,492	50	2008	33	66	29	2	1,449	36,246
	Total	463,425	357	2008	155	43	143	39	1,298	11,882
	All Norway	4,800,000	3,804	2008	987	26	755	577	1,262	8,318
Sweden	Västerbotten county	257,582	173	2009	93	54	49	90	1,489	2,862
	Norrbotten county	249,677	162	2009	128	79	88	42	1,541	5,945
	Total	507,259	335	2009	221	66	137	132	1,514	3,842
	All Sweden	9,256,347	8,409	2007	4,300	51	4	900	1,101	10,284
Finland	Lapland	183,963	122	2008	82	67	48	18	1,508	10,220
	Oulu	469,104	327	2008	206	63	237	64	1,435	7,330
	Total	653, 067	449	2008	288	64	285	82	1,454	7,964
	All Finland	5,326,314	4,140	2008	2,060	50	2,006	841	1,287	6,333
Russia †	Murmansk oblast	892,534	No data	2009	No data	No data	No data	No data	No data	No data
	Republic of Karelia	716,281	384	2009	264	69	4	47	1,865	15,240
	Arkhangelsk oblast	1,185,414	865	2008/ 2011	583	67	0	140	1,370	9,547
	Republic of Komi	889,837	769	2011	499	64	4	119	1,157	8,560
	Nenets autonomic area	42,642	24	2011	15	62,5	0	3	1,776	14,008
	Total (without Murmansk oblast)	2,834,174	2,042	2011	1,358	65,5	8	309	1,387	10,076
	All Russia	142,000,000	81,400	2004	67,200	83	200	19	1,744	7,358

Source: Widström et al. 2010.

† *Information from Russia was updated in 2011.*

Russian national capacity and resources – human, financial and material – are still insufficient to ensure availability of and access to essential health services of high quality for individuals and populations, especially in the rural areas (WHO 2010). Most oral health care is provided in policlinics or departments of general medical clinics staffed by publicly salaried stomatologists (the term officially used in Russia for a dentist) and located close to the patients' residences, schools or workplaces. In principle, Russian health care is free of charge, but the adequacy of treatment increasingly depends upon payment provided by individual patients. Meanwhile, people in deprived communities, certain ethnic minorities, homeless people, homebound or disabled individuals and the elderly are not sufficiently covered by oral health care. By law, all adults have the right to care in the public dental service. Treatment offered varies from region to region but usually includes emergency oral surgery, restorative and some prosthetic treatment. Private oral health care has become more usual and qualitatively better but is expensive. There is also a general tendency to provide oral health services mostly from regional or central hospitals of urban centres and little priority is given to preventive care. Oral health programs do not cover many of the children since the schools dental services formerly offered in Russia have now mostly been discontinued. Until the 1990s, school-based dental units played an important role in the prevention and treatment of dental diseases among children. During the transition period, reduced financial state support resulted in closure of approximately 40% of the school clinics, which limited the continuity of preventive programs (Leontyev 2005).

1.2. Oral diseases

1.2.1. Dental caries among 12-year olds

One of the most significant time trends observed in studies assessing oral health conditions is the remarkable decrease in the prevalence of dental caries all over the world, in particular among children and adolescents during the past decades (Whelton 2004; Pitts et al. 2005). Reasons for the improvement include use of fluoride toothpastes, topical fluorides, sealants, improvements in diet, oral health education and dental care (Bagramian et al. 2009).

Data collected to assess the oral health status of various populations demonstrate that there is still high caries incidence in the eastern parts of Europe (Table 2).

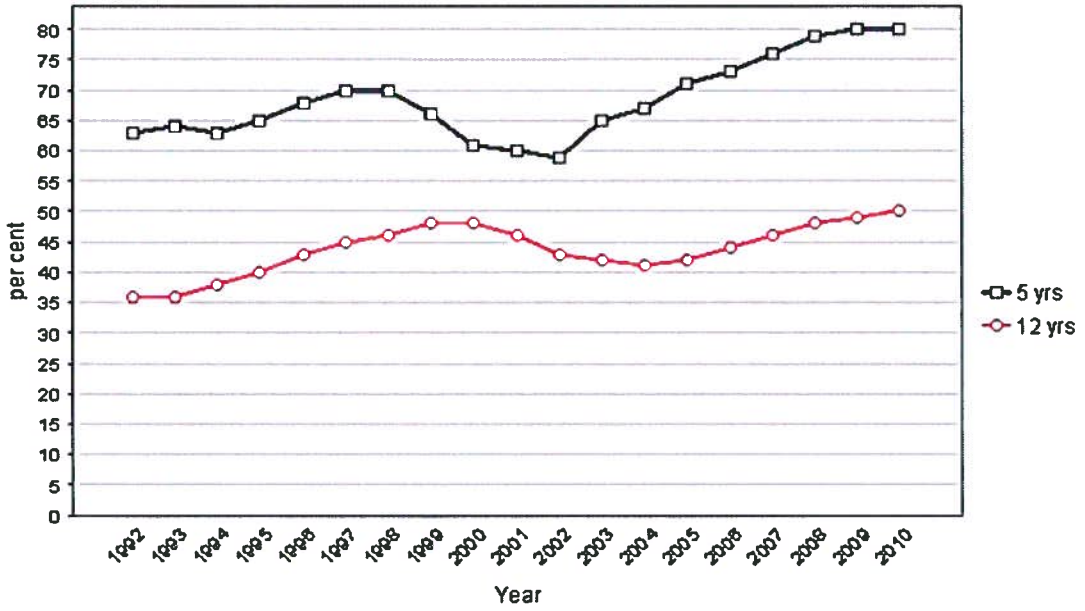
Table 2. Countries that have not achieved the WHO Goal for 2000 of a DMFT index less than 3.0 in 12-year olds.

Region/Country	DMFT	Year
Europe		
Bosnia and Herzegovina	8.6	1998
Bulgaria	4.2	1998
Croatia	3.5	1999
Czech Republic	3.4	1998
Hungary	3.8	1996
Latvia	4.2	1998
Former Yugoslav Republic of Macedonia	3.6	1996
Poland	4.1	1999
Russian Federation	3.7	1995
Slovakia	4.3	1999
Eastern Mediterranean		
Jordan	3.3	1995
The Americas		
Bolivia	4.7	1995
Brazil	3.1	1996
Chile	4.1	1996
Costa Rica	4.8	1996
Dominican Republic	4.4	1997
Honduras	3.7	1997
Panama	3.6	1997
Western Pacific		
Republic of Korea	3.1	1995
Philippines	4.6	1998
Tokelau	4.8	1999

Sources: World Health Organization 2001; Moynihan & Petersen 2004.

Characteristic for the Western European countries is low figures for dental caries (Marthaler 1995; Skudutyte-Rysstad et al. 2009; Rooney et al. 2010); this applies particularly in the Nordic countries (Petersen 2003; https://www.cecdo.org). Over the last 30 years, there has been a significant improvement in dental health in Norway (Statistics Norway 2012). More children and young people have no or little dental decay (Figure 2).

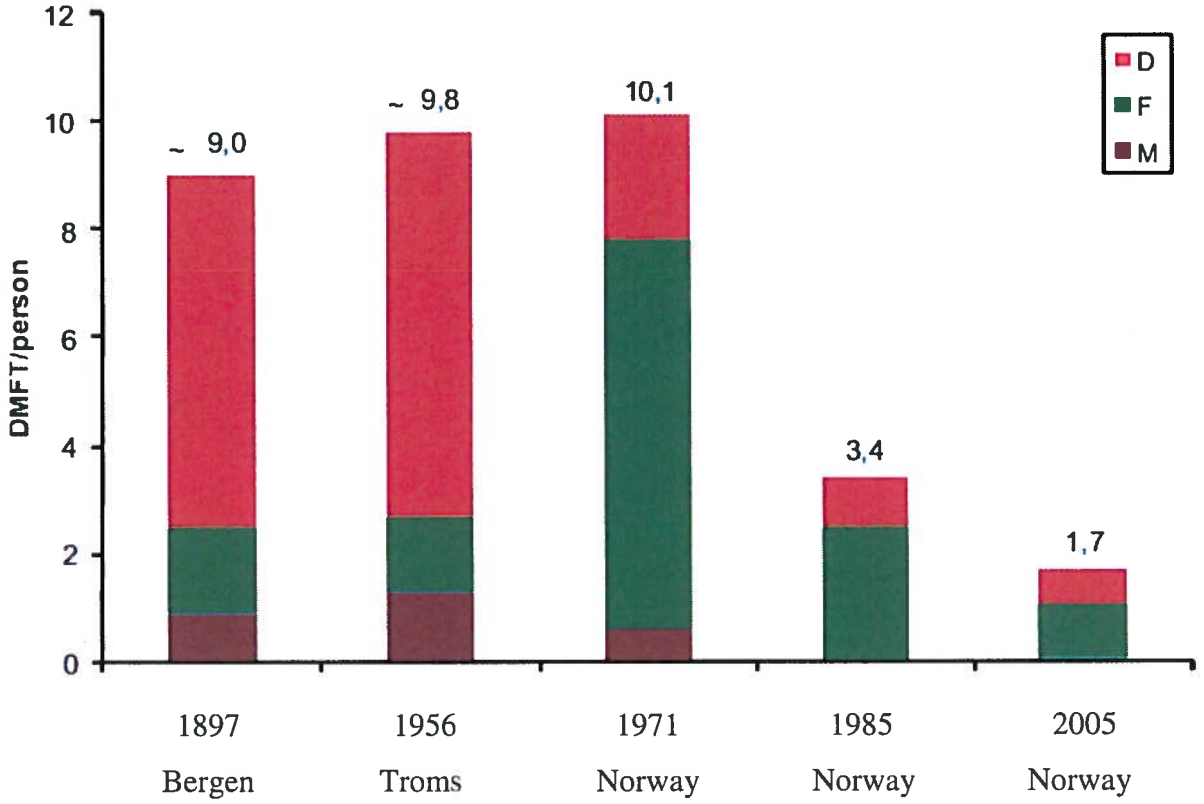
Figure 2. Proportions of 5 and 12-year olds with healthy, completely caries-free teeth in Norway in 1992-2010.



Source: Statistics Norway 2012.

The improvement in dental health is also indicated by the fact that those who have caries experience have fewer affected teeth. While dental caries experience among 12-year olds was very high in Northern Norway 55 years ago (DMFT=10 in 1955) (Haugejorden and Birkeland 2006), the DMFT-score decreased considerably to approximately 3.4 in 1985 and further to 1.7 in 2005 (Figure 3).

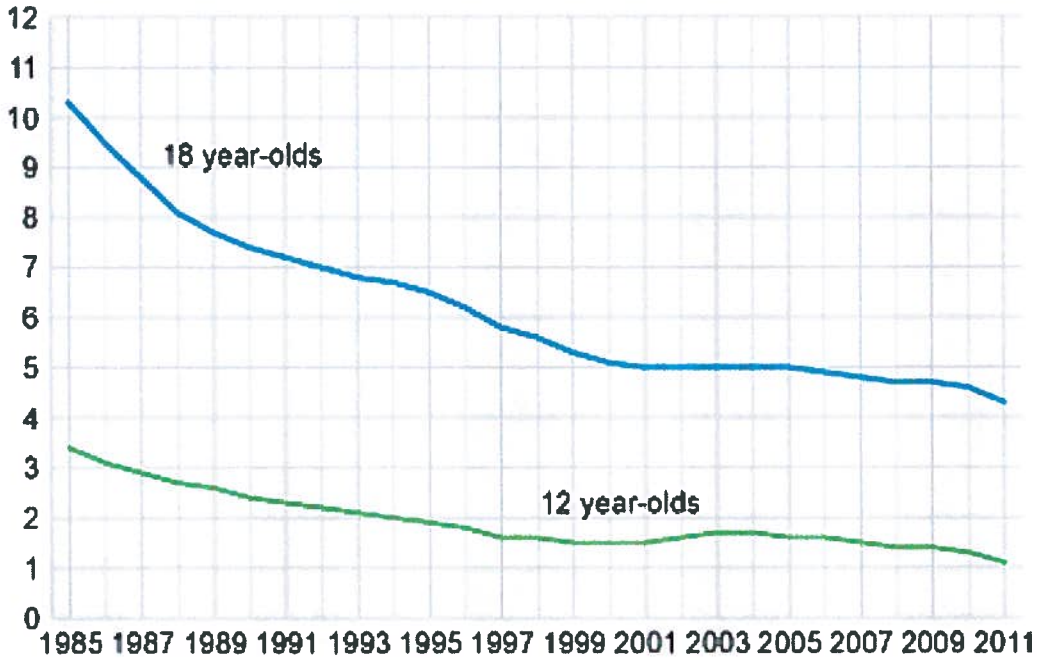
Figure 3. Caries status at tooth level in 12-year olds in Norway sorted by year and place of study.



Source: Haugejorden and Birkeland 2006.

According to Norwegian national statistics (Statistics Norway 2012), the average number of teeth with caries experience among 12- and 18-year olds continued to decrease between 2010 and 2011 and it can be expected that the average number of teeth with caries will continue to fall (Figure 4). There are still differences between the counties for 12- and 18-year olds.

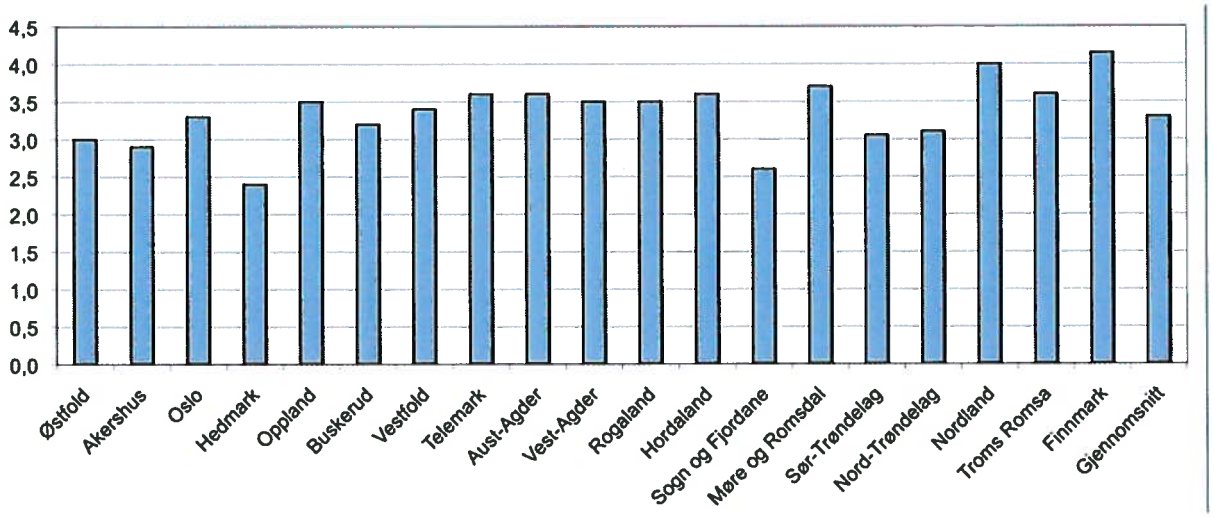
Figure 4. Average number of teeth with caries experience among 12- and 18-year olds. 1985-2011.



Source: Statistics Norway 2012.

Level of dental caries also varies depending on county. Oslo had the lowest proportion of 5-year olds with completely cavity-free teeth in 2010. Among 12-year olds, northern counties of the country (Finnmark, Troms and Nordland) had the lowest proportion, 37% had cavity-free teeth compared with the country average of 55 % (Statistics Norway 2012). In 2008, the 18-year olds from Finnmark had on average of 6.5 teeth with caries experience, while 18 year-olds in Oslo had four affected teeth. Geographical differences in health status are also applicable for children with very high level of caries (DMFT>9) (Wilberg 2012). Particularly the Significant Caries Index (SiC) is higher among the 12-year olds from Northern Norway than in the rest of the country, demonstrating inferior oral health (Figure 5).

Figure 5. The average number of teeth with caries experience in the third of 12-year olds in Norway with the most caries (SiC-index) by county in 2010 (Nordland, Troms and Finnmark are in the Barents region).



Source: Statistics Norway 2012.

Note: "Gjennomsnitt" means average in Norwegian.

Dental caries among children in Russia is still very common (Kuzmina et al. 2009; Gorbatova et al. 2010) and figures on caries prevalence are considerably higher than those in the neighbouring Nordic countries. Results from a national study conducted in 2009 (Kuzmina et al. 2009) involving 13,023 12-year olds from 47 different regions, indicated a caries prevalence of 73% (Table 3). In the Arkhangelsk region, the level of caries prevalence among 12-year olds was even higher than the Russian average, estimated to be 84% (Kuzmina et al. 2009).

Table 3. Caries prevalence and experience of the Russian population in different age groups.

Age	Caries prevalence	Caries experience			
		D	F	M	DMFT
6	13 %	0.15	0.08	0.00	0.23
12	73 %	1.17	1.30	0.04	2.51
15	82 %	1.57	2.15	0.09	3.81
35-44	99 %	3.13	6.02	4.78	13.93
65 >	100 %	1.72	2.77	18.26	22.75

Source: Kuzmina et al. 2009.

The mean DMFT-index value among 12-year olds is higher among children from North-West Russia than the national average level, DMFT 3.3 versus 2.5 (Kuzmina et al. 2009). When comparing the caries prevalence between the Russian cities, caries prevalence is higher in the cities in the northern parts than in the central or southern parts of Russia (Table 4).

Table 4. Caries experience (DMFT) among 12-year olds in 12 Russian cities.

Year	Moscow (CE)	Novosibirsk (WS)	Nizhny Novgorod (CE)	Ekaterinburg (U)	Syktyvkar (NE)	Rostov-na-Donu (SE)	Chita (FE)	Petrozavodsk (NE)	Perm (U)	Murmansk (NE)	Arkhangelsk (NE)
2008	2.5	2.2	1.4	2.0	3.5	1.7	3.2	2.9	2.3	3.0	3.5

Source: Kuzmina et al. 2009.

NE –North European region (North-West Russia), CE - Central European region,

WS – West Siberian region, U – Ural region,

SE - South European region, FE – Far East region.

1.2.2. Dental caries and socio-demographic and behavioural determinants

Oral health promotion has been defined by WHO as "any planned effort to build healthy public policies, create supportive environments, strengthen community action, develop personal skills or reorient health services in the pursuit of oral health goals" (WHO 2010). Obviously, a number of factors at various levels must interlink and complement each other to understand and facilitate this task. Research plays a role in recognizing the influence of different factors on oral health and disclosing determinants of bad or good oral health. Traditionally, biological and dietary factors have been considered as the major determinants of dental caries in a bio-medical context (Gustafsson et al. 1954; Keyes and Fitzgerald 1962). Gradually, a broader framework has emerged, emphasising the additional importance of socio-economic, constitutional, behavioural and attitude-related factors including oral hygiene and inappropriate eating habits (van Loveren and Duggal 2004). Previous research has demonstrated that besides ethnicity (Bedi 1995), the child's sex and the parents' educational level (Verrips et al. 1993; Tagliaferro et al. 2008), place of origin and non-western parents

(Wigen et al. 2010; Christensen et al. 2010) seem to be associated with the prevalence of dental caries. A similar influence from social factors has been documented in many countries (Sundby and Petersen 2003; Locker and Gibson 2006; Wigen and Wang 2010). The reasons for disparities in oral health are complex and manifold and in many instances, socioeconomic factors play a decisive role (Taani 2002; Hamasha et al. 2006). Earlier studies have documented that for people living in developing or transitional countries, the oral health situation is severe (Kuzmina et al. 2009) with a high prevalence of dental caries that has significant impacts on the general population's health and level of well-being (Brennan et al. 2006).

1.2.3. Oral health and quality of life

Oral diseases are progressive and cumulative and if untreated become more complex over time (Locker and Gibson 2006, Jones et al. 2006). They can affect one's ability to eat, the type of food chosen, appearance and communication (Llewellyn and Warnakulasuriya 2003). This burden of disease restricts children's activities at school and at home and often significantly compromises their quality of life. Previous studies have demonstrated the relationship between a child's oral health and perceived quality of life, presenting data on the consequences of poor oral health and altered appearance on speech, eating and other functions (Humphris et al. 2005). Among other impacts of oral conditions on child's social function are limitations in verbal and nonverbal communication and quality of social interaction (Nuttall et al. 2006). Children with facial disfigurement due to craniofacial diseases and conditions and their treatments can experience lowered self-image and self-esteem, anxiety and social stigma. These factors in turn may limit educational opportunities and affect social relations (Carson and Freeman 2001; Finlayson et al. 2005). Reduced oral health-related quality of life is also found to be associated with poor clinical status and reduced access to care (Jokovic et al. 2005; Nuttall et al. 2006). Those who suffer from inferior oral health are found among the poor of all ages, leaving poor children particularly vulnerable (Mullally 2002), especially in developing countries (Obraztsov 2006; Antunes et al. 2006). Also, children who are medically compromised or who have disabilities are at greater risk of oral diseases, which in turn further jeopardizes their health (Hallberg et al. 2004; Slayton 2005). Other studies (Almas et al. 2003, Gherunpong et al. 2004) have established that such aspects as bad breath and bleeding gums interfere with students' perceptions of health and well-being. Research suggested that age (Kruger et al. 2005), social class (Dugmore and Rock 2005; Hamasha et al. 2006; Maes et al.

2006) and clinical status (Borutta et al. 2006) may be important variables in understanding the individual's perceptions of oral health status.

Previous studies have noted that, for people living in developing or transitioning countries, the oral health situation is severe (Taani 2002; Hamasha et al. 2006). In some communities, up to 86% of children at the age of six years have dental caries (Petersen and Esheng 1998), a figure that is often reflected in the broader population and it has an impact on the general population's health and level of well-being (Brennan et al. 2006). Among other major sources of decreased quality of life is oral-facial pain as a symptom of untreated dental and oral problems, which may be associated with sleep problems, depression and other adverse psychosocial outcomes (Nuttall et al. 2006). Cultural values also influence oral health and well-being and can play an important role in utilisation of health care practices and in perpetuating acceptable oral health and good quality of life (Skeie et al. 2006).

Assuming that both individual, cultural and socio-economic factors as well as the oral health care system may explain differences in oral health, perception of oral health and oral health-related quality of life, we considered it of interest to evaluate the child's oral health and to study the child's perceived oral health-related quality of life in a cross-cultural context, i.e. in the Russian and Norwegian parts of the Barents region. Results might be of relevance both for detecting individuals at risk of oral diseases and for planning appropriate preventive strategies and improving dental care.

2. AIMS OF THE STUDY

2.1. Purpose of the study and research questions

The study aimed to assess oral health in 12-year-old children, representing two areas in the Barents Region: Arkhangelsk in North-West Russia and Tromsø in Northern Norway. The study specifically focused on studying dental caries prevalence, oral hygiene and self-assessed aesthetic appearance. Attention was placed on exploring the association between oral health problems and their possible determinants explaining variation in oral health. The relationships between oral health and self-perceived oral health-related quality of life were explicitly investigated in an attempt to assess the determinants of quality of life among children. The study also aimed to investigate the organisation and delivery of oral health services in all the countries of the Barents regions and differences between them.

2.1.1. Research questions

PAPER I. Oral health and quality of life in Norwegian and Russian schoolchildren: a pilot study

The study aimed to investigate the oral health status and to assess the association between oral health and selected determinants in a limited sample of 12-year olds and their parents in Northern Norway and North-West Russia. Furthermore, the study aimed to assess possible relationships between dental caries and oral health-related quality of life. This pilot study also aimed to test the feasibility of methods and to generate hypotheses concerning oral health conditions to be tested in a more comprehensive oral health survey (Paper II and III).

PAPER II. Caries prevalence and determinants among 12-year-olds in North-West Russia and Northern Norway

The study focused on a more extensive sample of 12-year old children and their parents representing two areas in the Barents region assessing oral health and its relationship with oral health-related factors preliminary tested in the pilot study (Paper I). The study aimed particularly to explore the association between dental caries and possible determinants including biological, behavioural and socio-economic variables that might explain variations in oral health.

PAPER III. Oral health-related quality of life among 12-year olds in Northern Norway and North-West Russia

The study aimed to evaluate the self-perceived oral health-related quality of life in 12-year olds from two selected cities in the Barents region, Tromsø in Norway and Arkhangelsk in Russia. Results from the pilot study (Paper I) found an overall higher frequency of dissatisfaction related to standard of living and oral heath related quality of life-aspects in general among the Russian compared with the Norwegian participants. It was therefore considered of interest to study whether oral health had an independent effect on self-perceived oral health-related quality of life in the Barents Region or whether it is influenced mainly by socio-demographic and behavioural factors.

PAPER IV. Oral health care and dental treatmentneeds in the Barents region

This exploratory investigation focused on information available from regional reports, local dental administrators and chief dentists from the Barents region aiming to assess how

oral health care delivery was organised. The aim was to determine to what extent the care provision systems differed in the Barents region. In particular, the study investigated the use of dental services in relation to dental treatment needs and the role played by the public and private sectors.

3. MATERIALS AND METHODS

3.1. Selection of the study samples

PAPER I, the pilot study

Material for the pilot study (Paper I) was collected in 2009 in Severodvinsk (201,550 inhabitants), which is a neighbour town to Arkhangelsk (Russia) and in Tromsø (Norway). Two schools in Severodvinsk, representing the North-West Russian region and two schools from Tromsø area, representing the Northern Norwegian region, were selected using a stratified cluster sampling procedure. Two classes from each school were invited and subjects with written consent from their parents were included in the study. The sample size was 48 children from Russia (N=70, 70% attendance rate) and 36 from Norway (N=78, 46% attendance rate) and their parents/caregivers.

PAPER II and III, the main study

The main part of the study was carried out in two cities in the Barents region, Tromsø, Northern Norway and Arkhangelsk in North-West Russia. Data collection was performed in 2009-2010. The population in Tromsø was 65,000 inhabitants including 815 12-year olds in 2009. In Arkhangelsk, which is the capital city of the Arkhangelsk region, the number of inhabitants was 356,000 and the number of 12-year olds estimated at approximately 5,000.

When planning the sample collection in the main study, power calculation was performed originally based on the detected caries prevalence of 84% in Arkhangelsk (Kuzmina et al. 2009) and 47.5% in Tromsø (Den offentlige tannhelsetjeneste, 2009) with 90% power (β=0.10) and precision of 0.05 (α=0.05) yielding a sample size of approximately 300 from Arkhangelsk and 50 from Tromsø. In order to allow for multivariate analyses, unknown variations in quality of life and an expectedly higher number of non-attenders in Tromsø than in Arkhangelsk (Koposova et al. 2010), the final samples were 590 Russian and 264 Norwegian 12-year olds.

Sampling was performed according to a stratified one-stage cluster design. Children were selected from 15 of a total of 56 schools in Arkhangelsk and 7 schools of a total of 20 in Tromsø, proportionally presenting different districts of both cities. The first level of sampling occurred with the school class as the primary sampling unit. Subsequently, all pupils in the appropriate age group were included in the study. This procedure was chosen in order to secure representativeness because a random sampling of 12-year olds in the Arkhangelsk region was considered difficult due to lack of updated local statistics (Widström et al. 2010). Because only subjects who had written consent from their parents were included in the study, the final sample consisted of 514 12-year olds from Russia (87% attendance rate) and 124 subjects from Norway (47% attendance rate). Most responding parents were mothers, 90% in Arkhangelsk and 86% in Tromsø.

PAPER IV

Information on the provision of oral health care in the Barents region was collected from national reports and, when needed, based on information provided by national and local administrators and experts. Performance of the care provision systems was evaluated using a comparative case study method and cross-case analyses to identify generalizable features in accessibility and use of dental services and treatment needs between countries and within countries, contrasting the Barents region with the rest of the country. Access was used as a broad concept and measured as service availability, numbers of dental personnel, placement of dental schools, financing of the services and reimbursement of patient costs. Data on oral health were used to indicate treatment needs rather than outcomes of care. Information on various aspects of access to and use of dental services (e.g. having visited a dentist, stomatologist, dental doctor or dental hygienist during a year) and on oral health (mean DMFT values and proportions of caries free 12-year olds and edentulous adults) was collected predominantly from national statistics, government reports and national publications. This was supplemented by requests sent to local chief dental managers in the Barents provinces or territories by e-mail, regular mail or telephone during autumn 2009 and spring 2010. National data were validated by cross checking with older data or other available national reports and also by contacting authorities, university teachers and professional organizations by phone calls and e-mails to resolve ambiguous information.

3.2. Methods (PAPERS I, II, III and IV)

To fulfil the aims of the study, the work included clinical examination (children), use of self-reports (children and parents) and review of national statistics, governmental reports and scientific reports as data sources for description and performance of oral health care provision systems in the Barents countries.

3.2.1. Clinical assessment (PAPERS I, II and III)

Caries was assessed using the DMFT/S index system according to the criteria of the World Health Organisation (WHO 1997) (clinical form Appendix 1). Caries registration was conducted with the surface as the unit of measurement. Two trained and calibrated examiners examined the children in the classroom or nurse's office of the schools by using a sterile disposable instrument kit (mouth mirror and probe) and gloves under optimal artificial light. The usual infection-control protocols were followed. Dental caries was diagnosed at caries into dentine (D3) threshold, using a visual method without radiography or compressed air. Surfaces were given a code according to status: decayed (D), missing (M) and filled (F), then the DMFT/S indexes were calculated. The data were registered on individual charts.

Inter-examiner reproducibility was tested and the kappa value found to be 0.85. Intra-examiner reproducibility tests were not performed due to restrictions expressed by the Regional Ethical Committee in Tromsø.

Oral hygiene was assessed using the *Simplified Oral Hygiene Index (OHI-S)* (Greene and Vermillion 1964) for categorising children into three levels of oral hygiene (poor, moderate and good). The six surfaces examined for the OHI-S are selected from four posterior and two anterior teeth. The OHI-S comprised the Debris Index and the Calculus Index. Each of these indices, in turn, is based on numerical determinations representing the amount of debris or calculus found on the preselected tooth surfaces. The following criteria are used for classifying calculus: 0 - no calculus present; 1 - supragingival calculus covering not more than one third of the exposed tooth surface; 2 - supragingival calculus covering more than 1/3 but not more than 2/3 of the exposed tooth surface or the presence of individual spots of subgingival calculus around the cervical portion of the tooth or both, and 3 - supragingival calculus covering more than 2/3 of the exposed tooth surface or a continuous heavy band of subgingival calculus around the cervical portion of the tooth or both. The criteria for classifying debris are: 0 - no debris or stain present; 1 - soft debris covering not more than one third of the tooth surface, or presence of extrinsic stains without other debris regardless of surface area covered; 2 - soft debris covering more than one third, but not more than two

thirds, of the exposed tooth surface; and 3 - soft debris covering more than two thirds of the exposed tooth surface. After the scores for debris and calculus are recorded, the index values are calculated. The average individual debris and calculus scores are combined to obtain the *Simplified Oral Hygiene Index* (clinical form Appendix 1).

Aesthetic appearance was assessed using the *Index of Orthodontic Treatment Need (IOTN)* - a clinical ranking of malocclusion in terms of self-perceived aesthetic impairment (Brook & Shaw 1989) which consist of a scale of ten colour photographs showing different levels of dental attractiveness. Grade 1 represent the most and grade 10 the least attractive arrangements of teeth. The score reflects the aesthetic impairment (clinical form Appendix 1 and 2).

3.2.2. Self-reports

Socio-demographic and behavioural variables related to oral health conditions were collected both from parents and children using questionnaires developed for the purpose. The questionnaires were constructed primarily based on similar forms used in the Oslo-investigations (Skudutyte-Rysstad et al. 2009) (parents) and World Health Survey (children) (Ramm, Wedde and Bævre 2003) and adapted to local conditions. The questionnaires were tested in the pilot study (Paper I) and applied with slight adjustments in the main studies (Papers II and III).

A questionnaire completed by the parents included information on socio-economic status, parents' oral health and health behaviours, evaluation of the child's oral health and attitudes to oral health (self-report form Appendix 3). For the purpose of statistical analysis, the parents' variables were dichotomised in the following way:

- Parents' education was assessed by asking parents about the highest level of education obtained with answers dichotomized on low (less than 12 years) and high (12 years or more).
- Parents' oral health and oral health behaviours were recorded by including questions on oral health conditions dichotomized as good/very good and moderate/bad/very bad; dental attendance was categorised as regular (once a year) or irregular (less than once a year) visits; other parameters were oral health problems in the last 2 years (yes or no), adequate help obtained during last visit to the dentist (yes or no), number of own teeth present (fewer than 25 teeth or 25 teeth or more) and kind of treatment obtained at last visit to the dentist (filling or no filling).

- Parents' evaluation of child's oral health was recorded by including information on parents' dichotomous ranking of their child's oral health (good/very good or poor) and parent's satisfaction with oral care provided by the school dental service (dissatisfied or satisfied).
- Parents' attitudes to oral health included questions on control over their child's eating habits (yes or no), control over their child's tooth brushing (yes or no) and the child's sweets consumption (money spent on sweets).

The questionnaire completed by the children included information on socio-economic status, child's oral health, health behaviours and attitudes (self-report form Appendix 4). For the purpose of the statistical analysis, the child's variables were dichotomized in the following way:

- Child's evaluation of family economy as indicator of socio-economic status assessing family's finances (below average or average/good) and family situation (living with both parents/caregivers or with one parent/caregiver).
- Child's oral health and oral health behaviours, in addition to clinical assessment recorded by self-reports and including information on the child's general health (moderate/bad or good/very good); dental health (bad or good), frequency of tooth brushing (once a day or less or more than once a day), dental attendance (one year and more than one year ago), fear associated with a dental visit (nervous/afraid or relaxed) and whether a filling was obtained at the last visit to the dentist (yes or no).
- Child's attitudes to oral health were recorded according to the child's eating habits (regular or irregular), money spent on sweets (four Euro or less per week or more than four Euro per week), weight status (over/underweight or normal), leisure activities such as sports (regular or irregular) and time spent on the computer and watching television (less than two and two or more hours daily).

Oral health-related quality of life was assessed by *the Child Oral Health Quality of Life Questionnaire (COHQOL)* (Jokovic et al. 2004), which consists of a Child Perceptions Questionnaire (CPQ_{11-14}) and Parental/Caregiver Perceptions Questionnaire. Both are designed to measure OHRQoL among children aged between 11 and 14 years. The CPQ_{11-14} includes the four domain subscales of oral symptoms (6 items; *e.g.*, pain), functional limitations (9 items; *e.g.*, difficulty eating), emotional well-being (8 items; *e.g.*, avoiding

smiling or laughing among other children), and social well-being (12 items; *e.g.*, being asked questions by other children about his/her mouth). Average scores on the questions listed under each domain were used as composite scores for the different domains. The internal consistency coefficients (Cronbach´s α) were 0.61 for oral symptoms, 0.67 for functional limitations, 0.88 for emotional well-being and 0.83 for social well-being (self-report form Appendix 5).

Information on oral health care delivery in the studied regions was collected by use of self-reports distributed among the regional chief dentists (Paper IV). If it was not possible to obtain a self-report, a telephone interview was conducted. The interview followed a structured form, but the subjects could also add their comments freely during the interview; the discussion was recorded on a form. Chief dentists were interviewed about performance of the care provision systems, use of dental services in relation to dental treatment needs, role of public and private sectors in delivery of oral health care, numbers of dentists, hygienists and technicians in the region and the proportion of dentists (self-report form Appendix 6).

Translations of the self-report forms followed established guidelines including appropriate use of independent back-translations (Sartorius and Kuyken 1994). The questionnaires were translated from English into both Norwegian and Russian by two independent interpreters. Finally, another independent interpreter made back translations, which were further compared with the originals and inconsistencies were analysed and corrected. The questionnaires were validated during the pre-study calibration session at a public dental clinic in Tromsø (Koposova et al. 2010).

3.3. Statistical analyses

Data were analysed using the Statistical Package for Social Sciences (SPSS, version 19.0) and the statistical methods are summarised and presented in Table 5.

Table 5. Statistical methods used in Papers I–III.

	Paper I	**Paper II**	**Paper III**
Students t-test	+	+	+
Chi square statistics	+	+	+
Intra-class correlation		+	
Cohen´s *h*		+	
Kappa		+	+
Cronbach´s α			+
Binary - multiple logistic regression	+	+	
Multiple regression			+
One-way ANOVA	+	+	

The "Materials and Methods" part is summarised and presented in Table 6.

Table 6. Short description of the focus and design in the Papers I-IV.

Paper	Focus	Sample description
I	Oral health and associated factors Parents' (self-reported) and child's (self-reported and clinical) oral health status Determinants of dental caries and oral health related quality of life	N = 70 (Russia) N = 78 (Norway) Attendance rate 70% and 46% respectively Stratified cluster sampling procedure
II	Oral health and associated factors Parents' (self-reported) and child's (self-reported and clinical) oral health status Predictive power of models for dental caries by children and parental oral health related determinants	N = 590 (Russia) N = 264 (Norway) Attendance rate 87% and 47% respectively Stratified cluster sampling procedure (one-stage cluster design)
III	Oral health and associated factors Predictive power of child's and parents' oral health related determinants for oral health related quality of life	N = 590 (Russia) N = 264 (Norway) Attendance rate 87% and 47% respectively Stratified cluster sampling procedure (one-stage cluster design)
IV	Organisation of oral health care delivery Performance of the care provision systems Use of dental services in relation to dental treatment needs Role of public and private sectors in delivery of oral health care	Literature review of local and national reports in Norway, Sweden, Finland and Russia Interviews/questionnaires with chief dental officers Cross-case analysis

3.4. Ethical aspects

The study was approved by the Ethical Committee of the Northern State Medical University, Arkhangelsk, Russia and by the Regional Committee for Medical Research Ethics of Northern Norway. Permissions were also given by the Regional Department of Education in Arkhangelsk and the schools included in Russia and Norway. After a detailed description of the study, all participants were informed about the voluntary and confidential nature of their involvement with the study. Questions that arose during the study were answered in detail. Written informed consent was obtained from each participant and the parents.

4. RESULTS: PAPERS I–IV

4.1. PAPER I. Oral health and quality of life in Norwegian and Russian school children: a pilot study

The mean DMFS-scores among the school children were found to be considerably higher in the Russian than in the Norwegian sample, 5.9 (SD 5.1) versus 0.6 (SD 1.1) respectively. Among the different components of the index system, the DS-part showed the largest difference, 3.5 versus 0.1.

Background factors showing the strongest association with high DMFT values were Russian origin, OR=15.2 (95% CI 5-45), irregular tooth brushing frequency, OR=2.6 (95% CI 0.9-7.0), deficient oral hygiene, OR=4.1 (95% CI 1.4-11.9), irregular use of fluoride mouth-rinse, OR=0.2 (95% CI 0.1-0.5), and filling obtained during last dental visit OR=9.4 (95% CI 2.5-35). Parental factors showing the strongest association with their child's DMFT score were low level of education, OR=1.8 (95% CI 0.7-4.4), the parents' own bad oral health, OR=3.3 (95% CI 1.2-9.1), dissatisfaction with the dental service, OR=3.1 (95% CI 1.2-7.9) and having had dental problems during the past two years, OR = 4.0 (95% CI 1.2-13.3).

Regarding oral health-related quality of life, the Russian participants had worse results on most items than their Norwegian counterparts. When comparing the perceived quality of life among all participants, children with much dental caries showed significantly lower emotional well-being.

Results of the multiple logistic regression analysis performed on the child's variables entered into the regression model showed that the strongest associations with child's dental caries level included country of origin (OR=7.5), fillings obtained during the last visit to a dentist (OR=20.8) and irregular lunch eating (OR=0.1). The model passed the Pearson chi-squared goodness of fit test (χ^2 =40; $p < 0.001$).

Country of origin (OR=4.2) and irregular breakfast eating (OR=7.6) were among the strongest child variables associated with a child's bad oral hygiene. The model passed the Pearson chi-squared goodness of fit test (χ^2 =21; $p < 0.01$).

Results of the multiple logistic regression analysis performed on parental variables entered into the regression model showed that the strongest associations with the child's dental caries experience were related to low level of education (OR=4.1), parent's description of child's oral health as bad (OR=8.5), dissatisfaction with the dental health services (OR=6.95) and the parents' last visit to a dentist more than one year ago (OR=0.1). The model passed the Pearson chi-squared goodness of fit test (χ^2 =53; $p < 0.001$).

Parents' bad oral health (OR=4.3) and no concern about child's oral hygiene habits (OR=0.3) were among the strongest parental variables associated with a child's bad oral hygiene. The model passed the Pearson chi-squared goodness of fit test (χ^2 =17; $p < 0.01$).

4.2. PAPER II. Caries prevalence and determinants among 12-year-olds in North-West Russia and Northern Norway

The mean DMFT/S scores among the children were higher for the Russian than the Norwegian sample, DMFT 3.0 (SD 2.3) and DMFS 4.4 (SD 4.1) versus 1.2/1.5 (SD 1.7/2.1) respectively. Considering the different components of the DMF index system, the DT and DS parts showed the largest differences in absolute figures, DT 1.3 and DS 1.8 for the Russian- versus 0.4 and 0.4 for the Norwegian participants (Table 7). Among the Norwegian participants, 52% had no caries experience (DMFT = 0) while only 16% of the Russian children were caries-free.

Table 7. Caries status at tooth- and surface level in 12-year olds from Tromsø, Norway and Arkhangelsk, Russia.

	Teeth			Surfaces		
DMFT/S	**Norway Mean (SD)**	**Russia Mean (SD)**	**p-value**	**Norway Mean (SD)**	**Russia Mean (SD)**	**p-value**
Decayed	0.4 (0.8)	1.3 (1.6)	<.001	0.4 (0.9)	1.8 (2.4)	<.001
Missing	0.00 (0)	0.02 (0.1)	n.s.	0.00 (0)	0.09 (0.1)	n.s.
Filled	0.8 (1.4)	1.7 (1.7)	<.001	1.1 (1.7)	2.6 (3.0)	<.001
TOTAL	1.2 (1.7)	3.0 (2.3)	<.001	1.5 (2.1)	4.4 (4.1)	<.001

The Russian participants demonstrated higher frequencies of unfavourable scores for most of the socio-demographical and behavioural items but no differences between the sexes were detected. The largest differences were found for self-evaluated oral health and dental fear (children) and parents' evaluation of their child's oral health and parents' own oral health and having had oral health problems. About 1/3 of the adults did not visit a dentist on a regular basis with only minor difference between the Russian and Norwegian participants. The proportion of parents who were dissatisfied with the school dental service was higher in Russia (65%) than in Norway, but even among Norwegians one third were dissatisfied (Table 8 and 9).

Table 8. Proportions of 12-year olds from Tromsø, Norway and Arkhangelsk, Russia responding unfavourably on the studied determinants.

Variable	Norway (%) n=124	Russia (%) n=514	Cohen's h (p)
Family economy (below average)	20.2	25.0	0.11 (n.s.)
Family status (not living with both mother and father)	32.3	41.5	0.19 (n.s.)
General health, self-evaluated (moderate/bad)	4.1	25.2	0.64 (<.001)
Oral health, self-evaluated (bad)	9.2	12.7	0.10 (n.s.)
Tooth brushing frequency (≤ than once pr. day)	24.4	45.3	0.44 (<.001)
Last dental attendance (more than one year ago)	8.2	28.4	0.54 (<.001)
Dental fear (nervous, afraid)	14.2	51.7	0.83 (<.001)
Breakfast habits (irregular)	13.9	17.5	0.10 (n.s.)
Lunch habits (irregular)	35.5	21.6	0.31 (<.01)
Dinner habits (irregular)	9.8	14.3	0.14 (n.s.)
Money spent on sweets (>4 euro pr. week)	44.7	26.5	0.38 (<.001)
Sports activities (irregular/never)	10.7	27.6	0.44 (<.001)
Time spent on PC/TV (> than 2 hours pr. day)	30.3	38.3	0.17 (n.s.)
Filling obtained at last visit to dentist (yes)	24.8	49.2	0.51 (<.001)
Weight status (over- or underweight)	21.8	43.9	0.48 (<.001)
Oral hygiene (OHI-S > 0.6)	17.2	29.1	0.28 (<.01)

Table 9. Proportions of parent's participants from Tromsø, Norway and Arkhangelsk, Russia responding unfavourably on the studied determinants.

Variable	Norway (%) n=124	Russia (%) n=514	Cohen's h (p)
Education (< 12 years)	31.0	41.8	0.23 (<.05)
Oral health, self-evaluated (moderate/bad)	19.8	70.7	1.08 (<.001)
Evaluation of child's oral health (moderate/bad)	8.6	65.8	1.30 (<.001)
Last dental visit (more than one year ago)	40.9	30.7	0.21 (n.s.)
Oral problems during the last two years (yes)	36.8	73.3	0.75 (<.001)
Adequate help obtained during last visit to dentist (no)	6.0	38.3	0.84 (<.001)
Satisfaction with school dental service (dissatisfied)	31.3	64.7	0.68 (<.001)
Child's eating habits (no control)	7.8	13.8	0.20 (n.s.)
Reminding child about oral hygiene (no)	45.2	37.5	0.16 (n.s.)
Number of teeth (< 25 teeth)	9.0	12.8	0.13 (n.s.)

It was also found that about one half of the child and parental independent variables showed statistically significant associations with dental caries ($p<0.05$). Among child variables with the strongest association with dental caries were country of origin (Russia), closely followed by filling obtained at last dental visit, self-evaluated general health as bad, dental fear when visiting the dentist, irregular lunch habits, irregular tooth brushing, own evaluation of oral health as bad and higher oral hygiene index. However, gender, family status, family economy judged by the children, money spent on sweets and weight status did not show a statistically significant association with the DMFT-scores. Having Russia as country of origin, evaluating own- and child's oral health as bad, having oral health problems in the past, being not satisfied with oral health care organised at school, having inadequate help obtained during last visit to dentist and not reminding the child about oral hygiene were the parents' variables showing the strongest and statistically significant associations with child's dental caries. No significant associations were found between child's dental caries and parental variables related to education level, dental attendance, control over child eating

habits, money spent on sweets, responsibility of society about child's oral health and number of own teeth (Tables 10 and 11).

Table 10. Distribution of caries experience and no caries in 12-year olds according to socio-economic and clinical characteristics and association with selected child's variables.

Variable	n	DMFT = 0 n (%)	DMFT > 0 n (%)	χ^2	p	OR	DMFT > 0 95% CI	p
Country of origin								
Russia	514	113 (22%)	401 (78%)	44.0	<.001	3.7	2.4 – 5.5	<.001
Norway (ref)	124	64 (52%)	60 (48%)					
Gender								
Boy	311	83 (27%)	228 (73%)	0.1	>.05	1.1	0.7 – 1.5	>.05
Girl (ref)	322	94 (29%)	228 (71%)					
Family economy								
Below average	156	39 (25%)	117 (75%)	0.3	>.05	1.2	0.7 – 1.7	>.05
Average/good (ref)	472	131 (28%)	341 (72%)					
Family status								
Not living with both mother and father	248	63 (25%)	185 (75%)	0.7	>.05	1.2	0.8 – 1.7	>.05
Mother and father (ref)	375	107 (28%)	268 (72%)					
General health (self-evaluated)								
Moderate/bad	128	23 (18%)	105 (82%)	7.4	<.01	2.0	1.2 – 3.2	<.01
Good/very good (ref)	486	146 (30%)	340 (70%)					
Oral health (self-evaluated)								
Bad	52	7 (14%)	45(86%)	4.7	<.01	2.0	1.0 – 4.5	<.05
Good (ref)	388	107 (28%)	281 (72%)					
Tooth brushing frequency								
≤ once daily	249	54 (17%)	195 (83%)	7.2	<.01	1.7	1.1 – 2.4	<.01
> once daily (ref)	365	115 (31%)	250 (69%)					
Fluoride rinse								
Irregular/never	339	104 (31%)	235 (69%)	0.1	>.05	0.9	0.6 – 1.7	>.05
Regular (ref)	62	19 (31%)	43 (69%)					
Last dental attendance								
> one year ago	459	127 (28%)	332 (72%)	0.01	>.05	0.9	0.6 – 1.5	>.05
≤ one year ago (ref)	146	41 (28%)	105 (72%)					
Dental fear								
Nervous, afraid	266	57 (21%)	209 (79%)	9.4	<.001	1.8	1.2 – 2.6	<.01
Relaxed (ref)	330	108 (33%)	222 (67%)					
Breakfast habits								
Irregular	99	25 (25%)	4 (75%)	0.3	>.05	1.2	0.7 – 1.9	>.05
Regular (ref)	516	144 (28%)	372 (72%)					

Lunch habits								
Irregular	148	53 (36%)	95 (64%)	7,1	<.01	0.6	0.4 – 0.9	<.01
Regular (ref)	459	113 (25%)	346 (75%)					
Dinner habits								
Irregular	79	21 (27%)	58 (73%)	0.6	>.05	1.1	0.6 – 1.8	>.05
Regular (ref)	532	146 (27%)	386 (73%)					
Money spent on sweets								
> 4 euro/week	184	50 (27%)	134 (73%)	0.1	>.05	1.1	0.7 – 1.5	>.05
≤ 4 euro/week (ref)	419	117 (28%)	302 (72%)					
Sport activities								
Irregular/never	145	35 (24%)	110 (76%)	1.2	<.05	1.3	0.8 – 1.9	>.05
Regular (ref)	459	132 (29%)	327 (71%)					
Time spent on PC/TV								
≥ 2 hours daily	220	112 (29%)	273 (71%)	1.2	>.05	1.2	0.8 – 1.8	>.05
< 2 hours daily (ref)	385	55 (25%)	16 (75%)					
Filling obtained at last visit to dentist								
Yes	264	40 (9%)	224 (91%)	36.0	<.001	3.4	2.2 – 5.0	<.001
No (ref)	333	124 (37%)	209 (63%)					
Weight status								
Over- or underweight	251	70 (28%)	181 (72%)	0.1	>.05	0.9	0.7 – 1.4	>.05
Normal (ref)	369	100 (27%)	269 (73%)					
Oral hygiene								
OHI-S > 0.6	158	28 (18%)	130 (82%)	3.8	<.05	1.6	1.0 – 2.5	<.05
OHI-S ≤ 0.6 (ref)	437	111 (25%)	326 (75%)					

Table 11. Distribution of caries experience and no caries experience in 12-year olds according to socioeconomic and clinical characteristics and association with selected parental variables.

Variable	**n**	**DMFT = 0 n (%)**	**DMFT > 0 n (%)**	χ^2	**p**	**OR**	**DMFT > 0 95% CI**	**p**
Country of origin								
Russia	514	113 (22%)	401 (78%)	44.0	<.001	3.7	2.4 – 5.5	<.001
Norway (ref)	124	64 (52%)	60 (48%)					
Education								
<12 years	252	7 (26%)	20 (74%)	2.6	>.05	1.4	0.9 – 1.9	>.05
≥12 years (ref)	380	116 (31%)	264 (69%)					
Oral health (self-evaluated)								
Moderate/bad	389	90 (23%)	299 (77%)	12.0	<.001	1.8	1.3 – 2.6	<.001
Good/very good (ref)	244	87 (36%)	157 (64%)					
Evaluation of child's oral health								
Poor	351	69 (20%)	292 (80%)	28.0	<.001	2.6	1.8 – 3.7	<.001
Good, very good (ref)	282	109 (39%)	173 (61%)					

Last dental attendance								
More than one year ago	242	67 (28%)	175 (72%)	0.1	>.05	0.9	0.7 – 1.4	>.05
Less than one year ago (ref)	380	104 (27%)	276 (73%)					
Oral problems last 2 years								
Yes	403	86 (21%)	317 (79%)	23.0	<.001	2.4	1.7 – 3.5	<.001
No (ref)	204	81 (40%)	123 (60%)					
Adequate help obtained during last visit to dentist								
No	203	40 (20%)	163 (80%)	9.0	<.001	1.9	1.2 – 2.8	<.01
Yes (ref)	421	132 (31%)	289 (69%)					
Satisfaction with school dental service								
Dissatisfied	366	84 (23%)	282 (77%)	10.7	<.001	1.8	1.3 – 2.6	<.001
Satisfied (ref)	258	90 (35%)	168 (65%)					
Child's eating habits								
No control	79	24 (30%)	55 (70%)	0.3	>.05	0.9	0.5 – 1.5	>.05
Control (ref)	546	149 (27%)	397 (73%)					
Money regularly spent on sweets								
Yes	261	68 (26%)	193 (74%)	1.2	>.05	1.2	0.9 – 1.7	>.05
No (ref)	362	109 (30%)	253 (70%)					
Reminding child about oral hygiene								
No	243	79 (33%)	164 (67%)	3.8	<.05	0.7	0.5 – 1.0	<.05
Yes (ref)	383	97 (25%)	286 (75%)					
Society is responsible for child's oral health								
No	26	9 (35%)	17 (65%)	0.7	>.05	0.7	0.3 – 1.6	>.05
Yes (ref)	571	155 (27%)	416 (73%)					
Number of teeth								
< 25 teeth	69	21 (30%)	48 (70%)	0.2	>.05	0.8	0.4 – 1.5	>.05
≥ 25 teeth (ref)	506	141 (28%)	365 (72%)					

Multiple logistic regression analysis with child's variables entered into the regression model showed that the following variables had the strongest association with child's dental caries status: Russia as country of origin (OR=3.8) and filling obtained during last visit to dentist (OR=5.0). The model passed the Pearson chi-squared goodness of fit test (χ^2 = 87; p<0.001) (Table 12).

Table 12. The multiple logistic regression analysis implemented with the child's variables as independent variables and dental caries as dependent variable.

Variable	DMFT > 0		
	OR	95% CI	p
Country of origin (Russia)	3.8	2.1-6.8	<0.001
General health, self-evaluated (moderate/bad)	0.9	0.4-1.9	n.s.
Oral health, self-evaluated (bad)	1.7	0.6-4.7	n.s.
Tooth brushing frequency (less than once daily)	1.5	0.8-2.6	n.s.
Dental fear (fear, tension before visit)	0.9	0.5-1.8	n.s.
Lunch habits (irregular)	0.6	0.3-1.0	n.s.
Filling obtained at last visit to dentist (yes)	5.0	2.7-9.8	<0.001
Oral hygiene (OHI-S > 0.6)	1.4	0.8-2.6	n.s.

Nagelkerke $R^2 = 0.29$, $\chi^2 = 29$; df = 8; p <0.001.

The multiple logistic regression analysis implemented with parent's variables entered into the regression model showed that the strongest parental predictors of a child's dental caries status were country of origin (OR=2.4) and parent's oral health problems during the past two years (OR=1.8). The model passed the Pearson chi-squared goodness of fit test (χ^2 =60; p<0.001) (Table 13).

Table 13. The multiple logistic regression analysis implemented with parental variables as independent variables and dental caries as dependent variable.

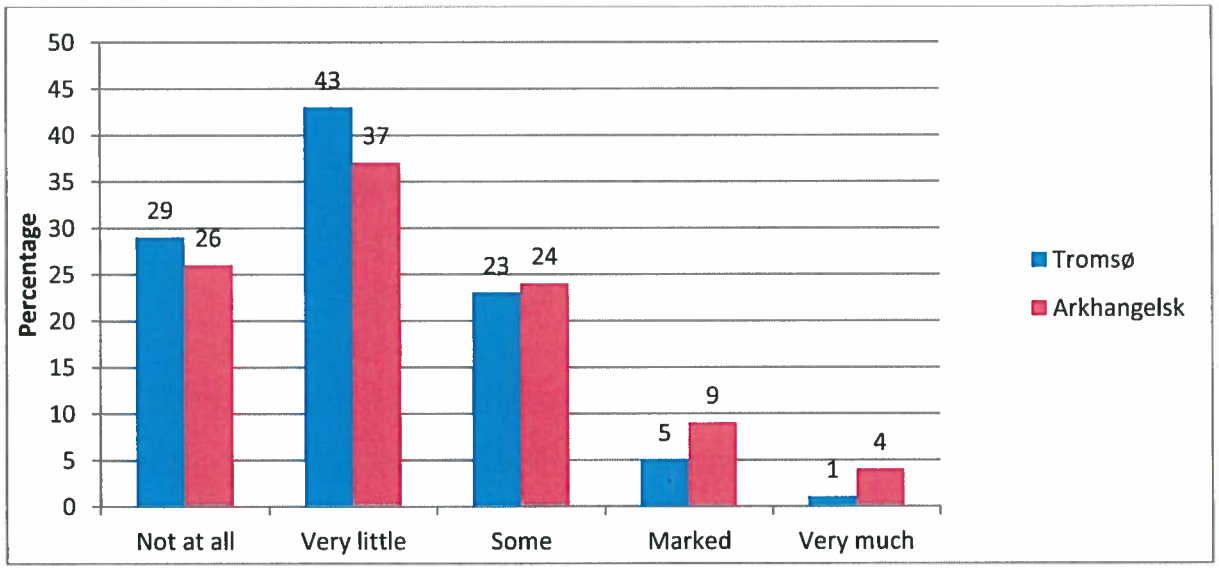
Variable	DMFT > 0		
	OR	95% CI	p
Country of origin (Russia)	2.4	1.4-4.1	<0.001
Oral health, self-evaluated (moderate/bad)	0.8	0.5-1.3	n.s.
Evaluation of child's oral health (moderate/bad)	1.5	0.9-2.4	n.s.
Satisfaction with school dental service (dissatisfied)	1.1	0.7-1.6	n.s.
Oral problems last two years (yes)	1.8	1.1-2.8	<0.05
Help obtained during last visit to dentist (no)	1.2	0.8-1.9	n.s.

Nagelkerke $R^2 = 0.14$, $\chi^2 = 14$; df = 8; p <0.001.

4.3. PAPER III. Oral health-related quality of life among 12-year olds in Northern Norway and North-West Russia

A majority of the Russian 12-year old children were found to be less satisfied regarding self-perceived oral health compared with the Norwegians. One half of the Norwegian participants reported their self-perceived oral health to be excellent/very good, while only 12% of the Russian participants reported the same ($p<0.001$). The difference between the groups regarding impact of oral health on own life was small and not statistically significant ($p>0.05$) (Figure 6).

Figure 6. Estimated impact of self-perceived oral health on oral health-related quality of life among 12-year-old Norwegian and Russian children.



Ranking of self-evaluated aesthetic dental appearance showed only minor differences between the Russian and Norwegian participants, and 79% of the participants indicated either ideal alignment or only minor deviations (IOTN-scale 1-3) with no difference between the two groups.

When investigating oral health-related quality of life in detail, based on the CPQ_{11-14}-index, where the higher scores are for inferior OHRQoL, the Russian 12-year olds scored significantly higher on all of the CPQ_{11-14} domains except for oral symptoms (Table 14).

Table 14. Descriptive statistics for oral health-related quality of life (CPQ_{11-14} domains) and DMFT/S scores among 12-year olds from Tromsø (Norway) (n=124) and Arkhangelsk (Russia) (n=514).

Caries scores	Tromsø			Arkhangelsk			p-value
	Mean (sd)	Min. score	Max. score	Mean (sd)	Min. score	Max. score	
DMFT	1.2 (1.7)	0	9	3.0 (2.3)	0	14	< 0.001
DMFS	1.5 (2.1)	0	9	4.4 (4.1)	0	28	< 0.001
CPQ_{11-14}domains							
Oral symptoms	4.8 (2.7)	0	14	4.6 (2.9)	0	18	n.s.
Functional limitations	1.6 (2.1)	0	9	4.6 (3.7)	0	20	< 0.001
Disturbed emotional well-being	1.8 (3.1)	0	15	5.1 (4.9)	0	23	< 0.001
Disturbed social well-being	2.1 (2.5)	0	17	5.4 (6.1)	0	32	< 0.001
Overall CPQ score	9.9 (6.9)	0	34	19.5 (14)	0	85	< 0.001

Higher CPQ_{11-14} scores indicate inferior condition.

In addition, the Russian subjects had higher scores on most of the items included in CPQ_{11-14} questionnaire, especially in the domains of functional limitation, disturbed emotional well-being and social well-being, compared with the Norwegians.

Differences were also established on all of the oral health-related quality of life domains except for oral symptoms, when comparing subjects with DMFT=0 and DMFT>0. The IOTN score was found to be positively correlated with reduced emotional ($p < 0.01$) and social well-being ($p < 0.01$) and with total CPQ_{11-14} score ($p < 0.01$). These three OHRQoL domains were also found to be positively correlated with the DMFT index at a statistically significant level ($p < 0.05$).

The multiple regression analysis with background factors entered at first step and controlling for their relationship with the CPQ_{11-14} scores, showed that country of origin, aesthetic appearance, parent's educational level and family economy yielded a statistically significant correlation with self-perceived oral health-related quality of life ($R^2 = 0.14$, $F = 13.31$, $p < 0.001$). After the DMFT index was entered into the model (second step), the ß coefficients for the control variables changed slightly, while the R^2 remained unchanged at 0.14.

4.4. PAPER IV. Oral health care and dental treatment needs in the Barents region

A general finding was that oral health in Russia was found to be poorer, access to care more difficult and use of services lower, mainly because of a lack of resources. National mean values of caries-free 12-year olds and mean DMFT-indices showed considerably better oral health in the Nordic countries than in Russia (Table 15). Children in the north of Norway had more caries experience than the children in other parts of the country. In Russia, children had clearly more caries in the Barents region than in the Federation on average.

Table 15. Dental health in 12-year olds in the Barents region in 2010.

Country	County or territory	12-year olds DMFT-index Mean	12-year olds Caries-free %	Year	Edentulous adults %	Year
Norway	Nordland county	1.5	45	2008	No data	
	Troms county	1.7	42	2008	No data	
	Finnmark county	2.1	34	2008	No data	
	All Norway	1.4	48	2008	2	2009
Sweden	Västerbotten county	0.8	62	2008	11	2002
	Norrbotten county	0.9	61	2009	No data	
	All Sweden	0.9	61	2008	3	2005
Finland	Lapland	0.7-2.6	45	2006	22	2000
	Oulu	0.8-2.1	38	2006	22	2000
	All Finland	1.2	43	2003	15	2000
Russia	Murmansk oblast	3.0	26	2007	No data	
	Republic of Karelia	2.6	25	2007	12	2007
	Arkhangelsk oblast	3.0	16	2007	31	2007
	Republic of Komi	4.0	11	2007	15	2007
	Nenets autonomic area	3.2	24	2007	50	2007
	All Russia	2.5	27	2007	15	2007

Source: Widström et al. 2010.

In addition, all North-West Russia has more inhabitants per dentist than Northern Norway or the other countries in the Barents region (1.387 in Russia vs. 1.298 in Norway) which makes it difficult to provide oral health care to all people in need of dental care (Table 1).

A common characteristic for both Norway and Russia was that oral health care provision systems for children in Norway and Russia operate mainly via the public sector. The Norwegian public dental service (PDS) offers free treatment for children up to 19 years while the Russian PDS does so up to the age of 16 years.

In Norway, most of the dentists work in the private sector. A majority of the Russian dentists are employed by the state but it is usual to combine work at state clinics with some minor part of the work in the private sector. Private dentistry is most common in big cities like Arkhangelsk and Tromsø, but most adults went to state clinics.

There were fewer dental specialists available in the northern parts of Norway and Russia than in the southern and central parts of these countries. In Northern Norway, the number of vacant positions for public dentists is higher (20%) than in central (11%) and southern Norway (5%) (Helse- og omsorgdepartementet 2007).

The GNP used on health care in Norway was 8.9% and in Russia 3.7%. Of this amount, the GNP used on dental care in Norway was 0.5% and in Russia, this proportion was estimated to be much smaller. Of the total costs of dental care, the greatest part in Norway was spent in the private sector (77%) in Norway and in Russia in the public sector (70%).

5. GENERAL DISCUSSION

In most industrialized countries children's and adolescents´ oral health has greatly improved during the past decades. This is especially true in Western European countries decades (Whelton 2004; Pitts et al. 2005). In Eastern Europe and in Russia the situation is not so good (CECDO; Kuzmina et al. 2009). In circumstances where reforms are needed, information on the oral health of local populations and its determinants and impact on perceived quality of life are important for planning and health political decision-making.

5.1. Limitations of the study

The strength of the work is in providing comparative data on dental caries prevalence and experience and on oral health related quality of life and associated factors among children from selected areas in the Barents region. A cross-sectional design yields associations and the possibility of disclosing causal relationships is limited. Sampling from only two urban areas,

excluding other parts of Northern Norway and North-West Russia, limited the opportunities for generalisation to the whole Barents area.

In addition, the samples should probably have been larger to improve validity. Unfortunately, large clinical studies are very costly and, especially in Norway, lay peoples' interest in participating in such studies is low. Furthermore, obtaining approval from Ethical Committees in Norway and all the conditions they required made a clinical study extremely complicated to perform. A pilot study was conducted to test the clinical methods under field conditions and to refine and validate the questionnaires to be used in the bigger clinical study. This also helped to formulate hypotheses for the latter.

Besides the use of traditional clinical assessments, the study relied on self-reported measures. Although the use of self-reporting is believed to represent a reliable and valid method of assessing oral health-related factors in childhood (Kamphaus and Frick 1996), we cannot exclude the possibility of some bias.

Another limitation is related to psychometric characteristics of the instruments, with the acceptable but relatively low internal consistency for some of the CPQ11-14 scales that warrants a cautious interpretation of our results. Although re-testing of the CPQ11-14 was not undertaken in our study, high levels of reliability of this questionnaire have been reported previously by Locker and Gibson (2006). This indicates that the questionnaire is reliable and stable over short time periods. It should be acknowledged that a criticism of subjective measures of wellbeing or quality of life (such as OHRQoL) is that people may adapt to their conditions over time. Thus, they may respond with lower impact scores when a questionnaire is re- administered again later (Kok et al. 2004).

Finally, it was shown that, although it was relatively easy to provide a general description of the oral health care provision systems in use in the Barents area but not easy to find out how the systems worked in real life as regards access to and utilisation of oral health care, especially in some of the Russian territories. Interpreting and validating some of the data we found proved to be difficult. For example, counting the numbers of stomatologists and dental doctors in Russia was difficult because there may be some double registration of those working both in the public and private sectors. There are so far no good systems for gathering standardised data for oral health care provision in Europe, due to cultural differences and different traditions. Thus rather crude indicators, such as workforce numbers, decentralisation of dental schools, information on use of services and financing had to be used. We also found that there was little information on the dental health of the adult populations. This ignorance indicates that oral health care is not a high priority in health politics, although it concerns all

citizens and is costly. For the study, we endeavoured to find the best available data, which would collectively be sufficiently robust to identify the main features in the care provision systems and to allow crude comparisons.

5.2. Methodological discussion related to some selected findings

The impact of many of the statistically significant variables selected from the bivariate analyses became insignificant when controlling for co-variance with country of origin as the most dominating variable. This is probably because many of the selected determinants are strongly inter-related, an observation also reported from other oral health studies (Skudutyte-Rysstad et al. 2009, Wigen and Wang 2010). Due to the dominating impact of country of origin, multiple regression analyses were performed both on pooled samples and on the Russian and Norwegian samples independently, excluding country of origin as a variable. Only minor changes in the outcome were found. This supports the observation of no significant interactions between country of origin and other independent variables. The observed co-variance among the independent variables leading to a substantial reduction from the bivariate to the multivariate analyses may indicate randomness in the association between many of the independent variables and DMFT-scores.

5.2.1. Dental caries experience, oral hygiene and aesthetic appearance

Findings from the main study confirmed the previously observed trends in the pilot study and in earlier Russian (Kuzmina et al. 2009) and Norwegian (Den offentligetannhelsetjeneste 2009) epidemiological studies regarding caries prevalence and caries experience among children from Russia and Norway. The main finding was a substantial difference in DMFT and DMFS scores between the Russian and Norwegian children (Papers I and II).

The results from the main study also demonstrated that the caries prevalence among Russian 12-year-olds is higher than for their Norwegian counterparts. Caries statistics from Arkhangelsk (Kuzmina et al. 2009) and Tromsø (Den offentligetannhelsetjeneste 2009) showed that 16% and 52% of the 12-year-olds were without caries experience (DMFT=0) in 2009. This is identical to the prevalence found in the present investigation, indicating no selection bias.

The Russian participants also presented with inferior oral hygiene compared with the Norwegian children. Distribution of OHI-S scores as a result of clinical assessment among children from two countries showed that 54% of Russian children had bad oral hygiene compared with only 20% of Norwegian children (Paper II). The role of poor oral hygiene

leading to inferior oral health was also demonstrated in the pilot study (Paper I). In addition, children with bad oral hygiene also had higher scores on scales in the oral health related quality of life questionnaire; they perceived their quality of life to be worse than the children with good oral hygiene (Paper I). Findings from both the pilot and the main studies indicated that insufficient oral hygiene may put an individual at risk of reduced quality of life.

Self-evaluation of aesthetics of the child's front teeth showed only minor differences between the participants from the two countries in our study. In addition, aesthetics-correlated significantly only with the emotional and social domains of the oral health-related quality of life questionnaire and with the overall score, supporting the findings of Berg (2001) that malocclusion interferes mainly with the person's emotional and social well-being.

5.2.2. Associations between oral health and socio-behavioural determinants

In Papers I and II the country of origin appears as the overall strongest factor associated with children's bad oral health. This is reflected by the distribution of favourable/unfavourable scores for the different independent variables found in the main study, where the Russian participants demonstrated higher frequencies of unfavourable scores for most of the items. Differences were established at statistically significant levels and were combined with the high magnitude of differences in proportions established as a result of the effect size calculation (Cohen's h). In particular, life conditions were shown to be less favourable in North-West Russia than in Northern Norway.

Tooth brushing habits were found to be less regular and dental fear more pronounced among Russian than Norwegian children. Parent's dissatisfaction with their child's dental health service was more pronounced in Russia, indicating inferior quality of this service. Considerably fewer resources in the Russian oral health care provision system (Paper IV) may be an explanation for the established differences in child's and parents' experiences of dental care.

Surprisingly in the main study, neither parental education nor family situation were found to be associated with children's dental caries experience (Paper II). This is in contrast to other studies and points to the role of the socio-economic determinants for child's dental caries (Campus et al. 2007; Vadiakas et al. 2011). It also seems that other variables like self-reported oral health, health attitudes, oral hygiene, dietary and dental care habits were found (Papers 1 and II) to identify better children with dental caries compared with variables related to socio-economic status. These results differ from previous studies where the dominant role of the

socioeconomic factors was reported (Kiwanuka, Åstrøm and Trovik 2004; Jerkovic et al. 2009; Wigen and Wang 2010).

Parental factors were also found to discriminate significantly between the groups of children with and without dental caries experience. Variables related to oral health were found to identify better children with and without dental caries than did the socioeconomic factors (Papers I and II). When predicting the child's dental caries, except for country of origin and the variable of having received a filling during the last visit to the dentist, the parental variable of oral health problems in the past was also found significantly to be associated with child's dental caries level.

The results are consistent with the study by Wigen et al. (2009) where the association between parental factors and the child's dental caries level were shown. The assessed associations between dental caries and the child and parental factors showed a statistically significant association between nationality and dental caries as the most pronounced variable. Dental fear and parent's bad oral health and negative oral health attitudes are factors found to be statistically highly significantly associated with high DMFT-scores among children in the present investigation. This supports findings from other oral health studies (Pine et al. 2004; Wogelius and Poulsen 2005; Wigen et al. 2009). Many of the other associations presented as results of the study were expected, considering existing knowledge of caries aetiology (Fejerskov and Kidd 2008). It was unexpected to find that among the child variables, money spent on sweets and physical activity and weight status did not show a statistically significant association with DMFT scores. In addition, results from the pilot and main studies demonstrated different roles of parental education regarding the child's dental caries. In the pilot study (Paper I), low parental education was found to differentiate significantly between children with and without dental caries. This was not confirmed in the main study (Paper II). Results do not conform with the findings of Salina and Naing (2007) and Christensen et al. (2010) and have thus to be interpreted with caution.

5.2.3. The relationships between oral health and perceived oral health related quality of life and the role of socio-behavioural determinants

The prevalence of dental caries was found to be different between the Russian and Norwegian participants, as documented in both the pilot and the main studies (Papers I and II). According to the results of the main study (Paper II), no difference was found regarding the impact of oral health self-perceived quality of life indicating that this dimension is relative and not directly related to the oral health conditions *per se*.

When investigating this result in more detail, it appeared that the Russian participants scored higher on most of the domains included in the CPQ scores and that high scores were related to high prevalence of dental caries. The findings concerning the established highest differences regarding CPQ_{11-14} domains of disturbed emotional and social well-being probably reflects the situation of children at the age of 12 years as being more vulnerable psychologically than physically for different health conditions, due to different factors and dental fear may be one of them (Luoto et al. 2009).

Previous studies have repeatedly shown that inferior OHRQoL is related to different socio-behavioural conditions (Smith et al. 1999; Locker 2009). In our study, the frequency distribution of scores on CPQ_{11-14} domains showed that Russian 12-year olds are more frequently functionally limited and emotionally and socially disturbed than the Norwegian ones. Our findings probably reflect an overall lower quality of life in North-West Russia compared with Northern Norway (Cuckerham 2007; Koposova et al. 2010), which correlates with the prevalence of dental caries.

Another interesting finding in our study was that when analysing the impact of dental caries on oral health-related quality of life in a multiple regression model, the impact disappeared. This indicates that the bivariate associations found are mainly due to different factors related primarily to socio-economical confounders like country of origin (Russia), poor family economy and low level of parental education as the most important ones but also to the clinical variable of dental appearance. Previous research has documented that socio-economic status, including family economy (Mullally 2002; Antunes 2006) and dental appearance (Feu 2010), are important for self-perceived oral health-related quality of life, supporting our findings. It is possible that people living in areas where the oral health conditions of all population groups are worse and where access to oral health care is more difficult than in other parts of the country (Widström et al. 2001; Widström et al. 2010), may get used to the prevailing circumstances and do not complain; they do not find the impact of oral health status on their quality of life so important. Instead of studying oral health-related quality of life as an isolated phenomenon, it could be interesting to measure the extent of the dental component in comparison with general diseases and other domains influencing quality of life.

5.2.4. The organization of delivery of oral care and description of differences in oral care provision

The study revealed common characteristics for Norway and Russia regarding the Public Dental Services that provide oral health care for children and adolescents free of charge in both countries. Moreover, the public sector was the main dental care provider for the child population in all countries in the Barents region. Private dentists played a minor role in care of children and adolescents, except for orthodontic care in Norway. Most adult dental care in Norway provided by private practitioners and in Russia by salaried dentists working at state clinics. Although dental care in Russia is meant to be part of the general health care system, regional restrictions in the supply of dental services have limited access to dental care. In Northern Norway, because of a long-standing shortage of dentists in the public dental service and a lack of private practitioners, access to care was found to be poorer than in other parts of the country.

Overall, there was a difference in the population-to-dentist ratios between the Nordic countries and Russia. In the Nordic countries, numbers of dentists have long been high in comparison with other EU member states (Widström and Eaton 2004). Economic differences between Russia and the Nordic countries and the generally bad health situation in Russia require more medical staff and higher financial investment in health care, certainly the most important explanations for deficient dental services (Mashkina and Leppänen 2006; Duhaime and Caron 2009; Shishkin and Vlasov 2009).

According to the information obtained and the analyses conducted, the health care system in Russia was undergoing a major reform and there were plans to guarantee a national minimum level of oral health care for the population throughout the Federation. It is planned that the minimum level of care will include regular examinations, preventive and restorative care and some orthodontic treatment for children. Based on the information obtained from the local sources, no improvements have been achieved so far in this direction at the time of writing. In the Russian Barents region, the dental treatment needs for children were found to be much higher than in Norway. In previous times, an important role in prevention and treatment of caries was played by the school dental services. The collapse of the school dental care and preventive programs in the 1990s diminished the level of public awareness of self-care in Russia and has resulted in the deterioration in the quality of dental care and dental health among children (Leontyev 2005).

5.3. Clinical implications

The study has contributed to a detailed description of caries prevalence and experience among 12-year olds in two areas of the Barents region. The study showed that the prevalence of dental caries was high, especially among the Russian 12-year olds. When more recent national DMFT values in 12-year olds are compared between all Barents countries, it is obvious but somewhat surprising that the Norwegian disease levels are higher than those in Sweden and Finland. It was also obvious from our studies that the parents' oral health and oral health habits were not very good either in Russia or in Norway. These findings indicate that not even wealth is a guarantee for good oral health, even though it should facilitate the organisation of good health services. The results further indicated that socio-demographic and behavioural variables explained most of the differences in oral health and oral health related quality of life among the children from the two countries. Based on our data, we can conclude that dental caries had a small but significant impact on self-perceived oral health related quality of life.

The results have implications for politicians and health workers involved in planning improvements in oral health conditions among children. The study indicates a need for more dental personnel (but not necessarily dentists), particularly in North-West Russia, in order to cover the needs for oral health promotion and treatment in this region. In a situation in which a large segment of the Russian child population has no or limited access to preventive dental services and care, and cannot obtain adequate dental service, it is important to establish and implement oral health care that is accessible within the existing health care infrastructure.

6. CONCLUSIONS

In this study, child's oral health and health behaviour mirrored the national and local circumstances, economical situations and social and cultural values and traditions in the countries. The Barents region and especially the North-Western part of it is still considered to be one of the big hinterlands in Europe, offering its populations a harsh climate and tough living conditions. Thus finding more untreated and treated caries and dental problems in Arkhangelsk and Severodvinsk region than in the Tromsø region could be expected. Furthermore, Norway is today one of the wealthiest countries in the world and Russia lies low in the ranking of the level of human development and a comparison is therefore not entirely fair.

Apart of this, the study indicated that there in both countries was a family-related pattern in oral health; when children had caries or much treatment, their parents also had had trouble

with their teeth and dental care. This is often forgotten when services are organised for separate groups in a society.

When looking at all the countries in the Barents area, it was obvious that the wealthiest country neither presented the best population oral health nor the best performing oral health care provision system. Here Sweden, with a long tradition of highlighting the importance of equal access to oral health care for all, has been more successful. This shows that not only the existence of huge (enough) financial resources but also the political will and eagerness among local actors to lead through improvements and put preventive efforts to place is crucial for success.

As regards the input dental caries was found to have on 12-year olds perceived quality of life, the study gave somewhat contradictory results. Probably, because few children had very bad teeth (no one was edentulous or had prosthetics), it is likely that at this age other things surpass dental problems. Children have adapted to the situation, as their parents have had to adapt to a situation where dental care always had fewer resources and access to dental care has been more difficult than in the more central parts of the countries in question.

Oral health care and prevention of dental diseases could be an important sector for future co-operation inside the Barents Euro-Arctic Region. Oral diseases are known to be easy to prevent but very expensive to treat in the long run.

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8. APPENDIX

1. Appendix 1 – clinical form for caries, oral hygiene and aesthetic component of need for orthodontic treatment assessment.
2. Appendix 2 – clinical form for assessment the aesthetic component of need for orthodontic treatment.
3. Appendix 3 – parent's self-report.
4. Appendix 4 – child's self-report.
5. Appendix 5 – Child Perceptions Questionnaire (CPQ_{11-14}) for assessing the oral health-related quality.
6. Appendix 6 – self-report for assessing the oral health care delivery, performance of the care provision systems and use of dental services in relation to dental treatment needs.

Appendix 1 – clinical form for caries, oral hygiene and aestethic component of need for orthodontic need assessment (English)

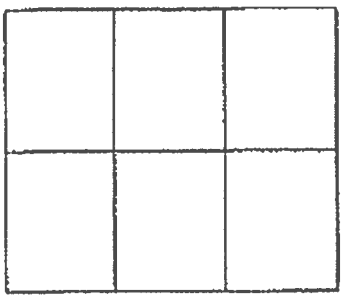
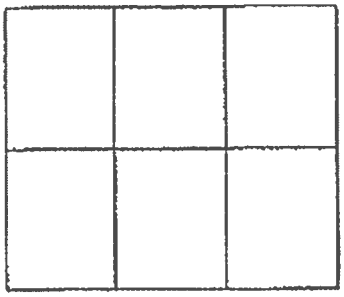
ORAL HEALTH ASSESSMENT FORM

Name _____

Date of birth _____ Age in years_____

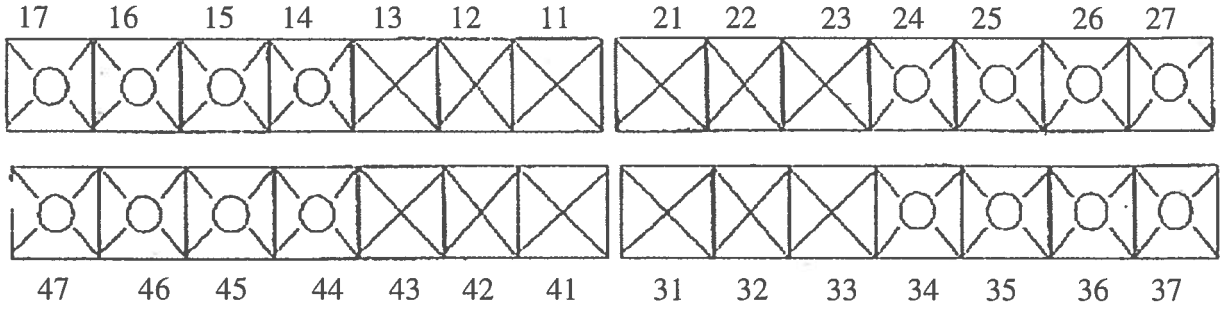
Sex (M = 1, F = 2) _____

OHI-S (SIMPLIFIED)

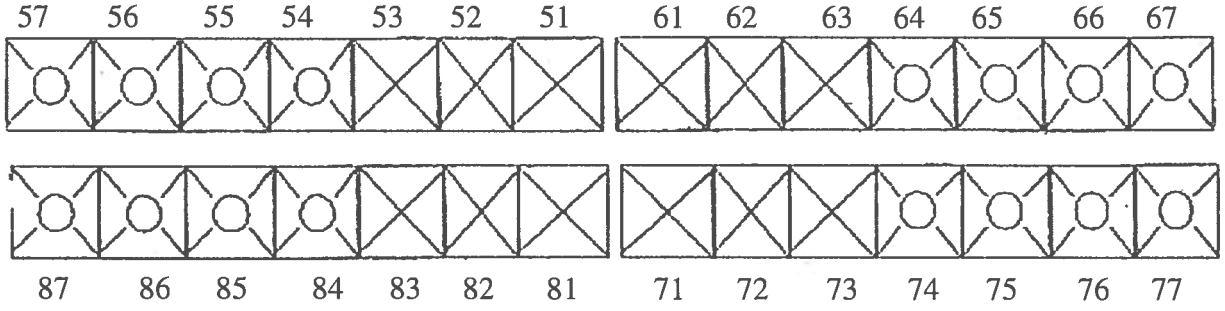
Plague DI-S	**Calculus CI-S**
	

DENTITION STATUS

Permanent teeth



Temporary teeth



The aesthetic component of IOTN for dental cast use

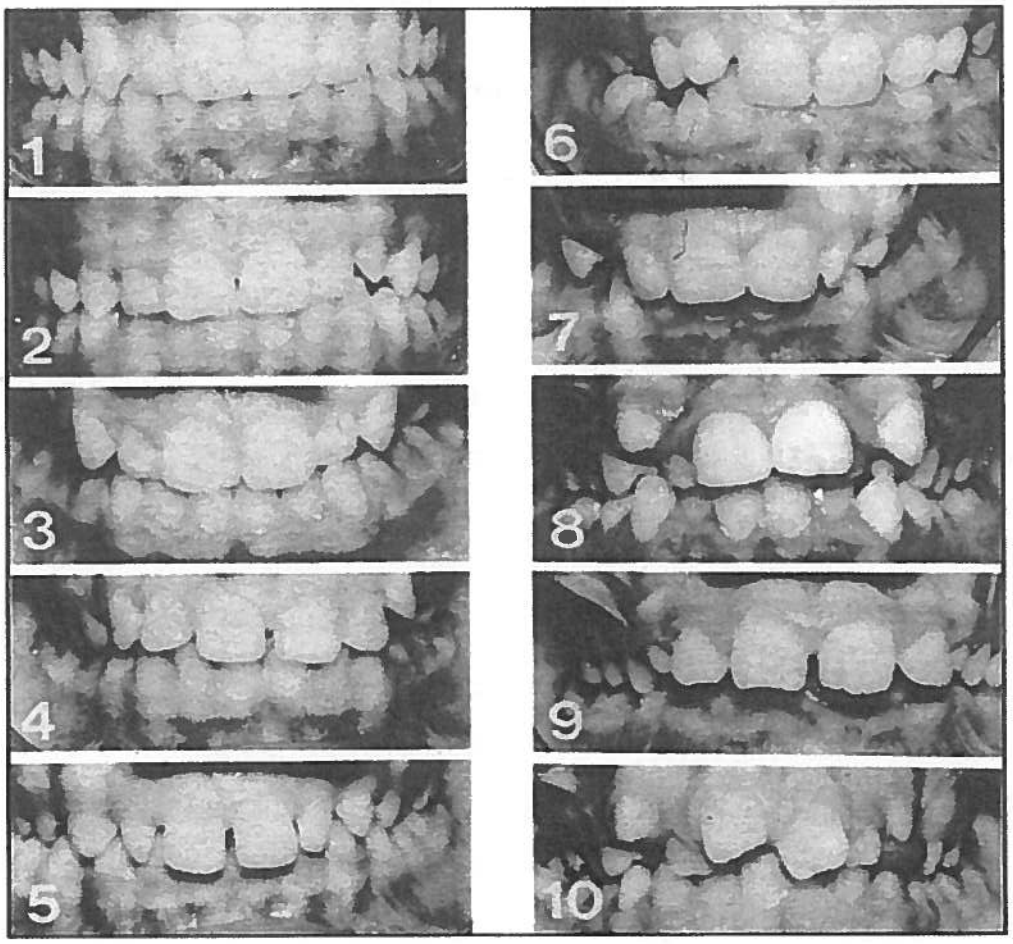
Grade	
Grades 1, 2, 3 and 4	No/slight need for treatment
Grades 5, 6 and 7	Moderate/borderline need for treatment
Grades 8, 9 and 10	Need for orthodontic treatment

Appendix 2 – clinical form for assessment the aesthetic component of need for orthodontic treatment (English)

THE AESTHETIC COMPONENT OF IOTN FOR DENTAL CAST USE

Grades 1,2,3, and 4 - No/slight need for treatment
Grades 5,6, and 7 - Moderate/borderline need for treatment
Grades 8,9, and 10 - Need for orthodontic treatment

"Here is a set of photographs showing a range of dental attractiveness. Number 1 is the most attractive and 10 the least attractive arrangements. Where would you put your teeth on this scale?"



Appendix 3 – parent's self-report (Norwegian, Russian)

Navnet ditt_____

Alderen din_____

Navnet til barnet ditt_____

1. Din utdannelse er:				
Ikke fullført grunnskole	Grunnskole	Videregående skole	Høgskole/Universitet	

2. Hva tenker du om tannhelsen til barnet ditt?				
Meget god	God	Verken god eller dårlig	Ganske dårlig	Veldig dårlig

3. Er du fornøyd hvordan tenner til barnet ditt ser ut?				
Ja, meget fornøyd	Ja, stort sett fornøyd	Verken fornøyd eller misfornøyd	Ganske misfornøyd	Meget misfornøyd

4. Er du fornøyd med skoletannpleie-ordningen?				
Ja, meget fornøyd	Ja, stort sett fornøyd	Verken fornøyd eller misfornøyd	Ganske misfornøyd	Meget misfornøyd
Forslag for forbedring_____				

5. Hvordan vurderer du egen tannhelse?				
Meget god	God	Verken god eller dårlig	Ganske dårlig	Veldig dårlig

6. Har du hatt problemer med dine egne tenner?

Smerter	Ubehag	Funksjonelle problemer (vanskeligheter med å bite eller tygge mat som epler, med å uttale ord eller lage spesielle lyder, o.l.)	Sosiale problemer (følt deg usikkert på deg selv, sjenert eller flau, vært bekymret for at du ser ut verre enn andre)

7. Når var du sist hos tannlege?

Under 1 år siden | ett år siden | to år siden | mer enn to år siden

8. Siste gang du var på tannklinikken, fikk du den behandlingen du mener du trengte?

Ja	Nei, det var umulig å bestille time hos tannlege.	Tannlegen mente at det var unødvendig.	Tannlegen hadde dårlig tid til behandling	Jeg hadde ikke nok penger til å betale for behandling	Nei, av andre grunner

9. Hvor mye betalt du ved siste tannlegebesøk?

_____

10. Hvor mange egne tenner har du? _____

11. Har du:

Fyllinger | Kroner | Bro(er) | Implant(er) | Avtakbare proteser

12. Kontrollerer du tannpleievaner hos barnet ditt?

Ja, det gjør jeg | Nei

13. Ved du hvor mye penger ditt barn bruker på søtsaker f. eks. sjokolade, sukkertøy, godteri, kjeks kaker, is, osv **per uke**

50 NOK og mindre	51–100 NOK	101-200 NOK	201-500 NOK	Mer enn 501 NOK

14. Minner du barnet ditt på å pusse tennene?

Aldri	Sjelden	Noen ganger	Ofte	Alltid

15. Hva slags behandling fikk du i det siste besøket hos tannlegen?

Akutt-behandling Ekstraksjon Undersøkelse Fylling Tannrensing Andre

16. Kan samfunnet bidra til at barns tannhelse blir bedre?

ja nei

Hvis ja, hvordan? _____

17. Kan foreldre bidra til å forebedre barns tannhelse?

ja nei

Hvis ja, hvordan?_____

Имя родителя / ответственного взрослого_____

Возраст родителя / ответственного взрослого _____

Имя Вашего ребенка _____

1. Ваше образование:

Незаконченные 9 классов	9 классов	Среднее образование	Колледж/ Университет

2. Как бы Вы оценили стоматологическое здоровье Вашего ребенка?

Очень хорошее Хорошее Умеренное Плохое Очень плохое

3. Насколько Вы удовлетворены состоянием зубов у Вашего ребенка?

Очень Умеренно В чем-то Немного Совсем нет

4. Насколько Вы удовлетворены существующей системой оказания стоматологической помощи для детей школьного возраста

Очень Умеренно В чем-то Немного Совсем нет

Предложения по улучшению_____

5. Как бы Вы оценили Ваше собственное стоматологическое здоровье?

Очень хорошее Хорошее Умеренное Плохое Очень плохое

6. У Вас есть сейчас или у Вас были проблемы, **связанные со стоматологическим здоровьем** за последние 2 года?

Боль и/или дискомфорт

Функциональные проблемы (трудности с употреблением твердой пищи, например, яблоки; трудности с произношением отдельных слов)

Социальные проблемы (чувствовали смущение, застенчивость, беспокойство, что выглядели не так хорошо, как другие)

Проблем не было.

7. Когда Вы посещали врача-стоматолога в последний раз?

Менее 1 года назад 1 год назад 2 года назад 3 или более лет назад

8. Во время последнего посещения стоматологической клиники, получили ли Вы все то лечение, которое Вам требовалось?

Да

Нет, было невозможно попасть к врачу

Врач посчитал лечение не нужным

У врача не было времени на лечение

У меня не было достаточно денег, чтобы оплатить лечение

Нет, по другой причине

9. Сколько Вам пришлось заплатить за лечение у врача-стоматолога во время Вашего последнего лечения?

_____

10. Сколько у Вас своих собственных зубов? _____

11. У Вас есть?

Пломбы	Исскуственные коронки	Мостовидные протезы	Имплантанты	Съемные протезы

12. Вы контролируете то, что ест Ваш ребенок?

Да, очень хорошо Нет

13. Знаете ли Вы, сколько денег тратит Ваш ребенок на покупку сладостей, в неделю?

Меньше чем 50 рублей	51-100 рублей	101-200 рублей	201-500 рублей	Более 500 рублей

14. Вы напоминаете Вашему ребенку о том, что необходимо чистить зубы?

Никогда	Редко	Иногда	Часто	Всегда

15. Какого рода лечение Вы получили во время Вашего последнего посещения врача-стоматолога?

Лечение по острой боли	Удаление зуба	Обследование	Постановка пломбы	Снятие зубных отложений	Другое

16. Должно ли общество что-то делать для того, чтобы улучшить стоматологическое здоровье детей?

Да Нет

Если да, то что? _____

_____

_____

_____

17. Должны ли родители что-то делать для того, чтобы улучшить стоматологическое здоровье детей?

Да Нет

Если да, то что? _____

_____

_____

_____

Appendix 4 – child's self-report (Norwegian, Russian)

INSTRUKSJONER
Utfyllingen av skjemaet skal foretas ved at du setter et kryss X i den "boksen" som står for det svaret som passer, eller ved å skrive svar på de angitte streker_____

T.0. GENERELL INFORMASJON

Skolens navn _____
Klassens navn (f. eks. 7A eller 7b) _____

Er du gutt eller jente (bruk kryss) ☐ Gutt ☐ Jente
Hvor gammel er du? _____ år

T.1. FAMILIE, LIVS VILKÅR

1.1. Mitt morsmål er:
(her kan du velge ett eller flere av tallene nedenfor)

Norsk	Samisk	Svensk	Finsk	Russisk	Annet
☐1	☐2	☐3	☐4	☐5	☐6

1.2. Hvem som bor du sammen med nå?
(Ta ikke med søsken og halvsøsken)

Mor og far	Bare mor	Bare far	Omtrent like mye hos mor og far	Mor el. far og ny ektefelle	Fosterforedre	Andre
☐1	☐2	☐3	☐4	☐5	☐6	☐7

1.3.. Hvor mange søsken eller halvsøsken bor du sammen med? (sett bare ett kryss)

Jeg er eneste barn i familie	Jeg har bare et som bor sammen	Jeg har to som bor sammen med oss	Jeg har tre som bor sammen med oss	Flere enn3
☐1	☐2	☐3	☐4	☐5

1.4. Mener du at familien din, sett i forhold til andre, har:
(sett bare ett kryss)

Dårlig råd	Middels råd	God råd	Svært god råd
☐1	☐2	☐3	☐4

1.5. Er far og/eller mor i arbeid nå?
(her kan du velge ett eller flere av tallene nedenfor)

	Har arbeid utenfor hjemme	Hjemme-værende	Studerer
Mor:	☐1	☐2	☐3
Far:	☐1	☐2	☐3

Hvis foreldrene er i arbeid, hvilket yrke har de?
Far_____
(skriv kort hva han gjør på jobben)

Mor_____
(skriv kort hva hun gjør på jobben)

T.2. MAT, DRIKKE OG SPISEVANER

2.1. Hvor ofte spiser du disse måltidene en vanlig uke?
Sett kryss (x) på hver linje.

	Sjelden/ aldri	1-2 g. pr. uke	3-4 g. pr. uke	5-6g. pr. uke	Hver dag
Frokost	☐1	☐2	☐3	☐4	☐5
Formiddags mat	☐1	☐2	☐3	☐4	☐5
Middag	☐1	☐2	☐3	☐4	☐5

2.2. Hva av følgende du spiste og drakk *i går*?
(putt et X i ruten som passer best for deg)

	Frokost	Formiddagsmat/ lunsj	Middag
Kaffe, te, kakao *med sukker*	☐1	☐2	☐3
Grøt og frokostblandinger	☐1	☐2	☐3
Søtsaker for eksempel sjokolade, sukkertøy, godteri, kjekskaker, is osv.	☐1	☐2	☐3
Brus, juice, saft, coca-cola, etc:	☐1	☐2	☐3
Andre med sukker:	☐1	☐2	☐3

2.3. Hvor ofte du spiste og drag av følgende *i går*?
(putt et X i ruten som passer best for deg)

	1 gang	2 ganger	3 ganger
Kaffe, te, kakao *med sukker*	☐1	☐2	☐3
Søtsaker for eksempel sjokolade, sukkertøy, godteri, kjekskaker, is osv.	☐1	☐2	☐3
Brus, juice, saft, coca-cola, etc:	☐1	☐2	☐3
Andre med sukker:	☐1	☐2	☐3

2.4. Vil du si at det du spiste *i går* er typisk for ditt daglige kosthold?
(sett bare ett kryss)

Passer godt	Passer middels	Passer ikke noe særlig	Passer dårlig
☐1	☐2	☐3	☐4

2.5. Hva synes du om vekta di?
(sett bare ett kryss)

Vekta er OK	Veier litt for mye	Veier alt for mye	Veier litt for lite	Veier alt for lite
☐1	☐2	☐3	☐4	☐5

2.6. Hvor mye penger bruker du i uka på snop, snacks, cola/brus og gatekjøkkenmat?
(sett bare ett kryss)

0-25 kr	26-50 kr	51-100 kr	101-150 kr	151-200 kr	Over 200 kr
☐1	☐2	☐3	☐4	☐5	☐6

T.3. HELSE, TANNHELSE

3.1. Hvordan er generelt helsen din nå?
(sett bare ett kryss)

Dårlig	Ikke helt god	God	Svært god
☐1	☐2	☐3	☐4

3.2. Mener du at du har bedre eller dårligere tenner enn andre ungdommer på din alder?
(sett bare ett kryss)

Bedre	Som de fleste	Dårligere	Vet ikke
☐1	☐2	☐3	☐4

3.3. Hvor ofte pusser du tennene dine?
(sett bare ett kryss)

Mer enn en gang per dag	En gang per dag	Annenhver dag	Sjelden eller aldri
☐1	☐2	☐3	☐4

3.4. Bruker du noen av følgende hjelpemidler, og i tilfelle hvor ofte?
Sett kryss (x) på hver linje.

	Mer enn en gang pr dag	En gang per dag	Noen ganger i uka	Sjelden eller aldri
Fluortannkrem	☐1	☐2	☐3	☐4
Tanntråd	☐1	☐2	☐3	☐4
Fluor tabletter	☐1	☐2	☐3	☐4
Fluorskyllevæske	☐1	☐2	☐3	☐4
Tyggegummi uten sukker	☐1	☐2	☐3	☐4

3.5. Når var du sist hos tannlege/ i tannklinikk?
(sett bare ett kryss)

Under 1 år siden	1-2 år siden	2-5 år siden	Mer enn 5 år siden
☐1	☐2	☐3	☐4

3.6. Ble det lagt fylling i det siste besøket hos tannlegen
(sett bare ett kryss)

Ja	Nei
☐1	☐2

3.7. Hva slags forebyggende behandling/informasjon fikk du på tannklinikken?
(her kan du velge ett eller flere av tallene nedenfor)

Penslet med fluor	Fissurforsegling (Lakkering tennene)	Om munnhygiene	Om kosthold	Ble innkalt på nytt til tannlege for behandle tennene
☐1	☐2	☐3	☐4	☐5

Andre (beskriv): _____

3.8. Dersom du skulle til tannlegen i morgen, hva ville du da føle?
(sett bare ett kryss)

Avslappe	Litt urolig	Anspent, nervøs	Redd, engstelig	Så redd at jeg av og til begynner å svette eller nesten føler meg syk
☐1	☐2	☐3	☐4	☐5

T.4. MOSJON OG FYSISK AKTIVITET

4.1. Utenom skoletid: Driver du vanligvis noen form for mosjon eller trening, for eksempel jogger, går lengre turer/skiturer, driver gymnastikk, danser, sykler, svømmer, spiller fotball, tennis og lignende? (sett bare ett kryss)

Ja	Nei
☐1	☐2

4.2. Utenom skoletid: Hvor ofte mosjonerer eller trener du vanligvis?
(sett bare ett kryss)

Sjelden enn en gang per uke	1-2 ganger per uke	3-4 ganger per uke	5-7 ganger per uke
☐1	☐2	☐3	☐4

4.3. Utenom skoletid: Hvor mange timer pr. skoledag (mandag til fredag) sitter du i gjennomsnitt foran TV, video og/eller spiller PS (spill og internett)?

Inntil 1 time	1-2 timer	3-5 timer	Mer enn 5 timer
☐1	☐2	☐3	☐4

Инструкции по заполнению: отвечая на вопросы, ставь крестик в пустом квадрате, который стоит рядом с наиболее подходящим для тебя ответом.

Т.0. ОБЩАЯ ИНФОРМАЦИЯ

Номер школы_____

Класс (например, 7а или 7б) _____

Твой пол (используй X ☐ Мальчик ☐ Девочка

Твой возраст? _____ лет

Т.1. СЕМЬЯ, ПРОИСХОЖДЕНИЕ, УСЛОВИЯ ЖИЗНИ

1.1. Мой родной язык

Норвежский	Саамский	Шведский	Финский	Русский	Другое
☐1	☐2	☐3	☐4	☐5	☐6

1.2. Вместе с кем ты сейчас живешь? (не считая братьев и сестёр)

Мама и папа	Только мама	Только папа	Примерно одинаковое время с мамой и папой	С мамой и ее новым мужем (или с папой и его новой женой)	Приемные родители	Другое
☐1	☐2	☐3	☐4	☐5	☐6	☐7

1.3. Сколько у тебя братьев и сестер?

Я единственный ребенок в семье	У меня только один брат или сестра, живущие с нами	У меня двое братьев или сестер, живущих с нами	У меня трое братьев или сестер, живущих с нами	Больше трех
☐1	☐2	☐3	☐4	☐5

1.4. Как, ты считаешь, обеспечена твоя семья в сравнении с другими вокруг?

Недостаточно	Средне	Хорошо	Очень хорошо
☐1	☐2	☐3	☐4

1.5. Чем занимаются твои мама и/или папа сейчас?

	Работает	Не работает	Учится
Мама:	☐1	☐2	☐3
Папа:	☐1	☐2	☐3

Если твои родители работают, какая это профессия?
Папа_____
(кратко опиши, что он делает на работе)

Мама_____
(кратко опиши, что она делает на работе)

Т.2. ЕДА, НАПИТКИ, ПИЩЕВЫЕ ПРИВЫЧКИ И ПРЕДПОЧТЕНИЯ

2.1. Обычно, в течении недели, как часто ты имеешь возможность позавтракать, пообедать и поужинать?

	Редко/ никогда	1-2 раза в неделю	3-4 раза в неделю	5-6 раза в неделю	Каждый день
Завтрак	☐1	☐2	☐3	☐4	☐5
Обед	☐1	☐2	☐3	☐4	☐5
Ужин	☐1	☐2	☐3	☐4	☐5

2.2. Что из нижеперечисленного ты ел и пил *вчера* во время основных приёмов пищи?

(на завтрак, обед и ужин)	На завтрак	На обед	На ужин
Кофе, чай, какао с сахаром	☐1	☐2	☐3
Кашу, мюсли или хлопья	☐1	☐2	☐3
Сладости, такие как шоколад, бисквит, мороженное и т.д.	☐1	☐2	☐3
Сок, лимонад, сладкие газированные напитки, кока-кола и т.д.	☐1	☐2	☐3
Другое (с содержанием сахара):	☐1	☐2	☐3

2.3. Как часто ты "перекусывал" и пил *вчера* из нижеперечисленного в перерыве между основными приёмами пищи?

В перерыве между основными приёмами пищи	1 раз	2 раза	3 раза
Кофе, чай, какао с сахаром	☐1	☐2	☐3
Сладости, такие как шоколад, бисквит, мороженное и т.д.	☐1	☐2	☐3
Сок, лимонад, сладкие газированные напитки, кока-кола и т.д.	☐1	☐2	☐3
Другое (с содержанием сахара):	☐1	☐2	☐3

2.4. Можешь ли ты сказать,что *вчера* ты питался как обычно (еда была типичная для твоего ежедневного рациона)

Да, абсолютно	Да, в основном	Нет, не совсем	Совсем нет
☐1	☐2	☐3	☐4

2.5. Что ты думаешь о собственном весе?

Мой вес в порядке	Есть немного лишнего веса	Я вешу слишком много	Мой вес недостаточный	Мой вес очень маленький
☐1	☐2	☐3	☐4	☐5

2.5. Сколько денег *в неделю* ты тратишь на покупку сладостей, чипсов, кока-колы/сладких газированных напитков, продуктов быстрого питания (пирожки, хот-доги)?

0-100 рублей	101-200 рублей	201-400 рублей	401-600 рублей	601-800 рублей	Более 800 рублей
☐1	☐2	☐3	☐4	☐5	☐6

Т.3. ОБЩЕЕ ЗДОРОВЬЕ, СТОМАТОЛОГИЧЕСКОЕ ЗДОРОВЬЕ

3.1. Как бы ты охарактеризовал свое здоровье в общем?

Плохое	Не совсем хорошее	Хорошее	Очень хорошее
☐1	☐2	☐3	☐4

3.2. По твоему мнению, состояние твоих зубов у тебя лучше или хуже, чем у других детей твоего возраста?

Лучше	Такое же	Хуже	Не знаю
☐1	☐2	☐3	☐4

3.3. Как часто ты чистишь зубы?

Чаще одного раза в день	Один раз в день	Через день	Редко или никогда
☐1	☐	☐3	☐4

3.4. Используешь ли ты что-либо из нижеперечисленного? Как часто?
Поставь (х) напротив каждой из строк

	Чаще одного раза в день	Один раз в день	Несколько раз в неделю	Редко или никогда
Зубная паста со фтором	☐1	☐2	☐3	☐4
Зубная нить	☐1	☐2	☐3	☐4
Таблетки со фтором	☐1	☐2	☐3	☐4
Жидкость для полоскания зубов, со фтором	☐1	☐2	☐3	☐4
Жевательная резинка, *не содержащая сахар*	☐1	☐2	☐3	☐4

3.5. Когда в последний раз ты был у стоматолога / в стоматологической поликлинике?

Менее 1 года назад	1-2 года назад	2-5 лет назад	Более 5 лет назад
☐1	☐2	☐3	☐4

3.6. Во время последнего посещения стоматолога, тебе была поставлена пломба?

Да	Нет
☐1	☐2

3.7. Что из перечисленного профилактического лечения и какую информацию/ назначения ты получил в стоматологическом кабинете.

Покрытие фторлаком	Герметизация фиссур ("запечатывание" зуба специальным материалом для защиты от кариеса)	Информацию о навыках гигиены полости рта	Информацию о правильном питании	Было назначено повторное посещение
☐1	☐2	☐3	☐4	☐5

Другое (опиши)_____

3.8. Если бы тебе нужно было идти завтра на прием к врачу-стоматологу, как бы ты себя чувствовал?

Ожидал бы с нетерпением - я люблю ходить к стоматологу.	Ничего особенного- это обычный визит к врачу.	Немного беспокоился.	Я бы боялся потому что это бывает неприятно и больно.	Я бы испытывал сильныи страх при одной мысли о том что стоматолог возможно будет делать.
☐1	☐2	☐3	☐4	☐5

Т.4. ДВИЖЕНИЕ И ФИЗИЧЕСКАЯ АКТИВНОСТЬ

4.1. Занимаешься ли ты после школы каким-либо видом спорта: бег, катание на коньках, гимнастика, танцы, велосипед, бассейн, футбол, тенис и т.д.?

☐ Да ☐ Нет

4.2. После школы: как часто ты обычно занимаешься каким-либо из перечисленных выше видов спорта?

Реже 1 раза в неделю	1-2 раза в неделю	3-4 раза в неделю	5-7 раза в неделю
☐1	☐2	☐3	☐4

4.3. После школы: как долго в будние дни (с понедельника по пятницу) ты просиживаешь перед экраном телевизора или компьютера (играешь, смотришь фильмы)?

Меньше часа	1-2 часа	3-5 часов	Больше 5 часов
☐1	☐2	☐3	☐4

Appendix 5 – Child Perceptions Questionnaire (CPQ11-14) for assessing the oral health-related quality (Norwegian, Russian)

Barns orale helse skjema

11-14 år

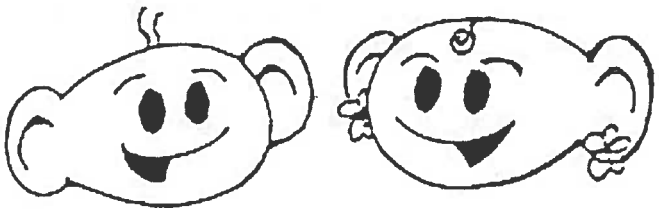
Hallo,

Takk for at du vil hjelpe oss med denne undersøkelsen!

Denne undersøkelsen gjøres for at vi skal kunne forstå mer om problemer barn kan ha på grunn av tennene, munn, lepper og kjever.
Ved å svare på disse spørsmålene, vil du hjelpe oss med å lære mer om ungdommers/unge menneskers erfaringer.

Vennligst husk:

- Ikke skriv navnet ditt på spørreskjemaet.
- Dette er **ikke en test**, og det er ingen riktige eller gale svar.
- Svar så **ærlig** du kan. Ikke snakk med noen om spørsmålene mens du svarer dem. Dine svar er **private**; ingen vil få se dem.
- Les hvert spørsmål **nøye** og tenk på dine erfaringer **de 3 siste månedene** når du svarer.
- Før du svarer spør deg selv: "**Hender dette meg på grunn av problemer med mine tenner, lepper, munn eller kjever**?"
- Putt et X i ruten som passer best for deg



Dagens dato _____/_____/_____
Dag Måned År

Først, et par spørsmål om deg!

1. Er du jente eller gutt?

☐ Gutt

☐ Jente

2. Når ble du født? _____/_____/_____
Dag Måned År

3. Vil du si at helsen i tennene, leppene, kjevene og munnen din er:

☐ Utmerket?

☐ Veldig bra

☐ Bra

☐ Sånn passe?

☐ Dårlig

4. Hvor mye påvirker tilstanden til tennene, leppene, kjevene eller munnen din livet ditt som helhet?

☐ Ikke i det hele tatt

☐ Veldig lite

☐ Noe

☐ Mye

☐ Veldig mye

Spørsmål om orale problemer

Har du hatt disse problemene på grunn av dine tenner, lepper, kjever eller munn?
Hvis du har følt slik på grunn av andre årsaker svar "aldri".

Hvor ofte har du i løpet av de siste 3 månedene hatt:

5. Smerter i tennene, leppene, kjevene eller munnen din?

☐ Aldri

☐ En eller to ganger

☐ Noen ganger

☐ Ofte

☐ Hver dag eller nesten hver dag

6. Blødning i tannkjøttet?

☐ Aldri

☐ En eller to ganger

☐ Noen ganger

☐ Ofte

☐ Hver dag eller nesten hver dag

7. Sår i munnen?

☐ Aldri

☐ En eller to ganger

☐ Noen ganger

☐ Ofte

☐ Hver dag eller nesten hver dag

8. Dårlig ånde på grunn av tennene, leppene, munnen eller kjevene dine?

☐ Aldri

☐ En eller to ganger

☐ Noen ganger

☐ Ofte

☐ Hver dag eller nesten hver dag

9. Plager med at mat setter seg fast i mellom tennene?

☐ Aldri

☐ En eller to ganger

☐ Noen ganger

☐ Ofte

☐ Hver dag eller nesten hver dag

10. Plager med at mat setter seg fast i ganen?

☐ Aldri

☐ En eller to ganger

☐ Noen ganger

☐ Ofte

☐ Hver dag eller nesten hver dag

For de neste spørsmålene...
Har dette hendt på grunn av tennene, leppene, kjevene eller munnen din?

I løpet av de siste 3 månedene har det ofte vært:

11. Pustet gjennom munnen, på grunn av tennene, leppene, munnen eller kjevene dine?

☐ Aldri

☐ En eller to ganger

☐ Noen ganger

☐ Ofte

☐ Hver dag eller nesten hver dag

12. Brukt lengre tid enn andre å spise et måltid, på grunn av tennene, leppene, munnen eller kjevene dine?

☐ Aldri

☐ En eller to ganger

☐ Noen ganger

☐ Ofte

☐ Hver dag eller nesten hver dag

13. Hatt problemer med å sove om natten, på grunn av tennene, leppene, munnen eller kjevene dine?

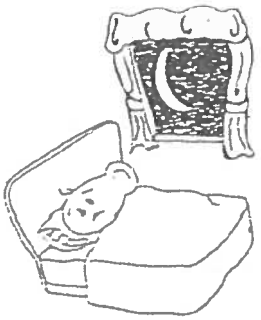
☐ Aldri

☐ En eller to ganger

☐ Noen ganger

☐ Ofte

☐ Hver dag eller nesten hver dag



14. Vanskelig å bite eller tygge mat som epler, maiskolber eller kjøtt/stek, på grunn av tennene, leppene, munnen eller kjevene dine?

☐ Aldri

☐ En eller to ganger

☐ Noen ganger

☐ Ofte

☐ Hver dag eller nesten hver dag

15. Vanskelig å åpne munnen på vidt gap?

☐ Aldri

☐ En eller to ganger

☐ Noen ganger

☐ Ofte

☐ Hver dag eller nesten hver dag

16. Vanskeligheter med å si enkelte ord på grunn av tennene, leppene, munnen eller kjevene dine?

☐ Aldri

☐ En eller to ganger

☐ Noen ganger

☐ Ofte

☐ Hver dag eller nesten hver dag

17. Vanskelig å spise mat som du ønsker å spise på grunn av tennene, leppene, munnen eller kjevene dine?

☐ Aldri

☐ En eller to ganger

☐ Noen ganger

☐ Ofte

☐ Hver dag eller nesten hver dag

18. Vanskelig å drikke med sugerør på grunn av tennene, leppene, munnen eller kjevene dine?

☐ Aldri

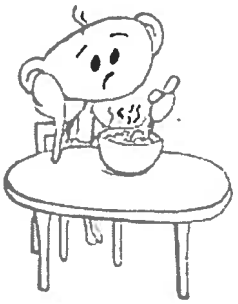
☐ En eller to ganger

☐ Noen ganger

☐ Ofte

☐ Hver dag eller nesten hver dag

19. Vanskelig å drikke eller spise varm eller kald mat på grunn av tennene, leppene, munnen eller kjevene dine?



☐ Aldri

☐ En eller to ganger

☐ Noen ganger

☐ Ofte

☐ Hver dag eller nesten hver dag

Spørsmål om følelser

Har du hatt denne følelsen på grunn av dine tenner, lepper, kjever eller munn?
Hvis du har følt slik på grunn av andre årsaker svar "aldri".

I løpet av de 3 siste månedene, hvor ofte har du:

20. Følt deg irritabel eller frustrert på grunn av tennene, leppene, munnen eller kjevene dine?

☐ Aldri

☐ En eller to ganger

☐ Noen ganger

☐ Ofte

☐ Hver dag eller nesten hver dag

21. Følt deg usikker på deg selv på grunn av tennene, leppene, munnen eller kjevene dine?

☐ Aldri

☐ En eller to ganger

☐ Noen ganger

☐ Ofte

☐ Hver dag eller nesten hver dag

22. Følt deg sjenert eller flau på grunn av tennene, leppene, munnen eller kjevene dine?

☐ Aldri

☐ En eller to ganger

☐ Noen ganger

☐ Ofte

☐ Hver dag eller nesten hver dag

23. Vært bekymret for hva andre mennesker synes om dine tenner, lepper, kjever eller munn?

☐ Aldri

☐ En eller to ganger

☐ Noen ganger

☐ Ofte

☐ Hver dag eller nesten hver dag

24. Vært bekymret for at du ikke er så pen som andre på grunn av tennene, leppene, munnen eller kjevene dine?

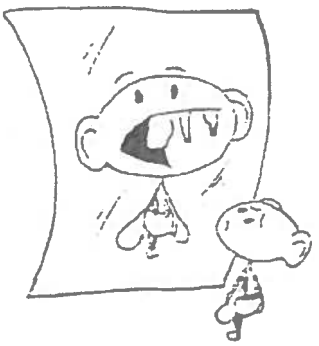
☐ Aldri

☐ En eller to ganger

☐ Noen ganger

☐ Ofte

☐ Hver dag eller nesten hver dag



25. Vært oppskaket på grunn av tennene, leppene, munnen eller kjevene dine?

☐ Aldri

☐ En eller to ganger

☐ Noen ganger

☐ Ofte

☐ Hver dag eller nesten hver dag

26. Kjent deg nervøs eller redd på grunn av tennene, leppene, munnen eller kjevene dine?

☐ Aldri

☐ En eller to ganger

☐ Noen ganger

☐ Ofte

☐ Hver dag eller nesten hver dag

27. Vært bekymret for at du ikke er så frisk som andre på grunn av tennene, leppene, munnen eller kjevene dine?

☐ Aldri

☐ En eller to ganger

☐ Noen ganger

☐ Ofte

☐ Hver dag eller nesten hver dag

28. Vært bekymret for at du annerledes enn andre på grunn av tennene, leppene, munnen eller kjevene dine?

☐ Aldri

☐ En eller to ganger

☐ Noen ganger

☐ Ofte

☐ Hver dag eller nesten hver dag

Spørsmål om skolen

Har du hatt disse erfaringene på grunn av tennene, leppene kjevene eller munnen din? Dersom det var en annen grunn, svar "aldri".

I løpet av de 3 siste månedene, hvor ofte har du:

29. Vært bort fra skolen på grunn av tannpine, tannlegetimer eller kirurgi/operasjon i dine tenner, lepper, kjever eller munn?

☐ Aldri

☐ En eller to ganger

☐ Noen ganger

☐ Ofte

☐ Hver dag eller nesten hver dag

30. Hatt vanskeligheter med å følge med i timene på skolen på grunn av tennene, leppene, munnen eller kjevene dine?

☐ Aldri

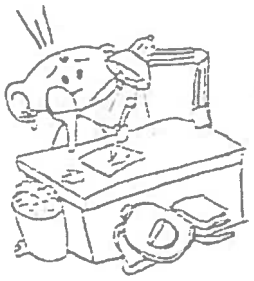
☐ En eller to ganger

☐ Noen ganger

☐ Ofte

☐ Hver dag eller nesten hver dag

31. Hatt vanskeligheter med å gjøre leksene dine på grunn av tennene, leppene, munnen eller kjevene dine?



☐ Aldri

☐ En eller to ganger

☐ Noen ganger

☐ Ofte

☐ Hver dag eller nesten hver dag

32. Ikke ønsket å snakke eller lese høyt i klassen på grunn av tennene, leppene, munnen eller kjevene dine?

☐ Aldri

☐ En eller to ganger

☐ Noen ganger

☐ Ofte

☐ Hver dag eller nesten hver dag

Spørsmål om fritids-aktiviteter og om å være sammen med andre mennesker.

Har du hatt disse erfaringene på grunn av tennene, leppene, kjevene eller munnen din? Dersom det er en annen grunn, svar "aldri".

I løpet av de 3 siste månedene, hvor ofte har du:

33. Unngått å ta del i aktiviteter som idrett, klubber, drama, musikk eller skoleturer på grunn av tennene, leppene, munnen eller kjevene dine?

☐ Aldri

☐ En eller to ganger

☐ Noen ganger

☐ Ofte

☐ Hver dag eller nesten hver dag

34. Ikke ønsket å snakke med andre barn på grunn av tennene, leppene, munnen eller kjevene dine?

☐ Aldri

☐ En eller to ganger

☐ Noen ganger

☐ Ofte

☐ Hver dag eller nesten hver dag

35. Unngått å smile eller le blant andre barn på grunn av tennene, leppene, munnen eller kjevene dine?

☐ Aldri

☐ En eller to ganger

☐ Noen ganger

☐ Ofte

☐ Hver dag eller nesten hver dag

36. Hatt problemer med å spille et musikkinstrument som blokkfløyte, fløyte, klarinett eller trompe på grunn av tennene, leppene, munnen eller kjevene dine?

☐ Aldri

☐ En eller to ganger

☐ Noen ganger

☐ Ofte

☐ Hver dag eller nesten hver dag

37. Ikke ønsket å tilbringe tid med andre barn på grunn av tennene, leppene, munnen eller kjevene dine?

☐ Aldri

☐ En eller to ganger

☐ Noen ganger

☐ Ofte

☐ Hver dag eller nesten hver dag

38. Kranglet med andre barn eller familien din på grunn av tennene, leppene, munnen eller kjevene dine?

☐ Aldri

☐ En eller to ganger

☐ Noen ganger

☐ Ofte

☐ Hver dag eller nesten hver dag

39. Blitt ertet av andre barn på grunn av tennene, leppene, munnen eller kjevene dine?

☐ Aldri

☐ En eller to ganger

☐ Noen ganger

☐ Ofte

☐ Hver dag eller nesten hver dag

40. Følt at du er blitt utestengt av andre barn på grunn av tennene, leppene, munnen eller kjevene dine?

☐ Aldri

☐ En eller to ganger

☐ Noen ganger

☐ Ofte

☐ Hver dag eller nesten hver dag

41. Fått spørsmål fra andre barn om av tennene, leppene, munnen eller kjevene dine?

☐ Aldri

☐ En eller to ganger

☐ Noen ganger

☐ Ofte

☐ Hver dag eller nesten hver dag

ОПРОСНИК ДЕТСКОГО СТОМАТОЛОГИЧЕСКОГО ЗДОРОВЬЯ

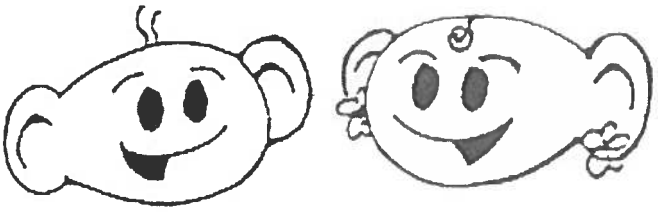
11-14 лет

Привет!

Спасибо что согласился помочь нам в проведении научного исследования. Данное исследование было начато, чтобы понять проблемы детей, связанных с состоянием их зубов. Отвечая на наши вопросы, ты поможешь нам узнать больше о жизни детей и подростков.

ПОЖАЛУЙСТА ПОМНИ:

- Не указывай своего имени на анкете
- Это не экзамен и здесь нет правильных и неправильных ответов
- Отвечай честно. Не обсуждай вопросы с другими, когда ты отвечаешь на них. Твои ответы являются личным; никто из твоих знакомых не узнает твоих ответов.
- Читай каждый вопрос **внимательно** и отвечай на каждый вопрос, основываясь на том, что происходило с тобой за последние **3 месяца.**
- Перед тем как ответить, спроси сам/сама себя: "Случилось ли это со мной из-за состояния моих зубов"?
- Ставь крестик в пустом квадрате, который наилучшим образом подходит тебе в качестве ответа.



Кафедра терапевтической стоматологии
Северный государственный медицинский университет
Архангельск

Дата заполнения: _____д /_____м/_____г/

ДЛЯ НАЧАЛА НЕСКОЛЬКО ВОПРОСОВ О ТЕБЕ!

1. Ты мальчик или девочка?

☐ мальчик

☐ девочка

2. Когда ты родился? _____д /_____м/_____г/

3. Мог бы ты сказать что здоровье твоих зубов, губ, челюстей и рта:
□ идеальное
□ очень хорошее
□ хорошее
□ слабое
□ плохое

4. Насколько состояние твоих зубов, губ, челюстей и рта влияет на твою жизнь в целом?
□ совсем нет
□ очень немного
□ несколько
□ много
□ очень много

ВОПРОСЫ О СТОМАТОЛОГИЧЕСКИХ ПРОБЛЕМАХ

За последние 3 месяца как часто у тебя было следующее из нижеперечисленного:

5. Боль в зубах, губах, челюстях, во рту?
□ Никогда
□ Один или два раза
□ Иногда
□ Часто
□ Каждый день или почти каждый день

6. Кровотечение из десен?
□ Никогда
□ Один или два раза
□ Иногда
□ Часто
□ Каждый день или почти каждый день

7. Раны во рту?
- □ Никогда
- □ Один или два раза
- □ Иногда
- □ Часто
- □ Каждый день или почти каждый день

8. Плохой запах изо рта?
- □ Никогда
- □ Один или два раза
- □ Иногда
- □ Часто
- □ Каждый день или почти каждый день

9. Застревание пищи в зубах или между зубов?
- □ Никогда
- □ Один или два раза
- □ Иногда
- □ Часто
- □ Каждый день или почти каждый день

10. Застревание пищи на твердом небе?
- □ Никогда
- □ Один или два раза
- □ Иногда
- □ Часто
- □ Каждый день или почти каждый день

Для следующих вопросов...
Следующее из нижеперечисленного случалось по причине проблем с твоими зубами, губами, челюстями или ртом

За последние 3 месяца как часто ты:

11. Дышал через рот?
- □ Никогда
- □ Один или два раза
- □ Иногда
- □ Часто
- □ Каждый день или почти каждый день

12. На прием пищи уходило больше времени, чем у других?
- □ Никогда
- □ Один или два раза
- □ Иногда
- □ Часто
- □ Каждый день или почти каждый день

13. Беспокойно спал?

- □ Никогда
- □ Один или два раза
- □ Иногда
- □ Часто
- □ Каждый день или почти каждый день

За <u>последние 3 месяца</u>, из-за проблем с твоими <u>зубами, губами, челюстями или ртом,</u> как часто у тебя было следующее:

14. Трудно откусывать и пережевывать пишу, например, яблоки, кукуруза, мясо?

- □ Никогда
- □ Один или два раза
- □ Иногда
- □ Часто
- □ Каждый день или почти каждый день

15. Трудно открывать рот широко?

- □ Никогда
- □ Один или два раза
- □ Иногда
- □ Часто
- □ Каждый день или почти каждый день

16. Трудно выговаривать какие-нибудь слова?

- □ Никогда
- □ Один или два раза
- □ Иногда
- □ Часто
- □ Каждый день или почти каждый день

17. Трудно есть пищу, которую ты хотел бы съесть?

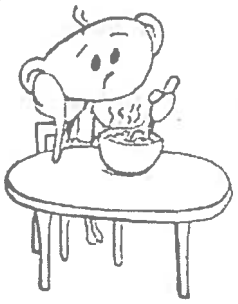
- □ Никогда
- □ Один или два раза
- □ Иногда
- □ Часто
- □ Каждый день или почти каждый день

18. Трудно пить через соломинку?

- □ Никогда
- □ Один или два раза
- □ Иногда
- □ Часто
- □ Каждый день или почти каждый день

19. Трудно пить или есть горячую или холодную пищу?

- □ Никогда
- □ Один или два раза
- □ Иногда
- □ Часто
- □ Каждый день или почти каждый день



ВОПРОСЫ О ЧУВСТВАХ

Приходилось ли тебе чувствовать что-либо из нижеперечисленного из-за своих зубов, губ, челюстей или рта?
Если ты чувствовал это, но по причине, не связанной с зубами, то обведи «никогда».

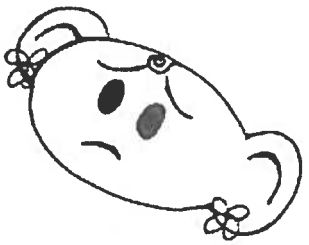
За последние 3 месяца как часто ты:

20. Чувствовал разочарование или раздражение?

- □ Никогда
- □ Один или два раза
- □ Иногда
- □ Часто
- □ Каждый день или почти каждый день

21. Чувствовал неуверенность в себе?

- □ Никогда
- □ Один или два раза
- □ Иногда
- □ Часто
- □ Каждый день или почти каждый день



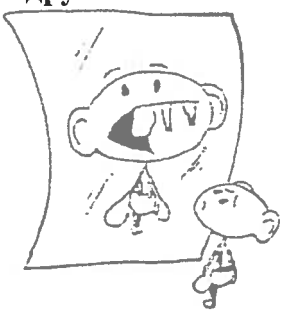
22. Чувствовал себя стеснительным или смущенным?

- □ Никогда
- □ Один или два раза
- □ Иногда
- □ Часто
- □ Каждый день или почти каждый день

За последние 3 месяца, из-за проблем с твоими зубами, губами, челюстями или ртом, как часто у тебя было следующее:

23. Был озабочен тем, что другие люди думают о состоянии твоих зубов, губ, челюстей или рта?
- □ Никогда
- □ Один или два раза
- □ Иногда
- □ Часто
- □ Каждый день или почти каждый день

24. Беспокоился, что ты выглядел не так хорошо, как другие?
- □ Никогда
- □ Один или два раза
- □ Иногда
- □ Часто
- □ Каждый день или почти каждый день



25. Был расстроен?
- □ Никогда
- □ Один или два раза
- □ Иногда
- □ Часто
- □ Каждый день или почти каждый день

26. Нервничал или боялся чего-либо?
- □ Никогда
- □ Один или два раза
- □ Иногда
- □ Часто
- □ Каждый день или почти каждый день

27. Беспокоился, что ты не такой здоровый, как другие?
- □ Никогда
- □ Один или два раза
- □ Иногда
- □ Часто
- □ Каждый день или почти каждый день

28. Беспокоился что ты отличаешься от других людей?
- □ Никогда
- □ Один или два раза
- □ Иногда
- □ Часто
- □ Каждый день или почти каждый день

ВОПРОСЫ О ШКОЛЕ

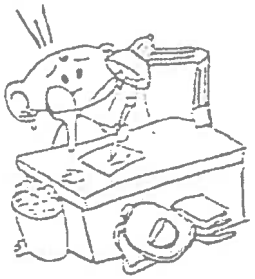
Имел ли ты когда-нибудь следующее из нижеперечисленного из-за состояния твоих зубов, губ, челюстей или рта?
Если ты чувствовал это, но по причине, не связанной с зубами, то обведи «никогда».

За последние 3 месяца как часто ты:

29. Пропускал школу из-за зубной боли или назначенного приема или операции у врача-стоматолога?
- □ Никогда
- □ Один или два раза
- □ Иногда
- □ Часто
- □ Каждый день или почти каждый день

30. Не мог сосредоточиться в школе?
- □ Никогда
- □ Один или два раза
- □ Иногда
- □ Часто
- □ Каждый день или почти каждый день

31. Имел трудности с подготовкой домашнего задания?
- □ Никогда
- □ Один или два раза
- □ Иногда
- □ Часто
- □ Каждый день или почти каждый день



32. Не хотел говорить или читать вслух в классе?
- □ Никогда
- □ Один или два раза
- □ Иногда
- □ Часто
- □ Каждый день или почти каждый день

ВОПРОСЫ О ТВОЕМ ДОСУГЕ И ВРЕМЯПРОВОЖДЕНИИ С ДРУГИМИ ЛЮДЬМИ

Имел ли ты когда-нибудь следующее из нижеперечисленного из-за состояния твоих зубов, губ, челюстей или рта?
Если ты чувствовал это, но по причине, не связанной с зубами, то обведи «никогда».

За последние 3 месяца как часто ты:

33. Избегал принимать участия в мероприятиях, например, спортивные занятия, клубы, драматические, музыкальные кружки, школьные походы?
- □ Никогда
- □ Один или два раза
- □ Иногда
- □ Часто
- □ Каждый день или почти каждый день

34. Не хотел разговаривать с другими детьми?
- □ Никогда
- □ Один или два раза
- □ Иногда
- □ Часто
- □ Каждый день или почти каждый день

35. Избегал улыбаться или смеяться в кругу других детей?
- □ Никогда
- □ Один или два раза
- □ Иногда
- □ Часто
- □ Каждый день или почти каждый день

36. Имел трудности с игрой на музыкальных инструментах, таких как, флейта, кларнет, труба?
- □ Никогда
- □ Один или два раза
- □ Иногда
- □ Часто
- □ Каждый день или почти каждый день

37. Не хотел проводить время с другими детьми?
- □ Никогда
- □ Один или два раза
- □ Иногда
- □ Часто
- □ Каждый день или почти каждый день

38. Спорил с другими детьми или членами семьи?
- □ Никогда
- □ Один или два раза
- □ Иногда
- □ Часто
- □ Каждый день или почти каждый день

За последние 3 месяца, из-за проблем с твоими зубами, губами, челюстями или ртом, как часто у тебя было следующее:

39. Другие дети дразнили тебя или обзывали по фамилии?
- □ Никогда
- □ Один или два раза
- □ Иногда
- □ Часто
- □ Каждый день или почти каждый день

40. Другие дети делали так, что ты оставался покинутым?
- □ Никогда
- □ Один или два раза
- □ Иногда
- □ Часто
- □ Каждый день или почти каждый день

41. Другие дети спрашивали тебя о твоих зубах, губах, челюстях и рте?
- □ Никогда
- □ Один или два раза
- □ Иногда
- □ Часто
- □ Каждый день или почти каждый день

Appendix 6 – self-report for assessing the oral health care delivery, performance of the care provision systems and use of dental services in relation to dental treatment needs (English, Russian)

Description of dental care in your region

1. In your opinion, what percentage of the total amount provided dental services in your area of public free treatment? For children? For adults?

Description of dental care system

2. In your opinion, what percentage of the total amount of dental services in your area provided by public free treatment? For children? For adults?

3. In your opinion, what percentage of the total amount of dental services in your area provided by private free treatment? For children? For adults?

4. Can the cost of treatment in private clinics, to be included in the tax return, and thus, some costs of the treatment to be paid back to a patient?

5. Number of dentists working in public clinics in your area?

6. Number of dentists working in private clinics in your area?

7. Number of dentists combining work in the public and private dental clinics in your area?

8. Do you have dental hygienists in your area? If so, how many?

9. In case toy have dental hygienists in your area, in which institutions are they mainly employed?

10. What is the number of dentists of general education in your area?

11. Number of child's dentists in your area?

12. Number of dental technicians in your area?

13. Number of people per dentis (private? public? in general?)

14. Percentage of 12-years old children in your area having no caries?

15. Level of child´s DMFT in your region?

16. Level of adult´s DMFT in your region?

Описание системы оказания стоматологической помощи в Вашем регионе

1. По Вашему мнению, какой процент от общего объема оказываемых стоматологических услуг в Вашем регионе составляет государственное бесплатное лечение? Для детей? Для взрослых?

2. По Вашему мнению, какой процент от общего объема оказываемых стоматологических услуг в Вашем регионе составляет лечение в частных клиниках?

3. Могут ли расходы, связанные с лечением в частных клиниках, быть включены в налоговую декларацию, и таким образом, часть расходов возвращена пациенту?

4. Количество стоматологов, работающих в государственных стом.структурах в Вашем регионе?

5. Количество стоматологов, работающих в частных стом.структурах в Вашем регионе?

6. Количество стоматологов, совмещающих работу в государственных и в частных стом. структурах в Вашем регионе?

7. В Вашем регионе есть стоматологические гигиенисты? Если да, то сколько?

8. Если в Вашем регионе есть стоматологические гигиенисты, то в каких учреждениях они в основном трудоустроены?

9. Количество врачей-стоматологов общего профиля в Вашем регионе?

10. Количество детских стоматологов в Вашем регионе?

11. Количество стоматологических техников в Вашем регионе?

12. Количество населения, приходящегося на одного работающего стоматолога (приватного? государственного? в целом?)

13. Процент детей 12-летнего возраста, не имеющих кариеса в Вашем регионе?

14. Показатель DMFT в Вашем регионе для детей 12-летнего возраста?

15. Показатель DMFT в Вашем регионе для взрослого населения?

9. PAPERS I – IV

Paper 1

Paper 2

Paper 3

Paper 4

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