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SCHOOLS AS ORAL HEALTH PROMOTERS

Evaluation of National Sweet Selling Recommendation
and Oral Health Education Material

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*“The goal of health promotion is not to change people’s behaviour,
but to create for them the best equipment possible to do it themselves”
(Finnish Centre for Health Promotion 2002)*

To my family

ABSTRACT

Rami Kankaanpää

Schools as Oral Health Promoters – Evaluation of National Sweet Selling Recommendation and Oral Health Education Material

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The aims were to find out 1) if schools' oral health practices were associated with pupils' oral health behaviour and whether 2) the national sweet-selling recommendation and 3) distributing oral health material (OHEM) affected schools as oral health promoters.

Three independently collected datasets from Finnish upper comprehensive schools (N=988) were used: longitudinal oral health practices data (n=258) with three-year follow up (2007 n=480, 2008 n=508, 2009 n=593) from principals' online questionnaires, oral health behaviour data from pupils participating in the national School Health Promotion Study (n=970 schools) and oral health education data from health education teachers' online questionnaires (2008 n=563, 2009 n=477 teachers). Oral health practices data and oral health behaviour data were combined (n=414) to answer aim 1. For aims 2 and 3, oral health practices data and oral health education data were used independently.

School sweet selling and an open campus policy were associated with pupils' use of sweet products and tobacco products during school time. The National Recommendation was quite an effective way to reduce the number of sweet-selling schools, but there were large regional differences and a lack of a clear oral health policy in the schools. OHEM did not increase the proportion of teachers teaching oral health, but teachers started to cover oral health topics more frequently. Women started to use OHEM more often than men did.

Schools' oral health policy should include prohibiting the selling of sweet products in school by legislative actions, enabling healthy alternatives instead, and setting a closed campus policy to protect pupils from school-time sweet consuming and smoking.

Key words: Adolescent, Behaviour, Candy, Carbonated beverages, Environment, Pupil, Oral Health, School Health Education, Schools, School Health Promotion, School Teachers, Teaching Materials

TIIVISTELMÄ

Rami Kankaanpää

Koulut suunterveyden edistäjinä – Kansallisen makeanmyyntisuosituksen ja Suunhoito-opaan vaikutusten arviointi

Sosiaalihammaslääketieteen oppiaine, Turun yliopisto, Turku, Finland
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Tutkimuksen tavoitteena oli selvittää 1) olivatko koulujen suunterveyskäytännöt yhteydessä oppilaiden suunterveyskäyttäytymiseen, 2) vähensikö kansallinen makeanmyyntisuositus makeanmyyntiä kouluissa ja 3) lisäsiikö kouluille annettu Suunhoito-opas suunterveyden opetusta.

Tutkimuksessa käytettiin kolmea Suomen yläkouluista (N=988) toisistaan riippumattomasti kerättyä aineistoa: Pitkittäinen koulujen suunterveyskäytännöt -aineisto (n=258) kerättiin kolmen vuoden välein (2007 n=480, 2008 n=508, 2009 n=593) rehtoreille suunnatuilla verkkokyselyillä, oppilaiden suunterveyskäyttäytyminen -aineisto kansalliseen Kouluterveyskyselyyn vastanneilta oppilailta (n=970 koulua) ja koulujen suunterveysopetus -aineisto terveystiedon opettajille suunnatuilla verkkokyselyillä kahtena vuonna (2008 n=563 opettajaa, 2009 n=477 opettajaa). Koulujen suunterveyskäytännöt -aineisto ja oppilaiden suunterveyskäyttäytyminen -aineisto yhdistettiin koulutason aineistoksi (n=414), jotta saatiin vastaus tutkimuskysymykseen 1. Koulujen suunterveyskäytännöt -aineistoa ja koulujen suunterveysopetus -aineistoa käytettiin itsenäisesti, jotta saatiin vastaukset tutkimuskysymyksiin 2 ja 3.

Oppilaiden kouluaikainen makean napostelu ja tupakointi olivat yleisempiä makeaa myyvissä kouluissa ja kouluissa, joissa oli mahdollista poistua koulualueelta kouluaikana, kuin makeaa myymättömissä ja poistumisen estävissä kouluissa. Kansallinen makeanmyyntisuositus oli tehokas tapa vähentää makeaa myyvien koulujen määrää, mutta koulujen välillä ilmeni suuria maantieteellisiä eroja, eikä niillä ollut selkeitä suunterveyteen liittyviä linjauksia. Makeanmyynti ja koulualueelta poistumisen salliminen olivat selvästi muita kouluja yleisempiä Etelä-Suomen kouluissa ja oppilasmäärältään suurissa kouluissa. Suunhoito-opas ei lisännyt suunterveyttä opettavien määrää, mutta sitä opettavat alkoivat käsitellä suunterveyttä useammin. Naisopettajat alkoivat miesopettajia useammin käyttää Suunhoito-opasta.

Koulujen suunterveyttä koskevan linjauksen tulisi käsittää makeiden tuotteiden myynnin kieltämisen koulussa, terveellisten tuotteiden tarjoamisen niiden sijaan, sekä estää koulualueelta poistuminen kouluaikana, jotta vältetään oppilaiden altistuminen kouluaikaiselle makean napostelulle ja tupakoinnille. Koska koulujen makeanmyynti lisää oppilaiden napostelua, eikä pelkkä suositus näytä tehoavat maan kaikissa osissa eikä oppilasmäärältään suurissa kouluissa, tulee normatiivista ohjausta myynnin lopettamiseksi vahvistaa.

Avainsanat: koulut, käyttäytyminen, makeiset, nuori, opettajat, opetusmateriaalit, oppilas, suunterveys, terveyden edistäminen koulussa, terveystieteet koulussa, virvoitusjuomat, ympäristö

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ABBREVIATIONS

BMI	Body mass index
CRFA	Common risk factor approach
FDA	Finnish Dental Association
FNBE	the Finnish National Board of Education
OHEM	Oral health education material
THL	the National Institute for Health and Welfare, former KTL
WHO	World Health Organization

LIST OF ORIGINAL PUBLICATIONS

This thesis is based on the following articles, which are referred to in the text by the Roman numerals I–IV

- I Kankaanpää R, Seppänen S, Hiiri A, Manninen M, Puska P, Lahti S: Effect of national recommendations on the sale of sweet products in the upper level of Finnish comprehensive schools. *Community Dental Health*. 2012 29:149–53.
- II Anttila J, Kankaanpää R, Tolvanen M, Saranpää S, Hiiri A, Lahti S: Do schools put children's oral health at risk owing to lack of a health-promoting policy? *Scandinavian Journal of Public Health*. 2012 40:423–30.
- III Kankaanpää R, Tolvanen M, Anttila J, Nissi J, Hiiri A, Lahti S: Evaluating the Provision of Oral Health Education Material in Schools in Finland. *Community Dental Health*. 2013 30:119–23.
- IV Kankaanpää R, Tolvanen M, Anttila J, Lahti S: Associations between school's guidelines and pupils' smoking and sweet consumption. *Community Dental Health*. In press.

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1. INTRODUCTION

Traditional methods of oral health promotion by oral health professionals such as health education and fluoridation are effective but expensive ways to prevent oral diseases, since visits must be frequent for every age group year after year. Moreover, systematic fluoridation gives a false impression that teeth stay caries-free without one's own responsibility.

The Ottawa charter defined five areas of health promotion principles; creating supportive environments, building healthy public policy, strengthening community actions, developing personal skills, and reorienting health services (World Health Organization 1986). Oral health promotion in schools should follow these principles to make health promotion implicit in the schools, and the actions sustainable even when resources are scarce. Oral health professionals should adopt new ways to promote health instead of health education alone, since people rarely change their behaviour when only given more information (Marmot 2005). In this thesis the object is to concentrate on how school can be the environment for health promotion.

As diseases such as obesity and caries share common risk factors like sugar (Sheiham and Watt 2000), co-operation must be carried out not just inside the healthcare system, but with all the other policies as well (World Health Organization and Ministry of Social Affairs and Health 2013). However, in this thesis health promotion is observed from the oral health promotion point of view.

To achieve good dental health, two main things are demanded: decent tooth brushing twice a day with fluoride tooth paste, and leaving the consumption of sweet products for special occasions instead of everyday life. School is an excellent environment to teach and confirm these good habits, but it can also be an environment, where unhealthy behaviours like smoking or nibbling sweet products are absorbed. Thus, it is alarming, that one important mission of the school, to teach healthy eating behaviour to pupils, has been neglected in some Finnish schools, since despite free lunch, sweet shops have become common and the soft drink industry has invaded schools with their vending machines.

2. REVIEW OF THE LITERATURE

2.1 Health promotion

2.1.1 *What is health and health promotion?*

Health promotion cannot be defined without first defining what is health. Maybe the most popular definition for health was set by WHO already in 1946: “Health is a state of complete physical, mental and social wellbeing, and not merely the absence of disease and infirmity” (World Health Organization 1946). In the Ottawa Charter, health is defined as “resource for everyday life, not the objective of living” and health promotion as “the process of enabling people to increase control over, and to improve, their health” (World Health Organization 1986).

According to British health promotion professionals, the three most important aspects of health promotion are: focusing on determinants of health, working in co-operation with different sectors of the society, and using a wide range of actions (Watt 2012, Daly et al. 2013). Actions must be implemented upstream, which means that they are implemented preventively, beforehand, and often by other sectors of the society than health care (Watt 2007, Baelum 2011). The term upstream was originally developed to describe how people in health care are often too busy rescuing patients from a flowing river and fail to look upstream to see why patients ended up in the river, in other words, became ill (McKinlay 1979).

2.1.2 *Strategies to promote health*

To promote health there are two different approach strategies, population strategy and high-risk strategy (Rose 2001). The population approach tries to reduce the whole population’s exposure, while the high-risk approach selects a subgroup of people at highest risk of the disease (Daly et al. 2013). Strengths of the high-risk strategy are that the intervention can be targeted specifically to individuals, it does not interfere with those at lower risk, and it is cheap (Rose 2001). The challenge in the high-risk strategy is to identify the persons or groups at higher risk (Daly et al. 2013). Another problem is that it totally forgets about those at lower risk. The number of persons at high risk is limited, and thus the high-risk strategy actually

improves the population health rather little. The population strategy is suggested to work better, because it helps the whole population, including those at high risk (Rose 2001). However, the high-risk strategy has often been used in oral health promotion mostly because of a lack of the resources that the population strategy demands (Watt 2007). For example, in the school environment, the population strategy can be more effectively used than the high-risk approach (Sheiham et al. 2011).

The “Lifestyle approach”, based upon psychosocial models of health behaviour, and promoted by health education, was dominant in health promotion interventions until the 1990’s (Pine and Harris 2007). This means preventing the causes of the illness by altering people’s behaviour through increasing their knowledge and skills, for example, about dental attendance, sweet and tobacco products’ use, and oral hygiene (Watt 2012). The problem of this method is that it believes that by giving people more information, they will change their behaviour, but this actually rarely happens (Marmot 2005). It is difficult to change our lifestyles when there are no resources for it. Behind the human health behaviour, there are always socioeconomic, environmental and behavioural determinants, which affect people’s everyday life; where they are born, grow up, live, work, and age (Marmot 2005, World Health Organization 2008a). Without understanding the difficulty of changing these determinants, it is impossible to affect them (Daly et al. 2013). As Sir Michael Marmot has written: “If the major determinants of health are social, so must be the remedies” (Marmot 2005). We have to tackle the causes behind the causes, promote health in the upstream (Baelum 2011).

The policies reducing the inequalities are, for example, taxation, pensions, sickness and rehabilitation benefits, maternity and child benefits, unemployment benefits, housing policies, labour market, social inclusion, and care facilities (Crombie et al. 2005). All these policies should be regulated so that people can make the healthier choice the easier one, which is one of the main principles in health promotion (Milio 1986, Watt 2007). The change to people’s everyday life and behaviour should be as small as possible. This kind of action could be, for example, water fluoridation.

Work must be done at all levels starting from local micro-level actions undertaken by local health professionals to global actions on the part of health organisations, but all the actions must be inter-sectorial (World Health Organization 2010). And as Richard Watt has said: “Engaging at a local level is equally as important as action implemented at a national level” (Watt 2012).

2.1.3 WHO as a leader of health promotion in the world

Declining improvement in populations' health in the 1970's brought people's attention back from the biomedical and biochemical approach to environmental, behavioural and lifestyle factors (Pine and Harris 2007, Hiiri 2008). As a response to the new public health movement around the world, WHO arranged, in 1978, an international conference on Primary Health Care in Alma Ata, followed by a declaration about equity, using technology and a multisectorial approach, focusing on prevention, health promotion and community involvement (World Health Organization 1978). One year later, on the basis of the Alma Ata Declaration, WHO published Health for all by the year 2000 with two main goals: adding life to years and years to life (World Health Organization 1979).

WHO's series of international health promotion conferences seriously started in Ottawa, where the First International Conference on Health Promotion took place in 1986 (World Health Organization 1986). As a result, the Ottawa charter defined five areas of health promotion actions as "creating supportive environments, building healthy public policy, strengthening community actions, developing personal skills, and reorienting health services (World Health Organization 1986, Daly et al. 2013).

One **supportive environment** could be the school environment, for example, in the form of a no-smoking school area. Environmental changes towards better health are often a result of healthy public policies such as legislative changes, but they can also be generated by local communities such as school pupils' associations or parents' associations. These kinds of local changes in the school environment could be, for example, the restriction of sweets and soft drinks in school. Promotion of health through environmental changes can also be carried out in work places or companies, for example, in the form of a healthier food supply or better changing facilities to support walking and cycling to work (World Health Organization 1986, Daly et al. 2013).

Building a healthy public policy concerns not only health policies but all the other policies as well (Ministry of Social Affairs and Health 2006). Health promotion should be on the agenda of all policies and it should be considered in all the legislative and regulatory actions (Puska and Stahl 2010). The most important thing is the price of healthy and unhealthy products. The price of healthy products should be subsidised and that of unhealthy products increased by taxation. This work must be global, continental, national and local. Free movement of people and goods is a big challenge in the EU also in the field of health promotion. For example, the Finnish alcohol policy cannot be implemented without also

considering the low taxation of alcohol in Estonia. This requires more active interference from the EU. Public policies can be affected also at local level. This is where the local health professionals can have a big role in lobbying local decision makers. Even though actions may be small compared to national level, they are indispensable from the point of view of local communities and people. This kind of local change could be, for example, forbidding smoking in community workplaces (World Health Organization 1986, Daly et al. 2013).

Strengthening community actions always starts with people's own concerns and health needs, trying to find solutions to them (Watt 2013). In this way, it is well supported and accepted. Community actions are often time-consuming and difficult to evaluate. The role of health professionals is more like that of a facilitator rather than an expert, giving communities space to create their own health promotion actions. Such community actions could be carried out, for example, in co-operation with local sports clubs (World Health Organization 1986, Daly et al. 2013).

Developing personal skills is closest to the term health education. Today's health education teaches people skills to take care of their health instead of just giving them knowledge and information. Communication must be more like in a trainer-trainee relationship instead of a professional-patient relationship (World Health Organization 1986, Daly et al. 2013).

Health services should be reoriented from curative services towards health promotion and prevention. People need to be encouraged to take more control of their own health, instead of just healing their diseases. This requires changes in health professionals' education and funding, research with evaluation, and prevention-supportive rewards for health professionals, (World Health Organization 1986, Daly et al. 2013).

WHO continued the series of international health promotion conferences in Adelaide 1988, Sundsvall 1991, Jakarta 1997 and Mexico City 2000, refining the principles of the Ottawa charter to the next levels (World Health Organization 1986, Hiiri 2008). The Bangkok Charter based on The Sixth International Conference on Health Promotion in Bangkok in 2005 recognised the growing inequalities in the globalising world with increasing consumption, communication, commercialisation, environmental degradation and urbanisation, and identified actions, commitments and pledges required to address the determinants of health in this change (World Health Organization 2005, Hiiri 2008).

2.1.4 Policies to promote health in Finland

Chronic non-communicable diseases, such as cardiovascular diseases, are the biggest national diseases in Finland (Puska and Stahl 2010), and this has led us to wonder whether the cure for these diseases may be discovered not only within health care but within all the other policies as well. Thus, Health in All Policies was chosen as a main theme of Finland's European Union presidency in 2006 (Ministry of Social Affairs and Health 2006, Puska and Stahl 2010), and WHO's 8th Global Conference for Health Promotion in Helsinki in 2013, resulting in the Helsinki Statement on Health in All Policies (World Health Organization and Ministry of Social Affairs and Health 2013).

In 2006, the Finnish Ministry of Social Affairs and Health drew up a Quality Recommendation for Health Promotion "to structure the extensive field of health promotion and to support the local authorities' own quality management work". The goal of the recommendation was that health promotion will be made a priority area in all municipal activity (Ministry of Social Affairs and Health 2006). One of the main targets of the "Government's resolution on development of guidelines for health, enhancing physical activity and nutrition" was to offer children and their families more information, support and opportunities to adopt healthy dietary habits and a school environment that supports them (Ministry of Social Affairs and Health 2008). Children's wellbeing is also one of the main targets of the Finnish Government's Health 2015 public health programme (Ministry of Social Affairs and Health 2001).

During the past decades, the Finnish Ministry of Social Affairs and Health has systematically published announcements concerning health promotion and especially to reduce health differentials between population groups. To reduce inequalities in wellbeing and health was one of the aims already in the 1986 "Health for all by 2000" programme, and in 2012 it was still the main target of the "Kaste programme, The National Development Programme for Social Welfare and Health Care". The purpose of "Kaste" is to manage and reform social and health policy (Ministry of Social Affairs and Health 2012).

2.2 Oral health promotion in the context of common risk factor approach (CRFA)

Although the causes of the oral diseases have been known for decades and the diseases known to be mainly preventable, they still cause both a lot of individual suffering and costs to society (Watt 2005). The costs of oral health care to society are not merely because of the treatment

but also, for example, because of absence from work and school (Pine and Harris 2007, Krisdapong et al. 2013). Every year, 50 million hours of school work are lost because of oral diseases all over the world (Gift et al. 1992).

In both developed and developing countries, dental caries still remains one of the most common childhood diseases (Moynihan and Petersen 2004). Even though dental caries in developed countries is no longer a main public health issue, it has at the same time become a major problem in developing countries. These two different trends have, however, something in common: they are both related to changing living conditions and lifestyles of people, while traditional clinical dentistry has not had so much to do with them (Pine and Harris 2007).

According to Richard Watt, principles to develop a good oral health intervention are: Oral health interventions must empower persons and communities, so that they can take responsibility for their health (Watt 2007). All the stakeholders must be active in planning, implementing and evaluating. Since the risk factors behind many oral diseases are often the same as with general diseases, interventions must be made in co-operation with general health care, but also with agencies outside health care. They must be based on evidence, and thus must be evaluated and monitored properly. Interventions must be combinations of political, environmental and community actions to tackle oral health inequalities sustainably, so that people and societies can maintain the changes in their health long-term (Watt 2007). Here we come back to the roots of the Ottawa charter (World Health Organization 1986) and the common risk factor approach (Sheiham, and Watt 2000).

The common risk factor approach means that there are only a handful of factors that are determining quite a number of diseases (Sheiham and Watt 2000, Daly et al. 2013). Diet, smoking, alcohol, injury, hygiene, stress and exercise are risk factors in cancers, obesity, diabetes, cardiovascular disease, periodontal disease and dental caries (Sheiham and Watt 2000). Altering these factors will help both oral and general health and should be done in co-operation between these sectors and the whole community. Oral health care alone cannot solve the problem of excessive sugar intake, but together with general health care and, for example, heart associations or diabetes associations, the message will be better heard with less money spent. (Sheiham and Watt 2000, Watt 2005)

2.2.1 Actions to promote oral health in the context of CRFA

What kinds of oral health promotion interventions reduce health inequalities and which are less effective or even increase inequalities? According to recent reviews, information-based

campaigns like mass media campaigns, written materials like leaflets, whole population campaigns, and campaigns where people need to take the initiative are less effective but still often used (Watt 2005, Yevlahova and Satur 2009, Watt 2012).

Some actions are, however, effective. These effective actions, which reduce health inequalities are, for example, structural changes in the environment like water fluoridation or availability of healthy foods and drinks. Also legislative actions on smoking or food advertising, taxation policies to increase the price of sweet products and to decrease the price of healthy food or toothbrushes are known to be effective. Characteristics are that actions are started at a young age, they are community-based, and prioritize disadvantaged groups (Yevlahova and Satur 2009, Watt 2012).

An effective policy to reduce tobacco use by taxation has also been brought into use in the case of sweets and soft drinks (Andreyeva et al. 2010). For example, a 10% increase in the prices of soft drinks reduced their consumption by 8% to 10% (Andreyeva et al. 2010). Changes in relative prices of foods and drinks are associated with their consumption also in schools (French et al. 2001).

Higher prices of unhealthy foods and drinks are associated with lower BMI and prevalence of obesity. Especially young people, people with a lower income and people with a high BMI are strongly dependent on the prices and sensitive to their change (Powell et al. 2013). For example, in the US many states have joint school-based oral health and body mass index (BMI) surveillance, which is a good example of using the common risk factor approach in practice (Oza-Frank and Siegal 2011).

There are also many international actions aimed at trying to find solutions to the obesity problem. These are, for example, the World Health Organization's "Global Strategy on Diet, Physical Activity and Health", the European Union's "White Paper on a Strategy for Europe on Nutrition, Overweight and Obesity related health issues" and the "Nordic Plan of Action on better life through diet and physical activity" (World Health Organization 2003a, Commission of the European Communities 2007, The Nordic Council of Ministers 2006).

2.3 Health promoting school

According to WHO's Global School Health Initiative, schools should provide a safe learning environment for both pupils and school staff, but also teach critical health and life skills to pupils. To become health-promoting, schools are asked, in co-operation with the surrounding

community, to develop well-designed and monitored health promoting policies and guidelines (World Health Organization 1998).

The school system has an important role in building a healthy future for our children, since during school years they develop their lifelong behaviours, beliefs and attitudes related to health (Christensen 2004, World Health Organization 1998) including food and eating practices (Harris 2008). In upper comprehensive school adolescents begin to take heed of their peers instead of their family (Christensen 2004). At the same age, most risk behaviours and lifestyles can be developed (Currie et al. 2000). If good oral health habits are developed at this age, they are known to be more sustainable later (World Health Organization 1996).

Globally, four out of five of children attend primary schools and three out of five complete at least four years of education (World Health Organization 2003b). Even in developing countries the school network is more extensive than the health centre network (Razanamihaja 1998) which offers a unique environment for community actions (World Health Organization 1986). There are wide variations between countries and gender, but, for example, in Finland, 99.7% of the population complete comprehensive school (Finnish National Board of Education 2004, Finnish National Board of Education 2013). In many countries school is the place where people spend most of their childhood and adolescence, thus providing a huge possibility also to correct home-learned possibly unhealthy behaviour. School also enables connections with pupils' families, which may even enable changing the unhealthy habits of the whole family into more healthy ones (Booth and Samdal 1997, Mukoma and Flisher 2004). School is an efficient and effective way to reach over one billion children globally and, through them the whole community (World Health Organization 1996, Booth and Samdal 1997), but it can also be a dangerous environment where unhealthy behaviours may be absorbed (Rose 2001, St Leger and Young 2009).

2.3.1 Oral health promoting school

According to the World Health Organization's (WHO) publication about the oral health promoting school, characteristics of a healthy school environment are: "access to safe water and sanitation, ban on vending machines providing sugary drinks, no access to sweets on school premises, ban on tobacco use, safe playground and sports facilities, exposure to adequate fluoride levels using relevant fluoride vehicles" (World Health Organization 2003b, Jürgensen and Petersen 2013). The WHO also recommends collaboration between school, pupils, parents, teachers, school nurses, dental staff and the whole surrounding community

including decision makers, the municipality, local authorities and local health care, to achieve a healthy environment for children (World Health Organization 2003b).

2.3.2 Health promotion in Finnish school system

Education policy in Finland is the responsibility of the Ministry of Education and Culture but the Finnish National Board of Education implements the aims of the policy and is responsible for primary and secondary education (Finnish National Board of Education 2013). However, municipalities have a lot of autonomy concerning, for example, allocation of funding, and schools are often responsible for, for example, their own budget management (Finnish National Board of Education 2013). The school system in Finland is one of the best in the world in terms of learning results (Linnakylä 2004, Ahtee et al. 2008). Compulsory education in comprehensive school starts when the child is seven years old, lasts until seventeen years of age, and is free for everyone (Finnish National Board of Education 2004). Thus, 99.7% of the population complete comprehensive school (Finnish National Board of Education 2013). Schools are taxation-funded and more than 98% of them are public schools run by the municipality (Finnish National Board of Education 2004). This allows children from different social classes the same possibilities to go to school and spend their days in the same environment no matter whether your parents are rich or poor.

The Finnish National Board of education and the National Institute for Health and Welfare collaborate to promote health in school and regularly monitor schools' health promoting principles (National Institute for Health and Welfare 2014). In addition, the National Institute for Health and Welfare monitors the health of adolescents through the School Health Promotion Study, which is a national study in all upper comprehensive schools in Finland covering all the 8th grade pupils about their living conditions, school conditions, health, health-related behaviour, and school health services (National Institute for Health and Welfare 2013). Many Finnish schools have pupils' and parents associations as well as management boards, a fact which is known to associate with pupil's healthier food choices (European Commission 2009, Kubik et al. 2011). These organisations cooperate within the school and between the school, parents and surrounding community (World Health Organization 1986, European Commission 2009). A close relationship between school and home is important since parents' restrictions are known to be an effective way to decrease pupils' sweet consumption (Nickelson et al. 2010).

Upper comprehensive school consists of classes 7-9, where pupils are from 13 to 16 years old. The school day normally starts between 8 am and 9 am and ends between 2 pm and 3 pm, but because of long journeys to school, especially in sparsely populated areas, the school day can drag on up to 10 hours. However, pupils do not need to take a packed lunch from home, since the school offers a free, hot and healthy lunch to all pupils every school day (Finnish National Board of Education 2008). Many schools also offer or sell a healthy afternoon snack to pupils. The nutritional situation and dietary guidelines in the schools are monitored by the Finnish National Nutrition Council (Finnish National Board of Education 2008). Because of the free school meal, pupils do not need to leave the school area during the school day and there is no need to sell sweet products to pupils.

Even though in Finland there is a free school lunch, vending machines and sweet shops have become common in schools. Against Finnish law, sweets and soft drinks are also advertised, for example, on vending machines (Finnish National Board of Education (FNBE) and National Institute for Health and Welfare (THL) 2007, Harris et al. 2009). Advertising is known to be associated with more vending machine purchases (Minaker et al. 2011) and is totally in contravention of the Ottawa Charter's healthy environment, especially because Finnish school children are obligated to study in this publicly funded environment (World Health Organization 1986, Finnish National Board of Education 2004, Finnish National Board of Education 2013). This may also be the reason why only 70-90% of the pupils daily eat the free school meal and only 10-35% every part of it, since in a Finnish study, skipping the school meal was associated with eating unhealthy snacks during school hours (Raulio et al. 2010). Especially girls' increased consumption of soft drinks decrease their consumption of milk, which is known to increase the risk of osteoporosis (Richelsen 2013).

2.3.3 Health promoting school food environment

Adolescents' food choices are not only individual behaviour, but influenced by many external factors such as media, social norms and physical environments (Story et al. 2002, Schubert et al. 2012). Even though respecting adolescents' autonomy and their own decision-making is important, food availability is known to correlate strongly with adolescents' food choices (Neumark-Sztainer et al. 1999). Immediate pleasure from sugars often wins over the well-known health risks of sweet products if unhealthy choices are available to complicate decision-making (Milio 1986, Freeman, Sheiham 1997).

Selling sweets and soft drinks in school is totally against WHO's Health Promoting School programme (World Health Organization 2003b). Children should be entitled to a school environment that promotes their health. Pupils in schools with oral health supportive environment are known to have better oral health than pupils in schools with a non-supportive environment (Moyses et al. 2003). Frequent consumption of sweet products also forms a common risk factor for general health, which has become a big problem all around the world, in high-, middle- and low-income countries (Sheiham and Watt 2000, Schulze et al. 2004, World Health Organization 2008b, Petersen 2009). Especially sugar-sweetened soft drinks have been proved to cause dental caries (Newbrun 1982), periodontal disease (Hujuel 2009), tooth erosion (Moynihan and Petersen 2004), obesity (Hu and Malik 2010), type 2 diabetes (Apovian 2004), elevated triglycerides (Dhingra et al. 2007) and coronary-heart disease (Fung et al. 2009). The role of sugar-sweetened soft drinks in the prevalence of obesity and obesity-related diseases is most extensively reported (Hu 2013, Malik et al. 2013), and thus also people in oral health care should work actively in the spirit of the common risk factor approach (Sheiham and Watt 2000).

Even though in the US the consumption of soft drinks has already begun to decrease, in Australia it increased by 3% and in Eastern Europe by 28% between 2002 and 2007 (Hawkes 2010). Sugar-sweetened soft drinks are a threat to ever younger children (Prynne et al. 1999). To make this phenomenon even worse the soft drink industry is targeting their marketing to schools (Harris et al. 2009), even though sugar-sweetened soft drinks have for a long time been known to cause caries, among other things (Ismail et al. 1984). The selling of sweets has not been discussed and researched a great deal.

Sometimes schools justify selling by saying that pupils will buy sweet products outside the school, if they are not available in the school area. These schools try to keep pupils in the school area using sweet selling, but are at the same time playing with pupils' health. They may believe that selling does not increase pupils' sweet consumption. However, the school food environment has a significant impact on what pupils choose to eat during the school day (Kubik et al. 2003, Smith et al. 2013, Engler-Stringer et al. 2014). Pupil-reported number of vending machine purchases is positively associated with pupil-reported sugar-sweetened beverage intake (Wiecha et al. 2006), and there is also a positive association between availability of sweet products in school vending machines and pupil-reported consumption of them (Neumark-Sztainer et al. 1999, Shi 2010). Both obesity and caries are known to increase significantly among pupils in schools selling sugar-sweetened soft drinks (Maliderou et al. 2006, Minaker et al. 2011, Masse et al. 2014) Conversely, by making the

school food environment healthier, it is also possible to make pupils choose healthier products (Wordell et al. 2012).

Some schools allow pupils to leave the school area during breaks and lunch hours or cannot moderate their leaving. For example, in the US, one third of high schools have such an open campus policy (Small et al. 2001). Permission to leave the school area or teachers' indifference towards monitoring it provides pupils with the possibility to buy sweet products from corner shops or petrol stations (Borradaile et al. 2009, He et al. 2012). The food environment surrounding schools can jeopardise healthy food policies followed in the school (Sturm 2008). In a US study, pupils at schools with an open lunchtime campus policy were more likely to eat an unhealthy lunch outside the school area (Neumark-Sztainer et al. 1999, Neumark-Sztainer et al. 2005).

An oral health promoting school environment minimises the factors exposing pupils to unhealthy habits, like buying sweet products. At the same time it offers factors that enable pupils to acquire healthy habits, such as drinking fresh water during the school day and using xylitol products. However, the most important factor to create an oral health promoting school environment is that there is a clear policy behind all the actions, drawn up by the whole school community including the pupils.

2.3.4 Health promoting school food policies

Selling of sweet products in school is a global problem and many countries all over the world have tried to limit the availability of soft drinks in school (World Health Organization 2003b, Hawkes 2010). School food policies can reduce pupils' consumption of sugar-sweetened soft drinks (Levy et al. 2011) and thus, their sugar intake (Rodrigues and Sheiham 2000). Reduced sugar consumption reduces their energy intake which can influence BMI (Levy et al. 2011). Thus, school food policies are important means to reduce children's overweight and obesity (Levy et al. 2011). In schools without a policy concerning the contents of the vending machines, pupils reported two times more frequent vending machine purchases compared to their peers in schools with a policy (Neumark-Sztainer et al. 2005). Both district and state policies concerning the nutritional content and the availability of competitive foods in schools had the potential to reduce the availability of sweet products in schools (Fernandes 2013, Chriqui et al. 2013). In a US study, children living in states with weak laws concerning competitive school foods had a bigger risk of being overweight than their peers living in states with strong school competitive food laws (Hennessy et al. 2014).

There are many kinds of policies all over the world from local school-level policies to national policies and also the contents of the policies vary a lot (Hawkes 2010). For example, in Poland, 7–25% of schools have a written policy on limiting sweet products and increasing the healthy products (Woynarowska et al. 2011). In the United Kingdom, the government's School Food Trust programme has reformed the school food system and prohibited by law the selling of sweet products in school (School Food Trust 2007, Matthews et al. 2008). In the US, the Child Nutrition and WIC Reauthorization Act and the Healthy, Hunger-Free Kids Act require school districts to participate in the federal Child Nutrition Programs and to report on local school wellness policies (Chriqui et al. 2013, Centers for Disease Control and Prevention and Bridging the Gap Research Program 2014). Most of the government-led efforts work both at national and local level (Hawkes 2010). Also the third sector has succeeded to make the school food environment healthier: in Sweden, the Dental Association's "Dentists against sweets and soft drinks" campaign succeeded to decrease the percentage of schools selling sweets and soft drinks from 58% to 10% from 2004 to 2007 (The Swedish Dental Association 2008).

Even less binding recommendations affect the school food environment, since in the US study, the recommendation to give up school classroom parties was associated with increased school-level restrictions of parties (Turner et al. 2013). In Canada, there are recommendations concerning sweets and soft drinks in school (Browning et al. 2013). However, only little information on the impact of a national recommendation on selling sweet products at schools is available (Hawkes 2010).

2.3.5 Smoking in school

Sweets and soft drinks are not the only thing that pupils buy and consume when leaving the school area, since it also enables pupils' school-time smoking and buying tobacco. If possible, this is even more harmful for pupils' general and oral health than sweet consumption. Adolescents in schools with no regulation on smoking are at increased risk of being smokers than their peers in schools with regulation (Piontek et al. 2008). It is also known that a school's smoking restriction does not work if pupils do not consider it plausible enough (Lovato et al. 2007).

WHO-led tobacco control policies have been one of the greatest public health achievements during the 21st century (Centers for Disease Control and Prevention (CDC) 2011). Finland was the first country in the world to stipulate in law that it aims to end the use

of tobacco products by the year 2040 (Levy et al. 2012). At the moment it seems that this aim could come true already in 2030, when the proportion of smokers would be 0–2% (Tupakkapolitiikan kehittämistyöryhmä 2013). At the moment, smoking accessories may not be sold or assigned to persons under the age of eighteen, and tobacco products may not be possessed by persons under the age of eighteen. Finnish law also forbids snus-selling, and importing it is limited (Ministry of Social Affairs and Health 2010).

In school, smoking is not allowed for either pupils or school personnel, since smoking is prohibited in the indoor and outdoor areas of institutions providing basic, vocational or upper secondary education, no matter the age of the pupils (Ministry of Social Affairs and Health 2010). Many health organisations have proposed forbidding smoking in apartments, balconies, beaches, playgrounds, bus stops and in cars with underage children (Ehkäisevä päihdetyö ry, Filha ry, Hengitysliitto ry, Suomen Ash ry and Suomen Syöpäyhdistys ry 2014).

In spite of the actions implemented to forbid smoking in Finnish schools, 15% of 8th grade pupils reported daily smoking, and two thirds of them reported smoking at least every now and then in the school area (National Institute for Health and Welfare 2011). A short-term goal of the Working Group on Tobacco Policy is to decrease the smoking of adolescents between 16 to 18 years of age to under 15% by the year 2015 (Tupakkapolitiikan kehittämistyöryhmä 2013).

2.3.6 Oral health materials in school health education

WHO suggested in 1997 that health education should become a specific subject in schools all over the world (World Health Organization 1997). In Finnish upper comprehensive schools health education has been a core subject since 2004. It is taught one hour every week, when divided equally into each of the three school years. In lower comprehensive school (grades 1–6) health education is taught as part of the environmental-and-natural-studies subject group for the first four years and after that as part of biology/geography and physics/chemistry for two years (Finnish National Board of Education 2004). Health education also continues at college level and it is even possible to take the equivalent of an A level in the subject.

Oral health education is known to have only limited effects on people's behaviour and clinical oral health status, especially if interventions are not sustainable but based on short projects (Kay and Locker 1996, Watt 2005). Sometimes oral health education projects may even increase oral health inequalities, because people with more resources benefit the most (Schou and Wight 1994). This is why school's oral health education should be continuous,

age-specific, child-centred, skills-based, and community-oriented, and it should be integrated into the existing curriculum (World Health Organization 2003b). In Finland, oral health education has traditionally been the health centre's responsibility, and collaboration between oral health professionals and school personnel has been demanded (Laiho et al. 1987). Oral health education is not mentioned specifically in the National Core Curriculum of health education in Finland, but the objectives set up include the risks of smoking, taking care of one's health, recognizing nutritional needs and problems, and recognizing the need for prevention (Finnish National Board of Education 2004).

It is possible to change pupils' oral health behaviour by oral health education if teaching is continuous and high-quality (Redmond et al. 1999). Revision of the different themes is important, since single lectures do not increase the oral health knowledge of the pupils (Goel et al. 2005). Oral health education is known to be equally effective no matter if it is taught by dentists, teachers or peers when it comes to improving the oral health knowledge and oral hygiene status of adolescents (Chandrashekar et al. 2012, Haleem et al. 2012). In Finland, pupils have a positive attitude towards health education (Kannas et al. 2009). Girls' attitude towards health education is more positive than boys' attitude towards it. A wide range of teaching methods including group work, practical exercises and teacher's lectures are used. People working as health education teachers are more often women than men. Every second health education teacher teaches physical education as a main subject. In 2009, two thirds of the teachers were qualified to teach health education. Puberty, physical exercise and health, smoking and national diseases were the most common topics to be taught (Kannas et al. 2009). Health education textbooks needed improvements (Kannas L, Peltonen H, Aira T 2009), and there was also a lack of oral health material in the schools since oral health was not handled in all textbooks, while specific material for oral health teaching did not exist (Dadi 2007).

2.4 Interventions to promote oral health in Finnish upper comprehensive schools

In 2007, the Finnish National Board of Education (FNBE) and the National Institute for Health and Welfare (THL) published a recommendation to stop the regular selling of sweet products in Finnish schools (Finnish National Board of Education (FNBE) and National Institute for Health and Welfare (THL) 2007). They also recommended that schools should sell healthy products from vending machines and kiosks and that there should be fresh

drinking water available in the school. The recommendation itself and Paper I received considerable publicity in newspapers, radio channels and TV news.

Working on behalf of the population's oral health is one aim of the Finnish Dental Association's strategy (Finnish Dental Association 2014). In 2008, the Finnish Dental Association developed new oral health education material (OHEM), which they donated to all Finnish upper comprehensive schools to help the teachers plan and conduct oral health education as a part of their health education teaching (Jormanainen and Järvinen 2008). The OHEM included correct knowledge and practical examples to help teachers to teach oral-health-related topics comprehensively. The OHEM consisted of an over one-hundred-page Oral Health Handbook for the common use of all health education teachers in the school and a DVD containing the same material, which teachers could freely use to print exercises and homework for their pupils (Jormanainen and Järvinen 2008).

Instead of promoting school environment health, many Finnish upper comprehensive schools have given up monitoring pupils leaving the school area to smoke and to buy sweet products, or have even started to sell sweet products, believing that pupils will buy sweet products outside the school, if they are not available in the school and that this does not increase pupils' sweet consumption. The effects of the National Recommendation to stop the regular selling of sweet products in Finnish schools and new oral health education material (OHEM) needs to be carefully evaluated to provide both decision makers and schools with more information and equipment to make the school environment healthier.

3. AIMS OF THE STUDY

The general aim of this study was to survey Finnish upper comprehensive schools as oral health promoters. Specific aims were:

1. to find out if schools' oral health practices were associated with pupils' oral health behaviour (Paper IV)
2. to find out whether a recent National Recommendation in 2007 influenced oral health practices in schools (Papers I and II)
3. to find out whether new oral health education material delivered to the schools in 2008 affected oral health education teaching in schools (Paper III)

4. MATERIALS AND METHODS

This study was implemented in the University of Oulu and in the University of Turku in 2007-2014 in cooperation with the Finnish National Board of Education (FNBE) and the National Institute for Health and Welfare (THL). Three independently collected datasets from Finnish upper comprehensive schools (N=988), where pupils are 13-16 years old, were used (Figure 1). There were almost 200 000 pupils in these schools. Datasets were: oral health practices data, oral health behaviour data and oral health education data. Combined data were formed from oral health practices data and oral health behaviour data (Figure 1).

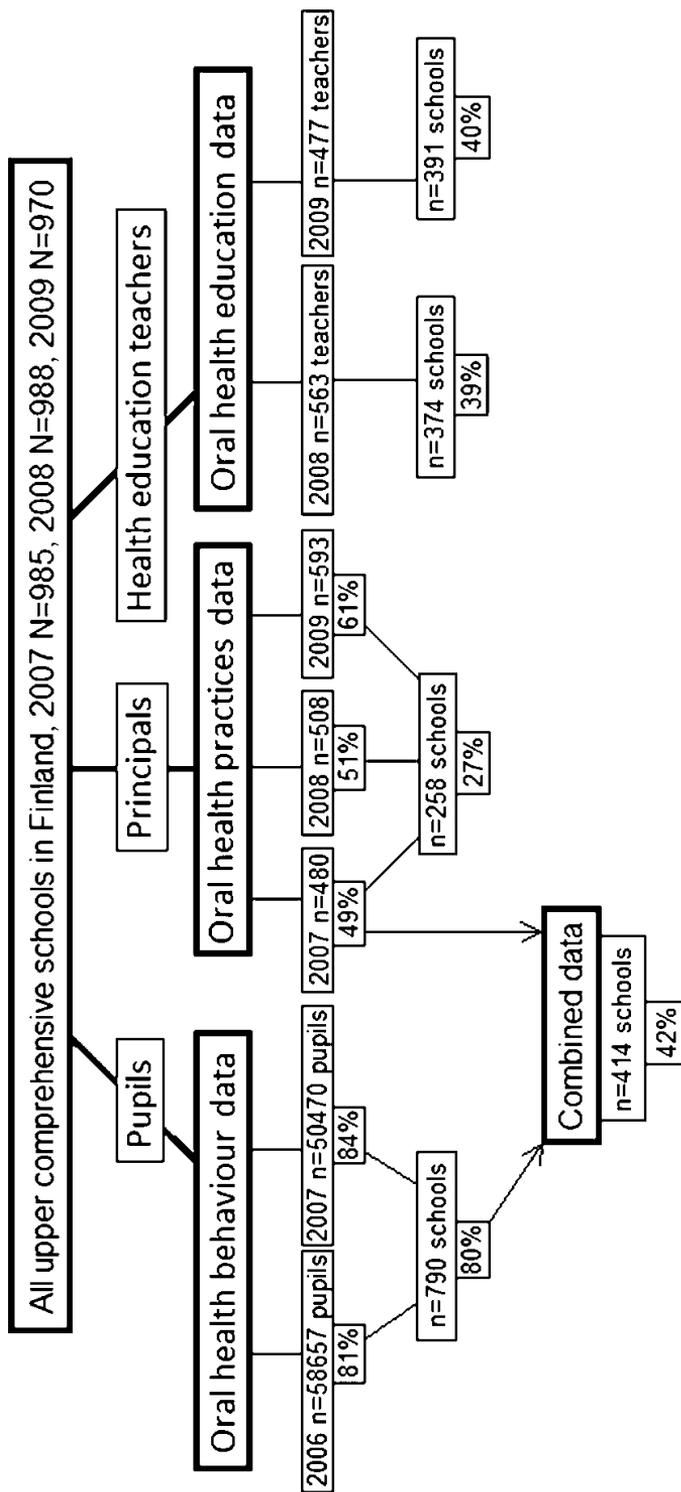


Figure 1. Datasets, response rates and research path. Described in detail in the text.

4.1 Oral health behaviour data

Oral health behaviour data were collected as part of a School Health Promotion Study and included information about school pupils' oral-health-related behaviour. The School Health Promotion Study is a national study conducted every second year in all upper comprehensive schools in Finland from all the 8th grade pupils since 1996. The study was implemented in Southern, Eastern and Northern Finland in spring 2006, and in Western and Central Finland in spring 2007. Questions about pupils' oral-health-related behaviour were part of a larger questionnaire (National Institute for Health and Welfare 2013) where pupils answered over 100 questions about their living conditions, school conditions, health, health-related behaviour, and school health services. In 2006, 81% (n=58657) and in 2007, 84% (n=50470) of the pupils answered the questionnaire (Figure 1). An average was calculated for the school level with a response rate of 80%, n=790 (Figure 1). Data included the school-level mean values of pupils' self-reported sweet consumption frequencies (sweets, sugar-sweetened soft drinks, light soft drinks, ice cream and sweet pastries) in school hours (0, never; 1, less than once; 2, 1–2 times; 3, 3–5 times per week) and overall (1, never; 2, 1–2 times; 3, 3–5 times; 4, 6–7 times per week), place where they got snacks (from school snack serving, from school vending machines, from shop, stall or petrol station, from home) (0, no; 1, yes), smoking frequency during school hours in the school area, outside the school area and on the way to school (1, never; 2, every now and then; 3, every day), snus-using frequency (1, never; 2, every now and then; 3, every day), perception of school's smoking restriction (1, totally forbidden; 2, allowed in certain places; 3, allowed without limitations), perception of the strictness of monitoring the smoking restriction (1, very strictly; 2, quite strictly; 3, not at all) and where they bought cigarettes during the past month (from somewhere, shop, stall, petrol station, bar, vending machine, friends or somewhere else) (1, no; 2, yes). Total mean values for consumption of different sweet products were calculated for school-time and overall sweet consumption frequencies. The questions about the frequency of smoking and place to buy tobacco were asked only from pupils who reported smoking once a week or more often. Sweet pastries included buns, biscuits, cakes etc.

4.2 Oral health practices data

Oral health practices data included information about schools' oral health promotion related practices. The data were collected with questionnaires sent by e-mail to every school in 2007

(N=985), 2008 (N=988) and 2009 (N=970) (Figure 1). The e-mail included a web-link to the Webropol-program, where a person who was responsible for the school's sweet selling was asked to answer the questionnaire. Almost all the respondents were school principals. Reminder e-mails were sent to schools every year and oral hygiene products were raffled among those who replied. FNBE gave the e-mail addresses of the schools in 2007 and they were updated each year by asking for the e-mail address of the respondent and by using the schools' Internet pages. The number of schools that answered the questionnaire was 480 in 2007, 508 in 2008, and 593 in 2009, resulting in response rates of 49%, 51% and 61%, respectively (Figure 1). Of all the Finnish upper comprehensive schools, 81% participated at some point and only 19% did not participate at any point. Of the schools, 258 participated every year in the survey with a total response rate of 27% (Figure 1).

The questionnaire included 34 questions and it was made by modifying the questionnaire used in the longitudinal study by the Swedish Dental Association, "Dentists against sweets and soft drinks in school" (SDA, 2010). The questionnaire was expanded from Swedish one to make it more comprehensive, but the questions about selling were retained to preserve comparability between the studies. Answering took approximately fifteen minutes. Principals were asked if sweets, soft drinks, other sweet products or healthy products were sold in a vending machine, tuck shop, café or canteen in the school area. Other sweet products included sweet juices, cakes, doughnuts and biscuits. As healthy products were defined, for example, fruits, sandwiches and milk products. Schools that reported selling these products were asked the most important reason for these sales. Schools that reported not selling sweet products were also asked the reason. Schools were asked to say whether sales of these products had changed in any way during the previous year and why. Schools that had vending machines were asked if brands were marked on the machines. The questionnaire also included questions about whether pupils were allowed to leave the school area during the school day and if the school had a policy concerning sweet products, the policy decision makers (principal, teachers, pupils, parents or members of the town), if the policy had changed in any way during the previous year and why it has changed. There were both categorized and open-ended questions in the questionnaire. In some of the categorized questions it was possible to choose more than one response alternative. For example, in the questions about the most important reason to go on selling, schools were asked to mention the two most important reasons for selling.

The following changes were made to the questionnaire after the 2007 survey: In 2007, providing a healthy snack was included in the question about the contents of the schools'

guidelines. In 2008 and 2009, provision of a healthy snack was asked as a new question: “Does your school provide a healthy snack during the school day?” In 2008, there were two alternative answers: “Yes” and “No”. In 2009 there were three alternative answers: “Yes, and it is free”, “Yes, pupils pay for it” and “No”. Moreover, in 2008 and 2009, schools had a possibility to answer the questionnaire also in Swedish, the second official language in Finland.

A dichotomized sweet-selling variable was created by combining the variables of selling sweets, soft drinks and other sweet products so that school was defined as “sweet-selling” if it belonged to at least one of these three categories. If a school did not fall into any of these three categories, it was defined as “non-selling”.

A dichotomized guideline variable about leaving the school area was formed from the question “Are pupils allowed to buy something to eat or drink outside the school area, for example, from a stall or corner shop” Response alternatives were: 1. yes, during lunch hours. 2. yes, during breaks. 3. yes, anytime. 4. No, and it’s monitored. 5. No, but pupils leave without permission. The guideline variable was dichotomized so that only response alternative 4. was considered to prevent leaving the school area and defined as “school with guideline”. All the other alternatives were considered to permit leaving and were defined as “school without guideline”.

Policy, exposure and enabling variables were formed from the 9 items of the questionnaire by weighting the response categories (Table 1). The exposure variable included the actions that put the pupils’ oral health at risk, and enabling, the actions that protected pupils’ oral health. Several rounds of discussions within the research group were conducted on the scoring of the items. In between these, the grouping and scoring were also exposed to experts in the field of oral health promotion. The experts commented on the items and considered how the items influence the oral and general health of the pupils. The higher the score, the better was the school’s level of promotion of oral health. Replies to the open-ended alternatives were checked individually and, when appropriate, contributed to the sum scores. Due to differences in the 2007, 2008 and 2009 questionnaires, the Enabling factor was calculated differently (Table 1). In 2007, points were given if the school had chosen the item “School provides a healthy snack during the school day”.

Table 1. The formation of Policy, Exposure and Enabling variables. The higher the score the better the actions taken to create health-promoting school environment. Table modified from (Anttila et al. 2012).

<p>Policy (0–12 p.)</p> <p>Sweet products policy (max 4 p.)</p> <ul style="list-style-type: none"> - No policy = 0 p. - Restriction or guidance on selling or consuming = 1 p. - No selling of sweet products = 2 p. - No consumption of sweet products = 3 p. <p><i>one bonus point if a healthy snack is provided by school</i></p> <p>Decision makers of the policy (max 5 p.)</p> <p>One point for each participant</p> <p><i>Participants: principal, teachers, pupils, parents, municipality, other</i></p> <p>Guideline about leaving the school area (max 3 p.)</p> <ul style="list-style-type: none"> - Anytime = 0 p. - Only at breaks or lunch hours = 1 p. - No, but it cannot be monitored = 2 p. - No and it is monitored = 3 p. 	<p>Exposure (0–10 p.)</p> <p>Soft drinks selling (max 4 p.)</p> <ul style="list-style-type: none"> - From a vending machine with visible trademark = 0 p. - From a vending machine without visible trademark = 1 p. - Selling without a vending machine = 2 p. - No selling = 4 p. <p>Sweets selling (max 4 p.)</p> <ul style="list-style-type: none"> - From a vending machine with visible trademark = 0 p. - From a vending machine without visible trademark = 1 p. - Selling without a vending machine = 2 p. - No selling = 4 p. <p>Other sweet products' selling (sweet juices, cakes, doughnuts or biscuits) (max 2 p.)</p> <ul style="list-style-type: none"> - Yes = 0 p. - No = 2 p.
<p>Enabling (0–10 p.)</p> <p>Providing drinking water during the school day (max 3 p.)</p> <ul style="list-style-type: none"> - Buying from a vending machine = 0 p. - From bathrooms, or during lunch hours from canteen = 1 p. - From classrooms or anytime from canteen = 2 p. - From classrooms with mugs or from water taps in the hallway = 3 p. <p>Schools' attitude towards xylitol products (maximum 3 p.)</p> <ul style="list-style-type: none"> - Xylitol products are forbidden = 0 p. - Xylitol products are allowed = 1 p. - School sells xylitol products = 2 p. - School provides free xylitol products = 3 p. 	<p>Selling and providing healthy snack (max 4 p.)</p> <ul style="list-style-type: none"> - A healthy snack is not provided by school and healthy products are not sold = 0 p. - A healthy snack is provided by school OR healthy products are sold = 1 p. - A healthy snack is provided by school AND healthy products are sold = 2 p. - A free healthy snack provided by school = 3 p. - A free healthy snack provided by school and healthy products are sold = 4 p.
<p>Scoring of selling and provision of healthy snacks in 2007 and 2008</p> <p>Selling and providing healthy snack (0–4 p.) in 2007</p> <ul style="list-style-type: none"> - School does not provide a healthy snack or sell healthy products = 0 p. - School does not provide a healthy snack but does sell healthy products = 1 p. - A healthy snack provided by school = 3 p. - A healthy snack provided by school and healthy products are sold = 4 p. <p>Selling and providing healthy snack (0–4 p.) in 2008 and 2009</p> <ul style="list-style-type: none"> - School does not provide a healthy snack or sell healthy products = 0 p. - School does not provide a healthy snack but does sell healthy products = 1 p. - Free healthy snack provided by school = 3 p. - Free healthy snack provided by school and healthy products are sold = 4 p. 	

4.3 Oral health education data

Oral health education data included information about oral health education taught as part of health education core subject in the schools. Data were collected as a part of the World Dental Federation's LiveLearnLaugh project in 2008 and 2009 (Cohen 2011). The study population consisted of the health education core subject teachers of all Finnish upper comprehensive schools (N=970).

The Oral Health Education Material (OHEM) was delivered to every Finnish upper comprehensive school in autumn 2008. The OHEM consisted of an over one-hundred-page Oral Health Handbook for the common use of all health education teachers in the school and a DVD containing the same material, which teachers could freely use to print exercises and homework for their pupils. The OHEM was created by a teacher of biology and a dental hygienist and it was tested in advance in the city of Joensuu in five upper comprehensive schools.

Before delivering the OHEM to schools in 2008, and one year later, in 2009, an e-mail questionnaire was sent to school principals. The principals were asked to forward the e-mail to all health education core subject teachers in the school. The forthcoming OHEM was briefly mentioned in the e-mail sent to schools in the 2008 baseline study. In 2009, the questionnaire was also sent personally to all those health education teachers who gave their e-mail address when responding to the 2008 questionnaire. Oral hygiene products were raffled among those who replied.

The teachers answered the questionnaire in the Internet using the Webropol-program. Two reminders were sent in both years. In 2008, 563 health education core subject teachers from 374 schools, and in 2009, 477 teachers from 391 schools answered the questionnaire after inadequate and double answers were excluded (Figure 1).

Schools' response rates were 39% in 2008, and 40% in 2009 (Figure 1). The response activity of the teachers could not be calculated accurately because the total number of health education teachers in Finland was not available. In 2008, of the responding teachers, 80% were female and 20% male; in 2009, 84% and 16%, respectively.

To find out whether the OHEM was noticed, received and used in the schools, in 2009 teachers were asked if they had answered the baseline study, if they were aware of the OHEM, if they had got it or used it, and if they considered it suitable for teaching oral health in health education (scale from 1, fully agree to 5, fully disagree).

Oral-health teaching and teachers' attitudes towards it were studied both years by asking health education teachers if they taught oral health and how important they considered six different oral health topics in teaching health education (scale from 1, very important to 5, not important at all). The frequency of teaching was assessed by asking the teachers who reported that they teach oral health, how often different topics were handled (scale from 1, taught to every age group to 5, not taught at all). Teachers, who reported not teaching oral health, were asked for the two most important reasons for this (1, oral health is taught in some other subject; 2, oral health is not mentioned in the core curriculum; 3, there is no material for teaching oral health; 4, oral health is not handled in our textbook; 5, there is no time to teach oral health; 6, oral health teaching is the municipal health centre's responsibility and 7, some other reason).

There were also two open-ended questions in the questionnaire. Teachers were asked to mention the three categories in the OHEM which had helped their teaching most, and to write freely about the OHEM.

4.4 Combined data

To find out if schools' oral-health-related practices were associated with pupils' oral health behaviour, such as sweet consumption and smoking, oral health practices data and oral health behaviour data were linked together to form combined data. The linking was done manually by school name and location, and the total response rate for the combined final data was 42%, n=414 schools (Figure 1).

4.5 Analyses of different datasets

To find out if school oral health practices were associated with pupils' oral health behaviour, the combined data were used (Paper IV). The school-level mean values of the pupil-reported sweet consumption frequencies and place where they got snacks between sweet-selling and non-selling schools and between schools with and without a guideline about leaving the school area were compared using the Mann-Whitney test. The school-level mean values of the pupil-reported smoking, snus-using, perception of the school's smoking restriction and its monitoring and the place where they got tobacco between the schools with and without a guideline about leaving the school area were also compared using the Mann-Whitney test. To evaluate whether an association between school-time sweet consumption frequency (total mean) and schools' sweet selling and

guideline can be observed when considering province, teaching language and number of pupils in the school as confounders, a 5-way ANOVA was conducted. To evaluate whether an association between school-time smoking and guideline can be observed when considering province, teaching language and number of pupils in the school as confounders, 4-way ANOVAs were conducted, with separate models for smoking in and outside the school area. The association between the selling of sweet products and the guideline about leaving the school area was evaluated with the chi-square test.

To find out how the National Recommendation affected oral-health-related practices such as sweet selling, guideline (Paper I), policy, exposure and enabling (Paper II) variables, the oral health practices data were used. Data were used longitudinally so that only schools that participated every year (n=258) were included (Figure 1). To evaluate schools' oral health practices, mean values for the policy, exposure and enabling variables were calculated, and the correlations between the variables were investigated with Spearman's correlation coefficients. The change in the sweet-selling and guideline variables were analysed using McNemar's test. The changes from 2007 to 2009 in the policy, exposure and enabling variables were analysed using the nonparametric Friedman test. The number of pupils in the school, the province and the teaching language (Finnish, Swedish) were used as background variables. Statistical significances among the schools' oral health practices according to background variables were analysed using a Chi-square test.

To find out if new oral health material affected oral health education teaching in schools, oral health education data were used (Paper III). To evaluate schools' oral health education teaching, teachers' attitudes towards oral health and whether new oral health material affected oral health education teaching in schools, the changes in oral health teaching after sending the OHEM, the percentage of teachers teaching oral health in 2008 and 2009 were compared by assessing whether there was a difference in the frequency of teaching different topics, in teachers' opinions about the importance of teaching different topics, and in the reasons for not teaching oral health between 2008 and 2009. The number of pupils in the school, the province, the teaching language (Finnish, Swedish), the age and gender of the health education teacher, and answering the baseline study were used as background variables. The results were described as proportions of teachers from two cross-sectional data sets. Statistical significances between the teachers and between the schools according to background variables were analysed using the Pearson's Chi-square test for nominal data and the Mantel-Haenszel Chi-square test for ordinal data. Changes between 2008 and 2009 were evaluated using percentage change and confidence intervals.

5. RESULTS

The results are presented according to the aims of the study, which were 1) to find out if schools' oral health practices were associated with pupils' oral health behaviour (Paper IV), 2) whether a recent National Recommendation in 2007 had influenced oral health practices in schools (Papers I and II), and 3) whether new oral health education material delivered to the schools in 2008 had affected oral health education teaching in schools (Paper III).

5.1 Associations between school oral health practices and pupils' oral health behaviour (n=414) (Paper IV)

There was an association between school oral health practices and pupils' oral health behaviour. The association was clearest between guideline about leaving the school area and pupils' smoking (Table 4). The association between schools' sweet selling and pupils' sweet consumption was clearer in school time than overall.

5.1.1 *The association between school sweet selling and pupils' sweet consumption*

The school-level mean values for pupils' sweet consumption frequencies in school time were higher in the sweet-selling than in the non-selling schools in all sweet drinks and snacks. In sugar-free soft drinks, also pupils' overall sweet consumption frequency was statistically significantly higher in the sweet-selling than in the non-selling schools. (Table 2)

Results

Table 2. The school-level (n=414) distribution (min-max) as well as mean values for pupil-reported school-time (0, never; 1, less than once; 2, 1–2 times; 3, 3–5 times per week) and overall (1, never; 2, 1–2 times; 3, 3–5 times; 4, 6–7 times per week) sweet consumption frequencies in non-selling and sweet-selling. Statistical significance between non-selling and sweet-selling schools was assessed with Mann-Whitney test.

Sweet consumption	School-time				Overall			
	min-max	Sweet-selling		p	min-max	Sweet-selling		p
		No	Yes			No	Yes	
Sweets	0.33–1.60	0.89	0.96	0.002	1.00–2.48	2.16	2.17	0.137
Sugar-sweetened soft drinks	0.32–1.33	0.77	0.84	0.001	1.00–2.62	1.95	1.98	0.082
Sugar-free soft drinks	0.30–1.08	0.62	0.67	0.001	1.00–1.76	1.39	1.42	0.002
Ice cream	0.29–1.40	0.65	0.69	0.026	1.25–2.38	1.79	1.79	0.575
Sweet pastries	0.29–1.50	0.61	0.64	0.012	1.00–2.15	1.47	1.42	0.001
Chocolate	-	-	-	-	1.00–2.38	1.92	1.93	0.205
Total mean	0–1.93	0.71	0.76	0.003	1.00–2.56	1.78	1.79	0.219

Results of the ANOVAs revealed that even when considering province, teaching language and number of pupils in the school as confounders, the mean sweet consumption frequency (Total mean) in school time was associated with sweet selling (p=0.014).

5.1.2 The association between school guideline about leaving the school area and pupils' sweet consumption

The mean values for pupils' school-time sweet consumption frequency were lower in schools with a guideline about leaving the school area than in the schools without a guideline in all sweet drinks and snacks. In sweets, sugar-free soft drinks and chocolate, also pupils' overall sweet consumption frequency was statistically significantly lower in schools with a guideline than in schools without one. (Table 3)

Table 3. The school-level (n=414) distribution (min-max) as well as mean values for pupil-reported school-time (0, never; 1, less than once; 2, 1–2 times; 3, 3–5 times per week) and overall (1, never; 2, 1–2 times; 3, 3–5 times; 4, 6–7 times per week) sweet consumption frequencies in schools with and without a guideline about leaving the school area. Statistical significance between schools with and without guideline was assessed with Mann-Whitney test.

Sweet consumption	School-time				Overall			
	Guideline				Guideline			
	min-max	Yes	No	p	min-max	Yes	No	p
Sweets	0.33–1.60	0.83	1.03	<0.001	1.00–2.48	2.16	2.18	0.022
Sugar-sweetened soft drinks	0.32–1.33	0.72	0.90	<0.001	1.00–2.62	1.96	1.98	0.102
Sugar-free soft drinks	0.30–1.08	0.59	0.71	<0.001	1.00–1.76	1.40	1.42	0.005
Ice cream	0.29–1.40	0.61	0.73	<0.001	1.25–2.38	1.78	1.79	0.464
Sweet pastries	0.29–1.50	0.58	0.67	<0.001	1.00–2.15	1.47	1.42	0.002
Chocolate	-	-	-	-	1.00–2.38	1.91	1.95	0.006
Total mean	0–1.93	0.67	0.81	<0.001	1.00–2.56	1.78	1.79	0.093

Results of the ANOVAs revealed that even when considering province, teaching language and number of pupils in the school as confounders, the mean sweet consumption frequency (Total mean) in school time was associated with the school guideline ($p < 0.001$)

5.1.3 *The association between school guideline about leaving school area and pupils' smoking*

In the schools with a guideline about leaving the school area, the mean values for snus-using frequency and smokers' school-time smoking frequency in the school area and outside the school area were lower than in schools without a guideline. However, the mean value for smoking frequency on the way to school was slightly higher in schools with a guideline about leaving the school area than in schools without one. School-level mean values for smokers' place to buy tobacco were significantly lower in the alternatives "from shop" and "from mini-market", but higher in the alternative "from friends" in schools with a guideline about leaving the school area than in schools without a guideline. In schools with a guideline about leaving the school area, pupils experienced the school's smoking restriction as being stricter and more strictly monitored than in schools without a guideline. (Table 4)

Table 4. School-level (n=414) mean values for pupil-reported smoking frequencies and place to buy tobacco (at least once a week smokers) and pupils' self-reported perception of school's smoking restriction and its monitoring in schools with and without a guideline about leaving the school area. Statistical significance between schools with and without guideline was assessed with Mann-Whitney test.

		With guideline	Without guideline	p-value
Smoking	Smoking in the school area in school time	1.74	2.07	<0.001
	Smoking outside the school area in school time	1.84	2.31	<0.001
	Smoking on the way to school	2.25	2.23	0.024
	Snus-using	1.06	1.08	<0.001
	<i>1, never; 2, every now and then; 3, every day</i>			
Buying	from somewhere	1.79	1.82	0.202
	from shop	1.32	1.38	<0.001
	from mini-market	1.44	1.52	0.001
	from petrol station	1.22	1.23	0.317
	from bar	1.16	1.15	0.514
	from vending machine	1.13	1.13	0.077
	from friends	1.70	1.65	0.001
	from somewhere else	1.52	1.49	0.177
	<i>1, no; 2, yes</i>			
Perception	of school's smoking restriction	1.08	1.16	<0.001
	<i>1, totally forbidden; 2, allowed in certain places; 3, allowed without limitations</i>			
	of the strictness of smoking restriction's monitoring	1.91	2.16	<0.001
	<i>1, very strictly; 2, quite strictly; 3, not at all</i>			

Results of the ANOVAs revealed that even when considering province, teaching language and number of pupils in the school as confounders, school-time smoking was associated with school's guideline both in the school area ($p < 0.001$) and outside the school area ($p < 0.001$).

5.1.4 Pupils' place to buy snacks

School-level percentages for pupils' self-reported school-time place to get snacks were higher in sweet-selling schools and in the schools without a guideline than in non-selling schools and in schools with a guideline in all the other places but "from home", where the tendency was opposite (Figure 2).

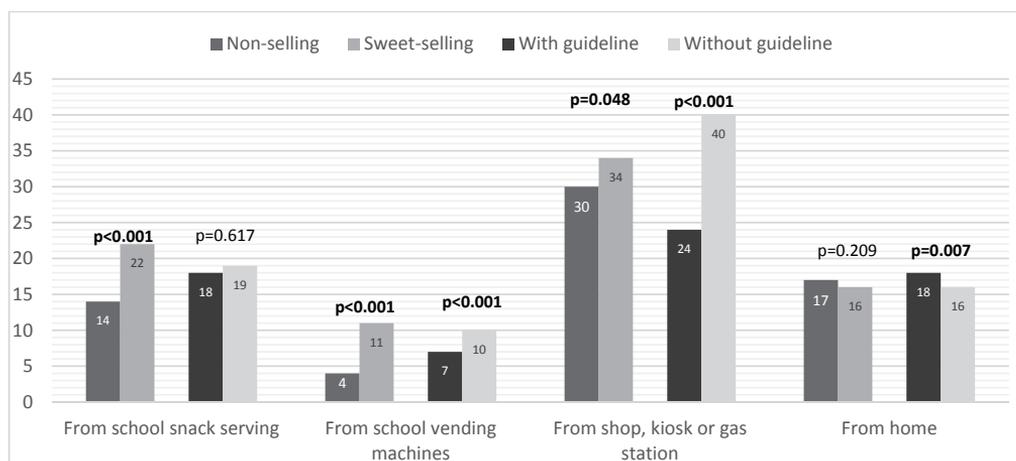


Figure 2. School-level (n=414) percentages for pupil-reported place to get snacks during school time in non-selling and sweet-selling schools, and in schools with and without a guideline about leaving the school area. A Mann-Whitney test was used.

Of the responding Finnish upper comprehensive schools (n=414), 59% were sweet-selling and 51% had no guideline about leaving the school area. Sweet-selling was not associated with guideline about leaving the school area (Table 5).

Table 5. Percentages of responding schools (n=414) according to sweet-selling and a guideline about leaving school area. Chi-square test was used.

	Sweet-selling	Non-selling
With a guideline	28%	21%
Without a guideline	31%	20%

$p=0.355$

5.2 The changes in schools' health practices after National Recommendation (n=258) (Papers I and II)

Since the 2007 National Recommendation, sweet-selling in Finnish upper comprehensive schools has decreased (Figure 3), more in schools with fewer number of pupils (Table 6) and schools located in Northern and Western Finland (Figure 6). The schools had improved their oral-health-promoting policy but it was still not clearly defined.

5.2.1 Selling of sweet products

Before the National Recommendation in 2007 every second school that took part every year ($n=258$) sold sweet products. Sugar-sweetened soft drinks, sugar-free soft drinks, sweets and other sweet products were available in every third of the schools. Selling decreased from 2007 to 2008 and from 2008 to 2009, in sweet products (total) by 11% and 18%, in sugar-sweetened soft drinks by 19% and 28%, in sugar-free soft drinks by 25% and 24%, and in sweets by 18% and 22%, respectively. Selling of other sweet products decreased during the second year by 14%. Selling of healthy products increased during the first year by 22%. (Figure 3)

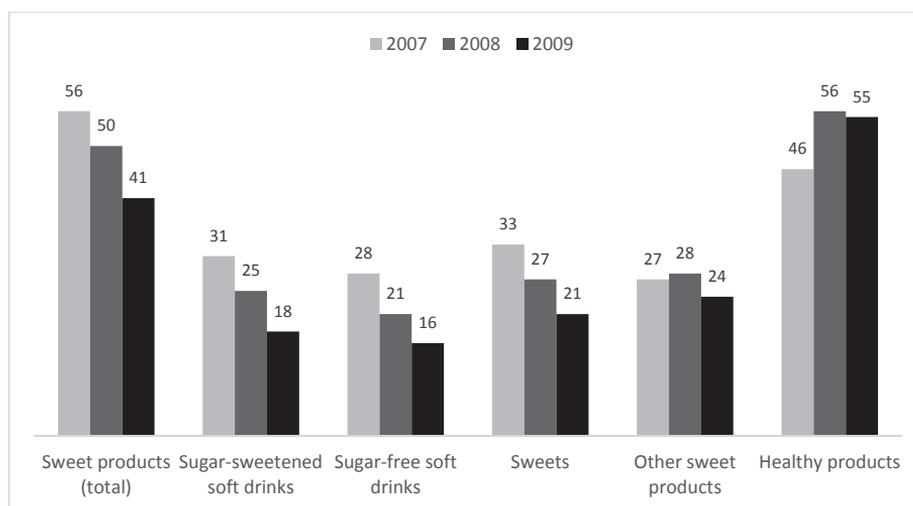


Figure 3. The percentages of the schools that sold sweet products (total), sugar-sweetened soft drinks, sugar-free soft drinks, sweets, other sweet products or healthy products in 2007, 2008 and 2009 among the schools that participated every year ($n=258$).

During the follow-up, soft drinks, both sugar-sweetened and sugar-free, were most often sold in a vending machine, and sweets in the school's tuck shop. However, the selling of soft drinks in vending machines and sweets in tuck shop also decreased most from 2007 to 2008 and from 2008 to 2009: sugar-sweetened soft drinks from vending machine by 36% and 36%, sugar-free soft drinks from vending machine by 38% and 31%, and sweets from tuck shop by 18% and 17% respectively. The percentage of schools selling sweet products (total) in a vending machine decreased the most during the follow-up, by 48% during the first year and by 36% during the second year. (Figure 4)

The brands written on the side of the soft-drink vending machines decreased during the follow-up since 23% of the schools in 2007, 12% of the schools in 2008, and 8% of the schools in 2009 had a vending machine with a brand.

5.2.2 Reasons to stop selling

The main reason for change among schools that reported stopping selling soft drinks, sweets or other sweet products in 2007 (n=43), 2008 (n=49) and 2009 (n=37) was pupils' health. The National Recommendation was the second important reason in 2008, and the municipality's and teachers' decision in 2009. The popularity of media and public discussion as a reason to stop selling increased during the follow-up. (Figure 5)

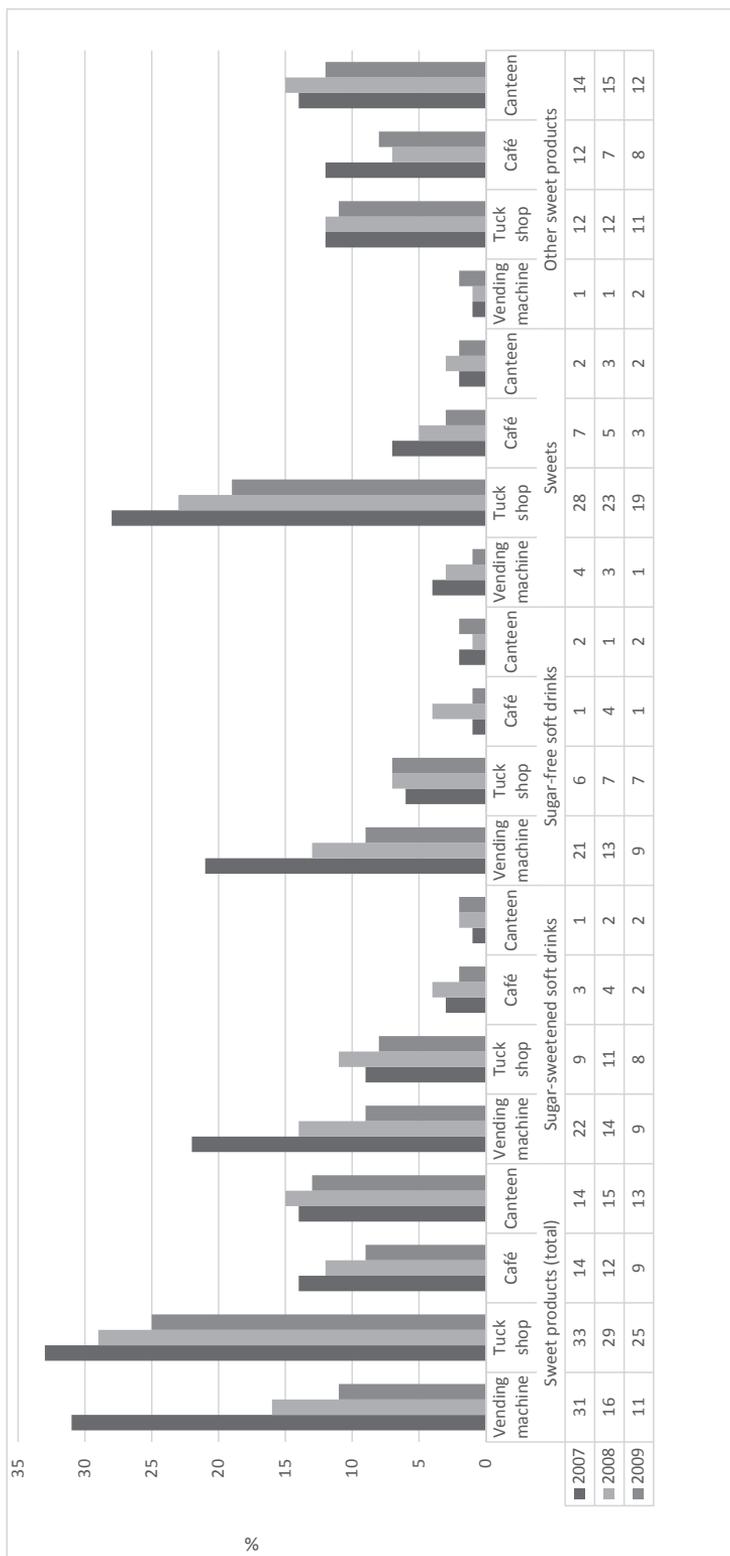


Figure 4. Percentages of the schools that sold sweet products (total), sugar-sweetened soft drinks, sugar-free soft drinks, sweets or other sweet products in vending machine, tuck shop, café or canteen in 2007, 2008 and 2009 among the schools that participated every year (n=258).

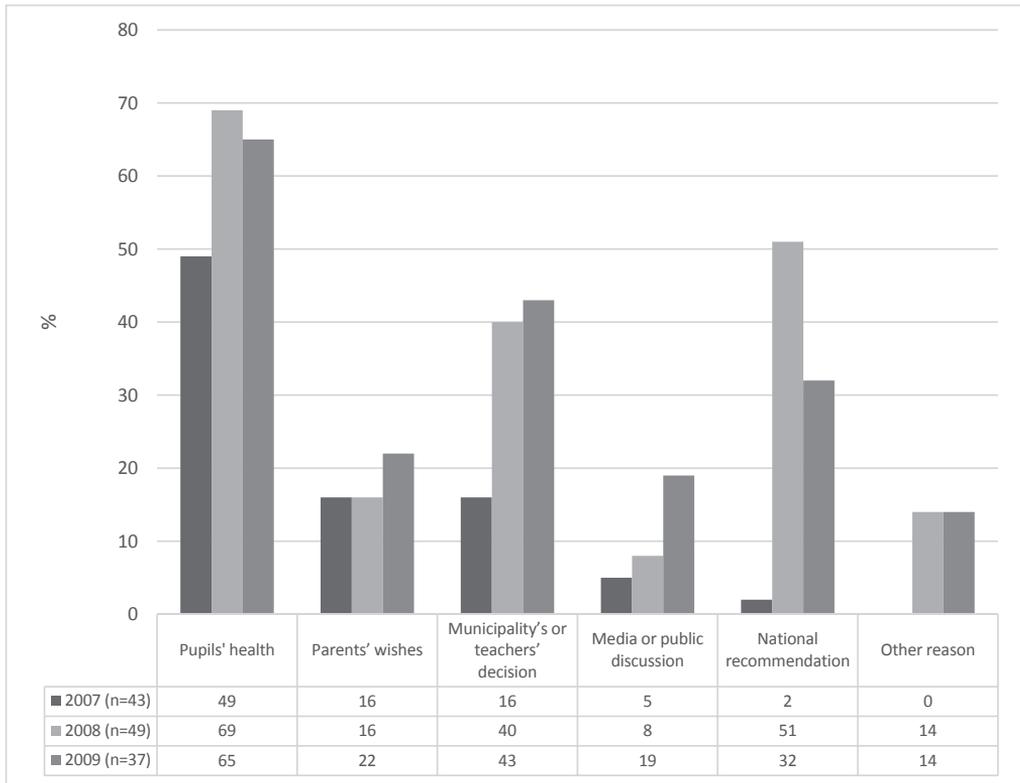


Figure 5. Percentages of the most important reasons to change among schools that participated every year (n=258) and reported stopping selling soft drinks, sweets or other sweet products in 2007, 2008 or 2009. Respondents were asked to name two reasons.

5.2.3 *The differences between sweet-selling and non-selling schools*

Schools with a large number of pupils more often sold sweet products than did schools with fewer pupils during the follow-up (n=258) (Table 6). Sweet selling in smaller schools also decreased more and more quickly than in bigger schools during the follow-up (Table 6). However, the schools with a large number of pupils more often sold also healthy products in 2007 and 2009 ($p < 0.001$).

Results

Table 6. Percentages of sweet-selling schools and schools with guideline about leaving school area among schools that participated every year (n=258) in 2007, 2008 and 2009, according to number of pupils in the school, province, teaching language and whether there is a lower comprehensive school in connection with the upper comprehensive school. Chi-square test was used.

		Sweet-selling			Guideline		
		2007	2008	2009	2007	2008	2009
Number of pupils in the school	<99	20	11	11	100	90	94
	100-299	48	41	33	62	61	61
	300-499	68	63	50	42	45	43
	500-	61	62	53	34	20	30
	p-value	0.001	<0.001	0.003	<0.001	<0.001	<0.001
Province	Southern Finland	60	57	56	36	38	33
	Western Finland	59	49	33	55	54	60
	Eastern Finland	55	52	38	62	52	55
	Oulu	46	49	39	70	61	70
	Lapland	39	29	14	69	57	57
	Aland	0	0	0	100	100	100
	p-value	0.391	0.405	0.009	0.004	0.138	0.002
Teaching language	Finnish	57	49	42	53	51	53
	Swedish	45	65	29	45	35	38
	p-value	0.217	0.244	0.172	0.495	0.216	0.185
Lower comprehensive school	Yes	41	41	33	68	60	58
	No	63	55	45	45	45	49
	p-value	0.001	0.02	0.041	<0.001	0.022	0.152
Total		56	50	41	52	50	52

During the follow-up, schools in Southern Finland sold sweet products more often than schools in Northern Finland even though the difference was statistically significant only in 2009 (Table 6). Sweet selling decreased the most in Western Finland and Lapland provinces, whereas in the Southern Finland province, sweet selling remained high (Table 6) (Figure 6).

Schools connected with a lower comprehensive school sold sweet products more often than schools without it every year. However, teaching language was not associated with sweet selling. (Table 6)

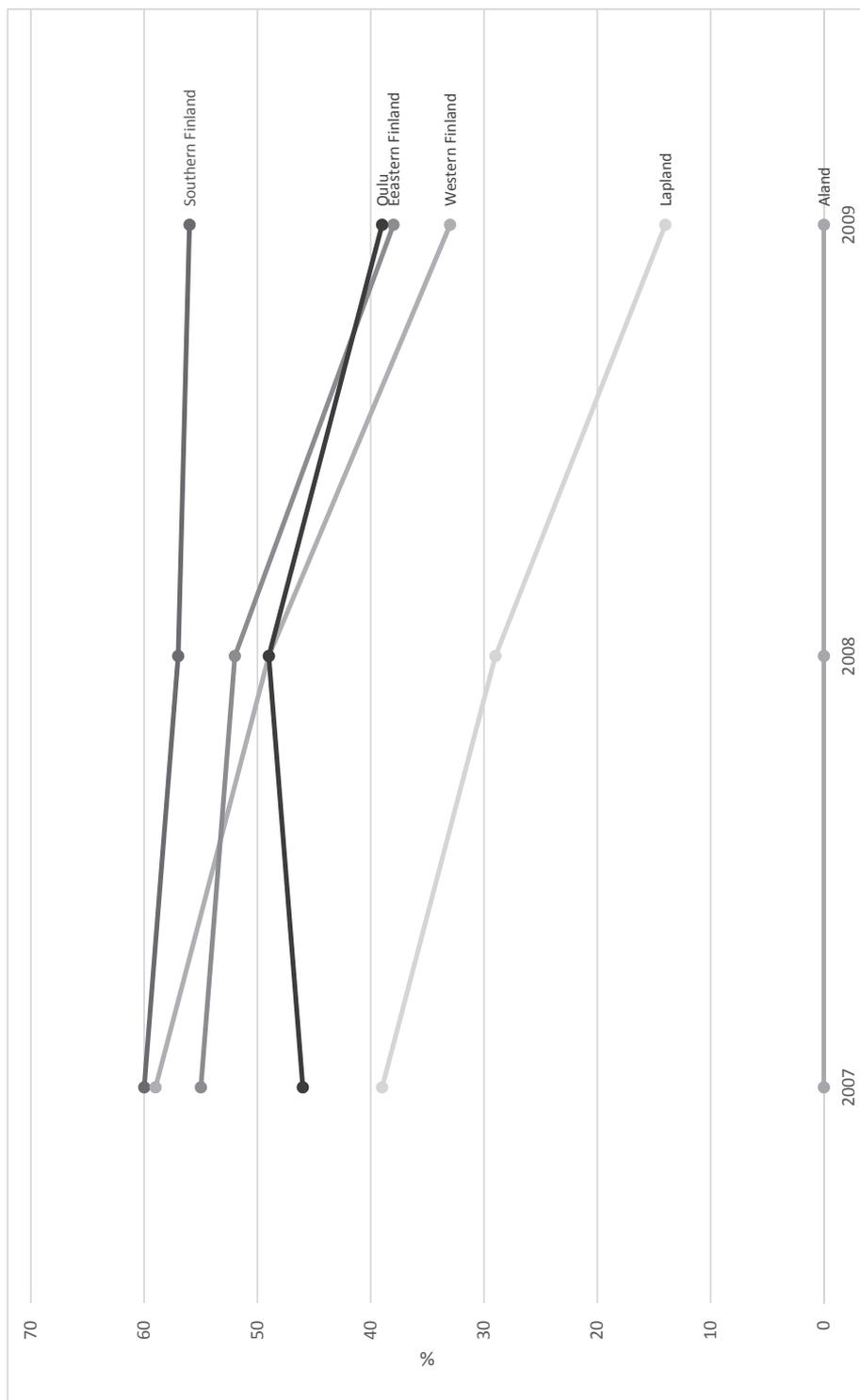


Figure 6. Percentages of sweet-selling schools among schools that participated every year (n=258) in 2007, 2008 and 2009 according to province. Chi-square test was used.

The proportion of schools with a guideline about leaving the school area did not change during the follow-up. The guideline was significantly associated with the number of pupils in the school every year, with province in 2007 and 2009, with connected lower comprehensive school in 2007 and 2008, but not with teaching language. There were no changes in the guideline about leaving the school area during the follow-up according to any background variable. (Table 6)

5.2.4 The changes in policy, enabling and exposure

The upper comprehensive schools in Finland had improved their oral-health-promoting policy but it was still not clearly defined. During the follow-up, schools had decreased pupils' exposure to sweet products and started to offer more oral-health-enabling actions. The changes in Policy, Enabling and Exposure variable were statistically significant. (Figure 7)

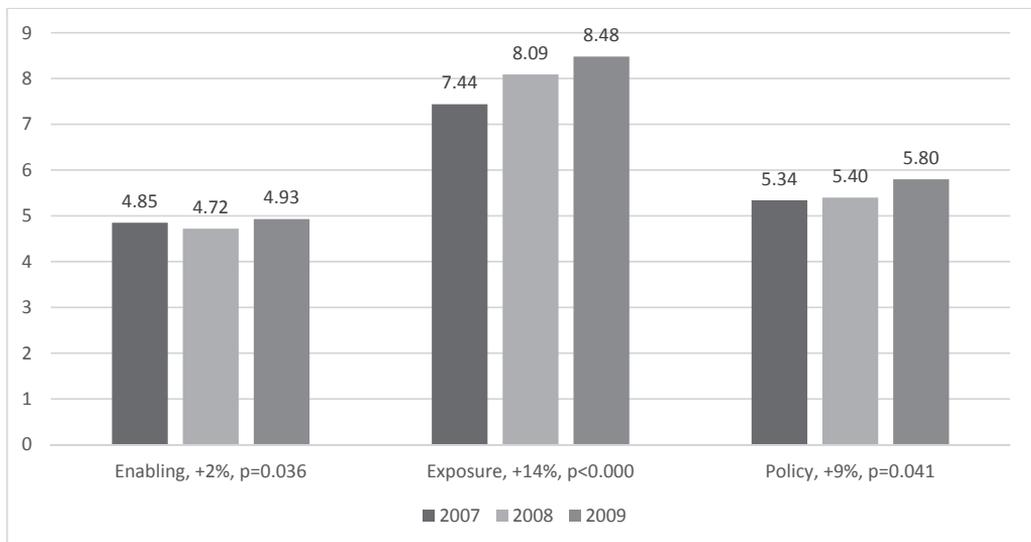


Figure 7. Mean values in Enabling, Exposure and Policy scores among schools that participated every year (n=258) in 2007, 2008 and 2009. The higher score means that better actions have been taken to provide a healthier school environment.

In the Policy variable, the contents of the schools' guidelines had statistically significantly improved, but there were no changes in either the number of guideline decision-makers or leaving the school area during the school day. The reason for improvement in the Exposure variable was a statistically significant decrease in the selling of soft drinks and sweets. In the Enabling variable, providing fresh drinking water and the school's attitude towards

xylitol products had not changed during the follow-up. Providing a healthy snack had first significantly decreased from 2007 to 2008, and then increased from 2008 to 2009. (Figure 8)

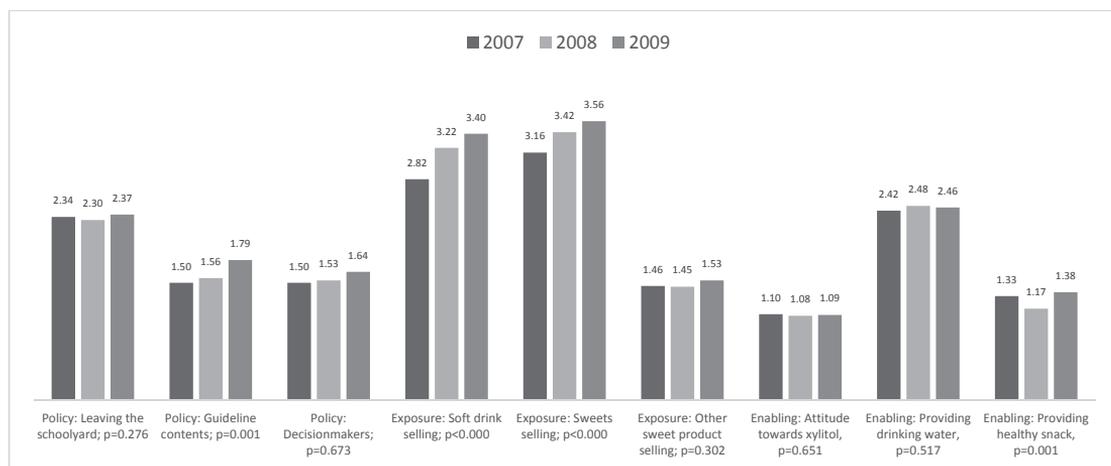


Figure 8. Mean values in subcategories of Enabling, Exposure and Policy scores among schools that participated every year (n=258) in 2007, 2008 and 2009. The higher score means that better actions have been taken to provide a healthier school environment.

There was a positive correlation between Policy and Enabling variables in 2007 (0.370; $p < 0.001$) and in 2009 (0.200 $p = 0.001$), whereas between Exposure and Enabling variables the correlation was negative in 2007 (-0.243; $p < 0.001$) and in 2009 (-0.176; $p = 0.005$). In 2008 there was a positive correlation between Policy and Exposure variables (0.125; $p = 0.045$).

5.3 Association between Oral health education material (OHEM) and school health education teaching (n=475) (Paper III)

There were difficulties in promoting and delivering the OHEM (Table 7) but after receiving it, teachers used it (Table 7), considered it suitable for health education and taught oral health topics more frequently than before it (Figure 9).

5.3.1 Awareness, receiving and using the OHEM

Three out of five of the responding teachers in 2009, reported that they were aware of the OHEM. Of the teachers who were aware of the OHEM, 75% had received it and of the teachers who had received it, 73% actually used it in their teaching, i.e. 34% of all the responding teachers. (Table 7)

Of all the teachers who answered in 2009 (n=475), female teachers reported more often having received the OHEM and having used it than did male teachers. There were no gender differences in the proportions of teachers who taught oral health and who were aware of the OHEM. (Table 7)

In 2009, teachers who reported teaching oral health or reported that they had answered the baseline questionnaire in 2008 were more often aware of the OHEM and had more often received it and used it than those who reported not having answered the baseline questionnaire (Table 7).

Table 7. Percentages (n=475) of all the teachers (total), female teachers and male teachers who taught oral health and who were aware of, received or used the OHEM in 2009 according to gender, answering the baseline study and teaching oral health. Chi-square tests were used.

		Teaches oral health	Aware of OHEM	Received OHEM	Used OHEM
Gender of the teacher	Female	92	61	48	36
	Male	87	60	32	22
	p-value	0.17	0.76	0.011	0.017
Answering the baseline study	Yes	95	78	56	46
	No	88	49	39	25
	p-value	0.016	<0.001	<0.001	<0.001
Teaches oral health	Yes	-	63	48	37
	No	-	43	25	5
	p-value	-	0.011	0.004	<0.001
Total		91	61	46	34

5.3.2 The changes in teaching after OHEM

The proportion of teachers who reported teaching oral health as part of health education did not change after the OHEM, being 89% in 2008 (n=563) and 91% in 2009 (n=475). There were no statistically significant differences in oral health teaching according to the number of pupils in the school, the province or the teaching language of the school, or according to the age or gender of the teacher in 2008 or 2009.

In 2009, oral health teaching was more common among teachers who were aware of the OHEM and who had received it than among those who were not aware of it and those who had not received it. Of the teachers who were aware of the OHEM, 93% taught oral health,

while it was taught by 87% of the teachers who were not aware of the OHEM ($p=0.009$). Of the teachers who had received the OHEM, 95% taught oral health, while it was taught by 87% of the teachers who had not received the OHEM ($p=0.002$).

In 2009, teachers who taught oral health, reported teaching all oral-health-related topics more frequently than they did in 2008 (Figure 9). The number of teachers who taught twice-a-day tooth brushing, flossing, using fluoride tooth paste, and using xylitol products to at least two age groups increased significantly. In health hazards of tobacco products and in restriction of sweet products the increases were not statistically significant (Figure 9). Results were similar when a different cut-off point (taught to at least one age group) was used.

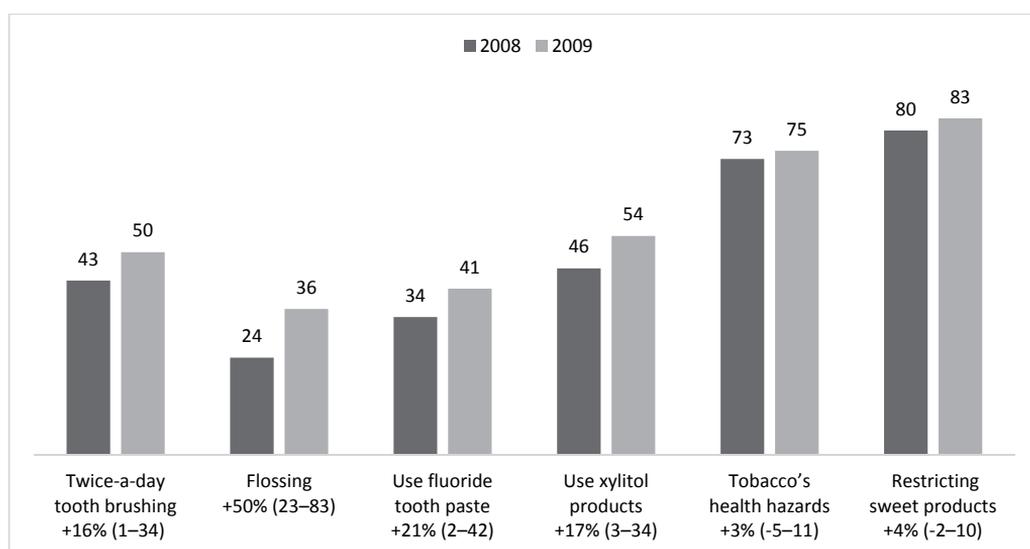


Figure 9. Percentages of teachers who reported teaching oral health topics in 2008 and in 2009 to at least two age groups and change percentages with 95% confidence interval.

The teachers who reported not teaching oral health in 2008 ($n=65$), found the absence of oral-health-related topics in their textbook (52%) and the lack of proper material for teaching oral health (34%) the most important reasons why they did not teach oral health. The percentages of these reasons decreased in 2009 ($n=44$) being 27% and 18%, respectively.

5.3.3 Teachers' considerations about the OHEM and oral health in general?

Of the teachers using the OHEM, 88% considered it very or quite suitable for oral health education. However, in the open questions, some teachers reported that the OHEM was too

wide to teach within the time available and asked for instructions about the most important themes and summaries of each theme to help teaching.

Teachers considered twice-a-day tooth brushing, the health hazards of tobacco products and restriction of sweet product consumption the most important themes of oral health education in both years. However, in both years, there were oral-health-related topics which female teachers considered more important to be taught than did male teachers. In both years, female teachers considered the teaching of almost all oral-health-related topics more important than did male teachers. The changes in the attitudes from 2008 to 2009 were statistically significant only in flossing for both genders, and in using xylitol products for female teachers. (Table 8)

Table 8. Percentages of teachers reporting in 2008 or 2009 different oral-health-related topics as being very important to teach in health education according to gender among all responding teachers. Change percentages with 95% confidence interval.

		2008 (n=563)	p	2009 (n=477)	p	Change (%)	CI
Twice-a-day tooth brushing	Males	86	0.473	77	0.002	-13	-24–1
	Females	88		90		2	-2–7
Flossing	Males	45	0.073	23	0.145	* -49	-68–19
	Females	54		31		* -43	-52–32
Using fluoride tooth paste	Males	65	0.372	57	0.002	-12	-31–11
	Females	69		74		7	-1–17
Using xylitol products	Males	39	0.004	42	0.001	8	-24–53
	Females	54		63		* 17	4–31
Health hazards of tobacco	Males	85	0.906	77	0.041	-9	-22–5
	Females	86		86		0	-5–6
Restriction of sweet products	Males	77	<0.001	77	<0.001	0	-15–17
	Females	91		93		2	-2–6

P-value for χ^2 -test between genders.

*, statistically significant change in 2008–2009.

This table was used before in paper III (Kankaanpää et al. 2013).

5.3.4 The differences according to other background variables

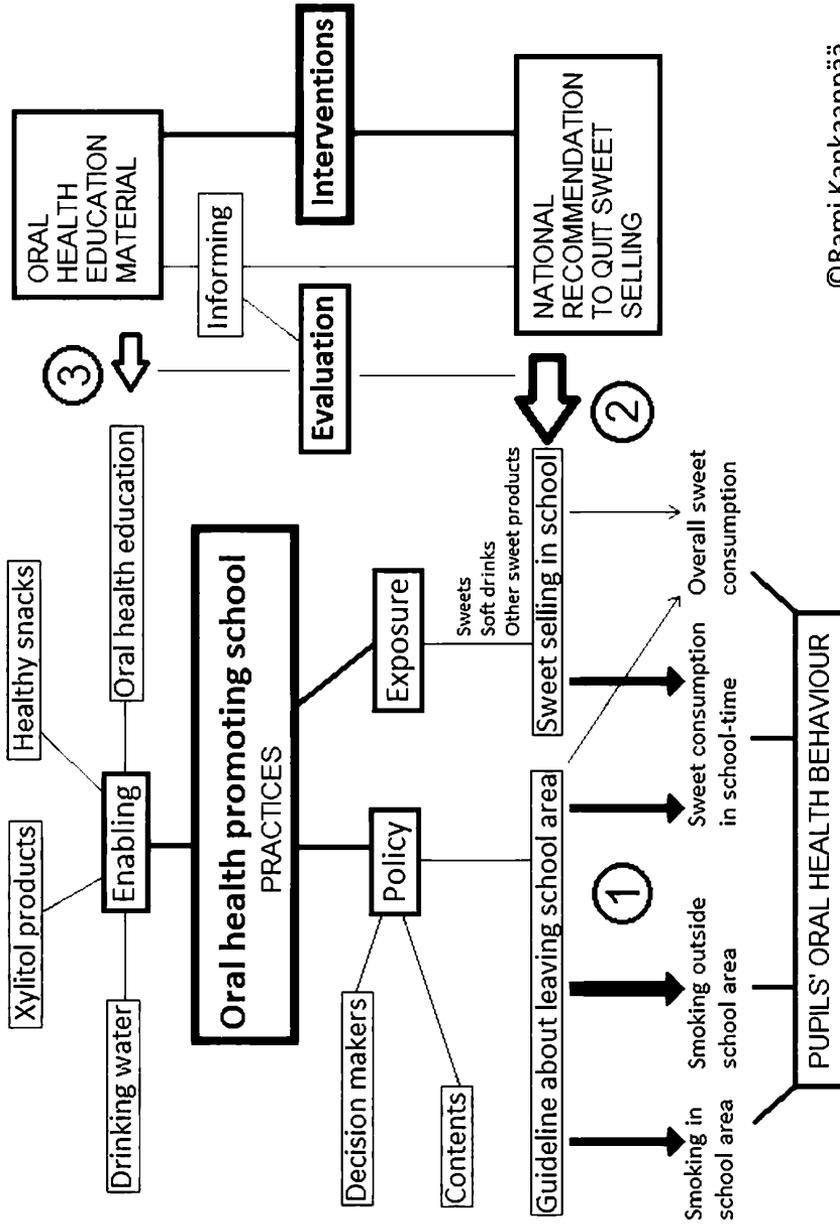
There were no statistically significant differences in the awareness of, receiving and using the OHEM or teachers' opinions of the OHEM according to the number of pupils in the school, the province or the teacher's age.

6. DISCUSSION

6.1 Main results

School sweet selling and lack of a guideline about leaving the school area seem to lead pupils to use sweet products and tobacco products more frequently compared to their peers in schools without selling and with a guideline (Aim 1). The association was clearest between guideline about leaving the school area and pupils' smoking. The association between schools' sweet selling and pupils' sweet consumption was clearer in school time than overall. The sizes of the black arrows in Figure 10 reflect the significance of the association.

The National Recommendation seemed to be quite an effective way to reduce the number of sweet-selling schools, even though there were large regional differences and a lack of clearly defined oral health promoting policies in the schools (Aim 2). New oral health education material (OHEM) did not increase the proportion of teachers who taught oral health in schools, but teachers started to cover oral health topics more frequently (Aim 3). The sizes of the framed arrows in Figure 10 reflect the power of the intervention.



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Figure 10. The strength of the associations between school oral health practices and pupils' oral health behaviour (1), between national sweet-selling recommendation and schools' sweet selling (2) and between new oral health education material and schools' oral health education teaching (3) represented as the sizes of the arrows in the picture. Oral health education added as an enabling factor

6.2 Results of the study in relation to previous research

6.2.1 *Associations between school oral health practices and pupils' oral health behaviour (n=414)*

Not many studies have tried to determine the association between the selling of sweet products in schools and pupils' sweet consumption (Wiecha et al. 2006, Shi 2010). There were no previous school-level studies about the association between school's sweet selling and pupils' sweet consumption frequency, or between the guideline about leaving the school area and pupils' sweet consumption and smoking frequencies. However, school-level findings in this study support the findings from previous pupil-level studies about the positive relationship between the availability of sweet products in schools and pupils' sweet consumption (Neumark-Sztainer et al. 1999, Wiecha et al. 2006, Shi 2010), as well as between the guideline about leaving the school area and pupils' sweet consumption (Neumark-Sztainer et al. 1999, Neumark-Sztainer et al. 2005).

School sweet selling and lack of a guideline about leaving the school area were reflected as pupils' higher sweet consumption frequency during school hours. The lack of a guideline was also reflected as pupils' higher overall sweet consumption frequencies, especially for sweets, sugar-free soft drinks and chocolate, which also supports the findings from previous US studies about the relationship between school's open campus policy and pupils' unhealthy eating (Neumark-Sztainer et al. 1999, Neumark-Sztainer et al. 2005).

In open-ended questions some principals tried to justify sweet selling by saying that if the school does not sell sweet products in the school area, pupils will go outside the school area to buy even larger bags of sweets and larger bottles of soft drinks. However, according to our study, sweet selling seems to be an unsuccessful attempt to keep pupils in the school area, since pupils in sweet-selling schools also got snacks outside the school area more often than pupils in non-selling schools. Nor did pupils in non-selling schools take snacks from home more frequently than pupils in sweet-selling schools.

A closed campus policy did not make pupils buy their snacks more often from the school area, since pupils in schools with a guideline about leaving the school area got their snacks from school vending machines less frequently than their peers in schools without a guideline. However, the schools with an open campus policy may increase the sales of nearby shops, mini-markets and petrol stations, but simultaneously jeopardise pupils' health (Sturm

2008, Borradaile et al. 2009, He et al. 2012). The open campus policy also seemed to be reflected in pupils' higher use of tobacco products both inside and outside the school area, more frequent buying of tobacco, and pupils' opinion of the school's smoking restriction as being looser and more loosely monitored than in schools with a closed campus policy. Even though no previous studies were found about the association between open campus policy and pupils' smoking, our findings supported the findings in the previous study where school policy was associated with pupils' smoking (Piontek et al. 2008).

6.2.2 The changes in schools' health practices after National Recommendation (n=258)

Very little information was found about the effectiveness of different programmes on schools sweet products' selling (Hawkes 2010). Many of them have been part of large multi-modal programmes (School Food Trust 2007, Matthews et al. 2008, The Swedish Dental Association 2008, Hawkes 2010). Our research was a single-component intervention that included only the National Recommendation to schools not to sell sweet products and to offer fresh drinking water to pupils (Finnish National Board of Education (FNBE) and National Institute for Health and Welfare (THL) 2007, Thomas et al. 2013).

Even though in the US almost all districts had a school wellness policy, only 61% had competitive food and beverage guidelines, even though these were required (Chriqui et al. 2013). These findings are supported by our study, since even though most Finnish schools reported having an oral health promoting policy it was not clearly defined.

National recommendations seemed to be effective, but alone are not enough for schools to become healthy environments (World Health Organization 1986). In the UK, the government resorted to statutory actions to stop the selling of sweet products, because they wanted to ensure that schools would conform to the recommendation (School Food Trust 2007). In Finland this solution has also been proposed, but many first wanted to see the impact of the National Recommendation.

More important than carrying vending machines out of school forcibly, is to make teachers, pupils and parents realize the extent of the problem. This requires more widely recognized actions including informing and community actions (World Health Organization 1986). In Sweden, where the culture is similar to Finland's, The Swedish Dental Associations programme achieved excellent results using the whole field of health promotion, including informing, lobbying politicians, co-operating within health care, but also with all the other

policies as well (World Health Organization and Ministry of Social Affairs and Health 2013), networking and using media publicity (The Swedish Dental Association 2008). Provision of concrete facts and amounts of adolescents' sweet consumption and publishing them in the media were considered important for galvanizing people to action (The Swedish Dental Association 2008).

Some researchers have proposed that it would be time to move outside the school to homes, shops and the surrounding community to make the everyday environments healthier (Gittelsohn and Kumar 2007). This study shows that also in the schools there is still a lot to be done in terms of healthy environments; co-operation and more radical common risk actions are needed (Sheiham and Watt 2000). However, it is clear that changes in schools' oral health policies will not occur overnight.

6.2.3 School Oral health education material (OHEM) (n=475)

The results of this study cannot be directly compared to other studies, since no other studies evaluating the production of oral health material for school health education teachers were found. However, in a study on medicine education material in Finland, teachers asked for summaries of the education material, because they considered the material too wide (Hämeen-Anttila et al. 2006). The results of our study supported the previous study, since teachers reported the OHEM to be too wide for the time available. Teachers also asked for briefing about the most important themes. However, from the health promotion point of view, teachers chose the right sections of the OHEM, i.e. twice-a-day tooth brushing, the health hazards of tobacco products, and restriction of sweet product consumption, as the most important themes of oral health education.

The OHEM delivered to Finnish upper comprehensive schools did not increase the number of teachers teaching oral health. In a former study in Finland, two out of five of the health education teachers reported that a lack of weekly teaching lessons had an effect on why they work as a health education teacher (Kannas et al. 2009). This raises the question of whether for some teachers health education teaching is just a way to get enough weekly teaching lessons in addition to physical education, since almost half of the health education teachers teach physical education as their main subject (Kannas et al. 2009).

Women's attitudes towards oral health teaching were more positive than men's which may be the reason why women were also more active in using the OHEM. Male teachers need to be informed of the importance of oral health and their role as models in health education

especially for boys, who are known to be, for example, poorer tooth-brushers than girls (World Health Organization 2008b). Teaching of brushing is especially important in Finland since the tooth-brushing habits of Finnish school children are among the worst in Europe (World Health Organization 2008b).

However, the most important reason for not teaching oral health was no longer a lack of material after the OHEM was sent to schools. Thus, it seems that every tenth teacher does not have the readiness or motivation to teach oral health even if there is material available. These teachers need ready-to-use packages or oral health care professionals' visits to health education lessons. Despite the fact that in the Finnish study four out of five of the health education teachers considered this kind of co-operation essential (Dadi 2007), in another study only 30% of the pupils reported that a dentist and 13% that an oral hygienist had visited their health education lesson (Kannas et al. 2009). To encourage this kind of co-operation between schools and oral health care professionals, the OHEM was also delivered to the dental clinic of every Finnish health centre. The OHEM does not remove the responsibility of local oral health care professionals to be facilitators of the community actions in oral health promotion in the form of school visits and other public appearances when necessary (World Health Organization 1986).

6.3 Strengths and weaknesses of the study

The strength of this study was the use of three independently collected datasets, especially because two of them were linked together. There were also different respondents in the questionnaires, since the oral health practices data were collected from principals, the oral health behaviour data from pupils, and the oral health education data from health education teachers. This increases the validity of the study at the school level.

Another strength was the large sample size and coverage of datasets at principled level. The School Health Promotion study is encompassing and highly appreciated in the schools, which can be seen in the excellent response rate in the oral health behaviour data. Yet another strength of the study was that the oral health practices data were longitudinal, the same schools answered all three years. Even though the total response rate of the longitudinal data was modest, over half of the schools that participated the first year, took part in all three years. It was easy for school personnel to answer via the Internet, which increased the response activity.

The weakness of the oral health practices data and the oral health education data is the modest response rate. In addition, the oral health education data could not be linked to other

datasets, because of multiple teachers answering from the same schools and due to the small number of schools participating in the study. The total number of health education teachers in Finland was not available, so the exact response rate of the teachers could not be calculated.

Another weakness of the study is that it is not possible to evaluate the external validity of the study. It is possible that principals and teachers who are more active and more interested in health promotion, were also more active in answering this kind of voluntary questionnaire, which means that the results may show a better picture than the real situation is (Marcus and Schutz 2005). The big challenge in voluntary questionnaires is to get passive people and passive schools to report their situation (Locker 2000). However, attempts were made to get more passive principals and teachers to answer by raffling oral hygiene products among those who replied (Locker 2000). A weakness of the oral health behaviour data was that only school-level mean values of pupils' sweet consumption and smoking frequencies were available. With the large sample size even small differences in school-level mean values could become statistically significant. However, at population level even such small differences can be meaningful and small changes may be important for health (Cook and Hatala 2014).

For every dataset, the geographical distribution of the responding schools was similar to the geographical distribution of all the schools in Finland. Nonresponse analysis of the longitudinal oral health practices data revealed that schools with a small number of pupils and schools with Swedish as their teaching language were less likely to participate every year. Schools that participated every year, and schools that responded only in one or two years were similar concerning their oral-health-promoting policy, practical actions related to oral health promotion, and geographical distribution. In the health education data, the distribution of all health education teachers in Finland according to gender was not known, but the distribution was similar for both years and corresponded to the gender distribution of former studies (Kannas et al. 2009). The distribution of the teachers according to age was similar for both years.

The study population can be considered representative enough for the results to be generalised to Finnish upper comprehensive schools.

6.4 Significance of the study to science and public health practice

Even though school sweet selling was statistically significantly associated with school-time sweet consumption, the association was not statistically significant with the overall

consumption, even though the trend was similar. Only in the overall consumption of sweet pastries was the difference opposite according to both sweet selling and guideline.

Less significant differences in overall sweet consumption frequencies and especially the opposite difference in sweet pastries may result from pupils compensating their sweet consumption after school if it is made difficult during school time. As one third of the daily calories are consumed at school, school-time eating practices are also very important (Dwyer 1995). Sweet pastries are also a better alternative for both oral and general health than sweets and soft drinks, since according to open-ended questions, they were available rarely and the provision of them was usually supervised. A break from consuming sweet products at least during the school day is very important for pupils' oral health, since it interrupts the acid attack in pupils' teeth (Rugg-Gunn 2013). Perhaps most importantly, a school with a guideline and without sweet selling can teach pupils lifelong models for moderate sweet consumption (World Health Organization 2003b), and in this way improve their personal skills (World Health Organization 1986).

According to our study, a closed campus policy seems to be a good way to decrease pupil's sweet consumption and smoking frequencies in school time. For some pupils school may be a good place for unhealthy eating, drinking or smoking without their parents knowing about it. For others it may work as the only safe haven against the unhealthy home environment with continuous unhealthy eating, drinking or smoking accepted or even supported by their parents. However, in open-ended questions, some school principals passed the whole responsibility for adolescents' oral health to their parents. However, it is schools' responsibility to provide pupils with a safe and healthy school environment, which can even reflect to the home. Instead of arguing about the responsibilities, the role of excessive sugar intake as a common risk factor for many diseases should be taken as an opportunity to approach the problem by collaborating not only within the health care system, but together with policymakers, schools, pupils and parents (World Health Organization 1986, Sheiham and Watt 2000, World Health Organization and Ministry of Social Affairs and Health 2013). Parents' and pupils' associations and management boards in the Finnish school system are also very useful institutions for such local community actions (World Health Organization 1986, European Commission 2009). However, community actions do not need an expert to lead but more to facilitate these actions (Daly et al. 2013). This role of facilitator is fitting for local oral health care professionals: dentists, dental hygienists and dental assistants. Changes need decision-makers, but change will not occur without intransigent work at the grass roots

level to reorganize health services in a more preventive direction (World Health Organization 1986).

In the Finnish tobacco control programme, health is promoted in the agendas of different sectors of the society; this provides a good example of the Health in All Policies approach (World Health Organization and Ministry of Social Affairs and Health 2013, Melkas 2013). However, one step towards a tobacco-free Finland by 2040 could be a credible school smoking restriction, with a closed campus policy followed by both schools and shopkeepers, and monitored by the government (Lovato et al. 2007, Ministry of Social Affairs and Health 2010, Levy et al. 2012, Tupakkapolitiikan kehittämistyöryhmä 2013).

Even though the selling of sweet products in Finnish schools had decreased after the National sweet selling recommendation, in Southern Finland province, where most Finnish people live (Suomen virallinen tilasto (SVT) 2007), the selling had not decreased. This has led to an increasing difference between South Finland province and other provinces of Finland. The National Recommendation to stop sweet selling in Finnish schools has actually increased the geographical health inequality in Finnish upper comprehensive schools. Moreover, the open campus policy was more common in the south than in the other parts of Finland, thus increasing the already high inequality. In South Finland province there are more schools with a large number of pupils than in other parts of Finland, which may be one reason for this phenomenon, since both sweet selling and open campus policy were more common in schools with a large number of pupils. Poor progress in Southern Finland province may also reflect higher population density, which can be seen as schools located in the city centres where more shops and kiosks are located near the school. However, this increasing geographical inequality between north and south is not acceptable, and schools in the south should be supported to stop this disadvantaging of their pupils (World Health Organization 1986). These schools need help in building a permanent policy to stop sweet selling in school and to adopt a closed campus policy. Several studies suggest that permanent policies can make school environments healthier and therefore improve pupils' diet (Briefel et al. 2009, Boles et al. 2011, Levy et al. 2011). The easiest and cheapest decision for schools would be to forbid the selling of sweet products and to close the campus during breaks.

The main reason to stop the selling of sweet products was, every year, the pupils' health. The National Recommendation was the second most important reason in 2008, and the municipality's and teachers' decision in 2009. The reason for this change could be that during the follow-up the message of the National Recommendation has got through to local decision-makers and perhaps some permanent policies at both municipality and school level have been

implemented. The increased popularity of media and public discussion as a reason to stop selling during the follow-up may result from the public discussion and media publicity about young people's eating habits after the results of the 2007 and 2008 surveys were published, a good example of community actions at the national level (World Health Organization 1986). People working in oral health promotion must be ready to appear in both traditional and social media, locally, nationally, and globally.

There was no correlation between Policy and Exposure variables, except for the weak correlation in 2008. Since sweet product selling had decreased more than the oral-health-promoting policy had improved, there seemed to be no clear policy behind stopping the selling of sweet products. Thus, there is a risk that if schools have not set clear written policies, the selling of sweet products can easily restart, for example, initiated by the soft drink industry and accepted by a new principal.

The positive correlation between Policy and Enabling variables in 2007 and 2009 shows that the school's oral-health-promoting policy increased healthy factors that enable oral health. The negative correlation between Exposure and Enabling variables in 2007 and 2009 indicates that schools either forbid the selling of sweet products or provide more factors to enable oral health, but fail to do both.

Enabling did not change during the follow-up, which may result from schools having concentrated on forbidding unhealthy factors in their environments but having failed to enable oral-health-promoting factors such as providing a healthy snack or fresh drinking water for pupils. Forbidding unhealthy products may be easier but it is equally important to make healthy alternatives easily available (Milio 1986). Schools need more information about the comprehensiveness of the oral-health-promoting school (World Health Organization 2003b, Kwan et al. 2005, Jürgensen and Petersen 2013)

The effects of any intervention must be properly evaluated, which is important for both the process itself and the outcome (Crosby and Noar 2011). In fact, some schools even reported in the open-ended questions being pleased that their activity and development were being monitored so that the recommendation could not just be disregarded. It is also important that the results of the evaluations are published not only in scientific publications but also in national media and even in social media, so that they can be seen by the whole population. If it is possible to also publish local or even school level results, it is important that they are published in local newspapers and given to schools, so that schools can see what their biggest weaknesses are compared to other schools. By adding the awareness in the community, pupils

and their parents may begin to wonder why their school still continues to sell sweet products, and would provide schools with even modest pressure to change.

When producing new oral health material, things often go ahead in the wrong order and without proper planning. Probably some material is available as a result of a former project and if funding has worked out, material is produced and delivered, without proper planning, advertising, and a plan for evaluation. This leads to incomplete intervention with single-component aspects (Crosby and Noar 2011, Thomas et al. 2013).

Answering the baseline questionnaire increased teachers' awareness of, receiving, and using the OHEM, which means the baseline study itself worked as an intervention, since the OHEM was mentioned in the baseline foreword. This kind of informing is very important and also ethically indispensable when releasing and evaluating the OHEM. It should also be well advertised beforehand to increase its attractiveness. Teachers' knowledge must also be used already when planning the contents of the material, as was also done in our study.

The problem of the OHEM seemed not to be in the contents, but rather in the marketing and delivery since three out of four of the teachers who had received the OHEM started to use it in their teaching, and almost all of them considered it suitable for teaching. Not enough of the teachers were aware of the OHEM and even if they knew about it, they had not got their hands on it. Especially in the schools with a large number of pupils, one copy of the OHEM is not enough, since there can be ten health education teachers in the school. Schools should be asked beforehand, in what form and in what quantities the OHEM should be delivered to them.

The OHEM must be planned in close co-operation between schools' health education teachers and local dental health care professionals, because this enables not only better acceptance but may also provide a bridge between school and local oral health care for further co-operation and reorienting oral health services (World Health Organization 1986). Producing the OHEM might not get all teachers to teach oral health, but by giving more information and equipment the teachers who teach oral health may cover it more often and more comprehensively. If there is no OHEM available or if the OHEM is not user-friendly enough, teachers will emphasize in health education the teaching of other subjects than oral health.

Based on the results of this study, the Finnish Dental Association has already released the OHEM online to ensure that the teachers who still do not have it can have easy access to it. Teachers have also regularly been informed about the online availability. The effects of the online version of the OHEM have also been evaluated (Eskola et al. 2014).

6.5 Recommendations for actions

- Longitudinal studies are known to support authorities and decision-makers working with health promotion (Young, Currie 2009). The political will is one of the most important factors in improving health. It is hoped that this kind of political will be found also in Finland.
- Since in this study associations have been found between school oral health practices and pupils' oral health behaviour, schools can no longer justify their ignorance of pupils' health by saying, for example "Pupils will find a way to buy sweets and soft drinks or to smoke". This may even enable decision-makers to forbid the selling of sweets and soft drinks in school and to increase tobacco control in schools.
- Local community actions and collaboration between school, pupils, teachers, parents, shopkeepers and health care are essential but also the government should be aware of the roles of excessive sugar intake and smoking as common risk factors for many diseases as an opportunity to intervene in this problem more strictly.
- Schools need the help of both policy-makers and local health professionals in building permanent policies for a healthy school environment. Policies should include the prohibiting of sweet products' selling in school, enabling healthy alternatives instead, and creating a closed campus policy to protect pupils not only from school-time sweet consuming but also from smoking.
- Oral health interventions in school must be well planned, informed and monitored, and the results of the monitoring should be published not only in scientific publications but also in the national and local media. Local oral health professionals must also be well informed about the interventions to enable them to reorientate oral health services towards health promotion and facilitating schools, pupils and parents to create healthy school environments.

7. CONCLUSION

The National Recommendation was an effective way to reduce the number of sweet-selling schools in Finland. However, it seemed to be an inadequate action for schools in Southern Finland and schools with a large number of pupils to stop sweet selling. The excuse that sweet selling does not increase pupils' sweet consumption in school time is no longer valid, which should be sufficient justification to take legislative actions to stop the selling of sweet products in school.

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APPENDIX: QUESTIONNAIRES

Questionnaires in Finnish. For translation and validation in English, please contact the author.

Questionnaires in Finnish. For translation and validation in English, please contact the author.

Tutkimus virvoitusjuomien ja makeisten myynnistä perusopetuksen vuosiluokkien 7-9 kouluissa (yläkouluissa) 2007

1. Koulun nimi _____
Lääni _____
Kunta _____
2. Koulun oppilasmäärä?
 - alle 99
 - 100–299
 - 300–499
 - yli 500
3. Toimiiko yläkoulun kanssa samoissa tiloissa myös 1-6 vuosiluokkien koulu(alakoulu)?
 - Kyllä
 - Ei
4. Voivatko oppilaat ostaa koulusta syötävää tai juotavaa. esim. kahvilasta, kioskista, automaateista tai ruokalasta?
 - Kyllä *Jos vastasit kyllä, siirry suoraan kysymykseen 6.*
 - Ei *Jos vastasit ei, vastaa kysymykseen 5.*
5. Mikä on tärkein syy, jonka vuoksi koulussa ei ole myyntiä?
 - Koululla on tehty linjaus, joka on myynnin vastainen
Jos vastasit, että koululla on linjaus, siirry kysymykseen 25.
 - Muu syy, mikä?

Jos vastasit muun syyn, siirry kysymykseen 29.
6. Onko koulussa juoma-automaatti, joka on kouluaikana oppilaiden käytössä?
 - Kyllä *Jos vastasit kyllä, vastaa kysymyksiin 7 ja 8.*
 - Ei *Jos vastasit ei, siirry suoraan kysymykseen 9.*
7. Myydäänkö juoma-automaatissa
 - tavallisia virvoitusjuomia
 - keinomakeutettuja virvoitusjuomia (ns. Light-tuotteita)
 - makeutettuja mehuja
 - ei mitään edellisistä
Voit valita yhden tai useamman vaihtoehdon.
8. Näkyvätkö juoma-automaatissa tuotemerkit (esim. CocaCola).
 - Kyllä
 - Ei
9. Onko koulussa jokin muu automaatti, joka on kouluaikana oppilaiden käytössä?
 - Kyllä *Jos vastasit kyllä, vastaa kysymyksiin 10 ja 11.*
 - Ei *Jos vastasit ei, siirry suoraan kysymykseen 12.*

10. Myydäänkö automaatissa makeisia?

- Kyllä
- Ei

11. Näkyvätkö automaatissa tuotemerkit (esim. Mars)?

- Kyllä
- Ei

12. Onko koulussa kioski?

- Kyllä
- Ei

Jos vastasit kyllä, vastaa kysymykseen 13.

Jos vastasit ei, siirry suoraan kysymykseen 14.

13. Myydäänkö kioskissa

- tavallisia virvoitusjuomia
- keinomakeutettuja virvoitusjuomia (ns. Light-tuotteita)
- makeutettuja mehuja
- makeisia
- ei mitään edellisistä

Voit valita yhden tai useamman vaihtoehdon.

14. Onko koulussa kahvila?

- Kyllä
- Ei

Jos vastasit kyllä, vastaa kysymykseen 15.

Jos vastasit ei, siirry suoraan kysymykseen 16.

15. Myydäänkö kahvilassa

- tavallisia virvoitusjuomia
- keinomakeutettuja virvoitusjuomia (ns. Light-tuotteita)
- makeutettuja mehuja
- makeisia
- leivoksia, munkkeja, pullia tai keksejä?
- ei mitään edellisistä

Voit valita yhden tai useamman vaihtoehdon.

16. Myydäänkö koulun ruokalassa

- tavallisia virvoitusjuomia
- keinomakeutettuja virvoitusjuomia (ns. Light-tuotteita)
- makeutettuja mehuja
- makeisia
- leivoksia, munkkeja, pullia tai keksejä?
- ei mitään edellisistä

Voit valita yhden tai useamman vaihtoehdon.

17. Mikäli koulussa myydään makeita syötäviä tai juotavia, mikä on tärkein syy siihen?

- Koulussa ei myydä makeita syötäviä eikä juotavia

Jos vastasit, että koulussa ei myydä syötäviä eikä juotavia, siirry suoraan kysymykseen 20.

- Oppilaiden toivomus
- Vanhempien toivomus
- On parempi, että ostetaan koulusta kuin koulun ulkopuolella sijaitsevasta kaupasta tai kioskista
- Muu syy, mikä? _____

Jos vastasit jotain muuta, jatka kysymykseen 18.

18. Kuka/ketkä vastaavat makeiden syötävien tai juotavien myynnistä koulussa?

Voit valita yhden tai useamman vaihtoehdon.

- Koulu
- Oppilaskunta
- Opettajayhdistys
- Vanhempainyhdistys
- Ulkopuolinen yritys
- Hyväntekeväisyysjärjestö
- Joku muu, mikä _____

19. Kuka/ketkä saavat makeiden syötävien tai juotavien myynnin tulot?

Voit valita yhden tai useamman vaihtoehdon.

- Koulu
- Oppilaskunta
- Opettajayhdistys
- Vanhempainyhdistys
- Ulkopuolinen yritys
- Hyväntekeväisyysjärjestö
- Joku muu, mikä _____

20. Myydäänkö koulussa hedelmiä, voileipiä tai muita terveellisiä välipaloja?

- Kyllä *Jos vastasit kyllä, siirry suoraan kysymykseen 22.*
- Ei *Jos vastasit ei, vastaa kysymykseen 21.*

21. Mikä on tärkein syy siihen, että koulussa ei myydä terveellisiä välipaloja?

- Koulu tarjoaa terveellisen välipalan.
- Oppilaat ottavat terveellisen välipalan tarpeen vaatiessa kotoa mukaansa.
- Oppilaat eivät ole kyselleet terveellisiä välipaloja.
- Vanhemmat eivät ole kyselleet terveellisiä välipaloja
- Muu syy, mikä? _____

22. Oletteko tehneet muutoksia myynnissä viimeisen kahden vuoden aikana?

Voit valita yhden tai useamman vaihtoehdon.

- Emme *Jos vastasit emme, siirry suoraan kysymykseen 24.*
- Kyllä, myymme nykyisin pelkästään hedelmiä, voileipiä tai maitotuotteita.
- Kyllä, olemme lopettaneet virvoitusjuomien myynnin.
- Kyllä, olemme lopettaneet makeisten myynnin.
- Kyllä, olemme lopettaneet muiden makeiden syötävien/juotavien, kuten mehujen, leivosten ja pullien myynnin.
- Kyllä, olemme vähentäneet virvoitusjuomien tarjontaa.
- Kyllä, olemme vähentäneet makeisten tarjontaa.
- Kyllä, olemme vähentäneet muiden makeiden syötävien/juotavien, kuten mehujen, leivosten ja pullien tarjontaa.
- Kyllä, olemme aloittaneet virvoitusjuomien myynnin.
- Kyllä, olemme aloittaneet makeisten myynnin.
- Kyllä, olemme aloittaneet muiden makeiden syötävien/juotavien, kuten mehujen, leivosten ja pullien myynnin
- Kyllä, olemme tehneet jotain muuta, mitä?

Jos vastasit kyllä, vastaa kysymykseen 23.

23. Mikä on pääasiallinen syy siihen, että järjestelyjä on muutettu?

24. Onko koululla jonkinlaista linjausta koskien virvoitusjuomien, makeisten ja muiden makeiden syötävien/juotavien myyntiä ja/tai nauttimista koulussa?

- Kyllä *Jos vastasit kyllä, jatka kysymykseen 25.*
- Ei *Jos vastasit ei, siirry suoraan kysymykseen 29.*

25. Mitä linjaus pitää sisällään?

Voit valita yhden tai useamman vaihtoehdon.

- Oppitunneilla ei nautita virvoitusjuomia eikä makeisia
- Koulussa ei nautita virvoitusjuomia eikä makeisia
- Koulussa ei myydä virvoitusjuomia eikä makeisia
- Koulussa ei myydä lainkaan makeita tuotteita
- Koulussa ei myydä mitään
- Myyntipisteissä myydään terveellisiä tuotteita
- Vähennetään makeita tuotteita kahvilan valikoimasta
- Rajoitetaan kahvilan aukioloaikoja
- Ohjataan oppilaita syömään kouluruokaa
- Koulu tarjoaa terveellisen välipalan
- Muuta, mitä?

26. Ketkä päättävät koulun linjauksesta?

Mikäli linjaus on tehty yhdessä, valitse kaikki päätökseen osallistuneet tahot.

- Kunta
- Opettajat
- Oppilaat
- Vanhemmat

- Muu taho, mikä? _____

27. Onko linjaus muuttunut kahden viimeisen vuoden aikana?

- Kyllä *Jos vastasit kyllä, vastaa kysymykseen 28.*
- Ei *Jos vastasit ei, siirry suoraan kysymykseen 29.*

28. Miten ja mistä syystä linjaus on muuttunut?

29. Onko oppilailla lupa käydä ostamassa syötävää tai juotavaa koulualueen ulkopuolelta esim. kaupasta tai kioskista?

- Kyllä, ruokatunnilla
- Kyllä, välitunnilla
- Kyllä, milloin tahansa
- Ei, ja poistumista pystytään valvomaan
- Ei, mutta oppilaat käyvät siitä huolimatta

30. Mistä oppilaat saavat vettä juodakseen koulupäivän aikana?

Voit valita yhden tai useamman vaihtoehdon.

- ostamalla juoma-automaatista
- koulun käytävillä olevista vedenjuontipisteistä
- ruokalasta ruokatunnin aikana
- ruokalasta muulloinkin kuin ruokatunnin aikana
- vessan tai pukuhuoneiden hanoista
- jostain muualta, mistä? _____

31. Miten koulussanne suhtaudutaan ksylitolipurukumin/-pastillin käyttöön/tarjoontaan kouluaikana?

Voit valita yhden tai useamman vaihtoehdon.

- Purukumin käyttö on kielletty johtuen sotkemisesta
- Purukumia saa pureskella välitunnilla
- Purukumia saa pureskella ruokatunnilla
- Purukumia saa pureskella milloin tahansa
- Koulu tarjoaa ksylitolipurukumin ruokailun jälkeen
- Koulu tarjoaa ksylitolipastillin ruokailun jälkeen
- Koulusta on mahdollisuus ostaa ksylitolipurukumia/-pastilleja
- Koulussa on ksylitolipurukumi/-pastilliautomaatti
- Muuten, miten?

32. Muita kommentteja _____

33. Päivämäärä _____

Vastaajan tehtävä koulussa _____

Koulun puhelinnumero _____

Koulun sähköposti _____

**Suunterveys osana yläkoulujen terveystiedon opetusta
– seurantakysely yläkoulujen terveystiedon opettajille 2009**

1. Koulun nimi _____
2. Lääni
 - Etelä-Suomen lääni
 - Länsi-Suomen lääni
 - Itä-Suomen lääni
 - Oulun lääni
 - Lapin lääni
 - Ahvenanmaa
3. Kunta _____
4. Koulun oppilasmäärä?
 - alle 99
 - 100–299
 - 300–499
 - yli 500
5. Koulun opetuskieli?
 - Suomi
 - Ruotsi
6. Oletko vastannut aikaisempaan yläkoulujen suunterveysopetusta koskevaan kyselyyn syksyllä 2008?
 - Kyllä
 - Ei
7. Opetatko suunterveyteen liittyviä asioita osana terveystiedon opetusta?
 - Kyllä *Jos vastasit kyllä, siirry kysymykseen 9.*
 - Ei *Jos vastasit ei, vastaa kysymykseen 8, jonka jälkeen siirry suoraan kysymykseen 12.*
8. Miksi suunterveyttä ei opeteta?
Mainitse kaksi tärkeintä syytä.
 - Suunterveyttä opetetaan jonkin muun aineen yhteydessä, minkä? _____
 - Suunterveyttä ei mainita opetussuunnitelmassa
 - Suunterveyden opetukseen ei ole materiaalia
 - Suunterveyteen liittyviä asioita ei käsitellä käytössämme olevassa oppikirjassa
 - Suunterveyden opetukseen ei ole aikaa
 - Suun terveyden opetus on kunnassa terveyskeskuksen tehtävä
 - Jokin muu syy,
mikä? _____

9. Miten usein ja kuinka monella oppitunnilla yhteensä seuraavia suunterveyteen liittyviä asioita opetetaan osana terveystiedon oppiainetta?

Valitse opetuksen yleisyyttä parhaiten kuvaava vaihtoehto ja oppituntien määrä.

	Joka vuosi- luokalla	Kahdella vuosi- luokalla	Yhdellä vuosi- luokalla	Mainitaan muun aiheen yhteydessä	Ei lainkaan	Kuinka monella oppitunnilla yhteensä?
Harjaus aamuin illoin	1	2	3	4	5	≤1 2 3 4 ≥5
Hammastahnan puhdistaminen	1	2	3	4	5	≤1 2 3 4 ≥5
Fluorihammastahnan käyttö	1	2	3	4	5	≤1 2 3 4 ≥5
Ksylitolituotteiden käyttö	1	2	3	4	5	≤1 2 3 4 ≥5
Tupakan ja nuuskan suunterveystaitat	1	2	3	4	5	≤1 2 3 4 ≥5
Makeisten ja virvoitusjuomien käytön rajoittaminen	1	2	3	4	5	≤1 2 3 4 ≥5

10. Mitä opetusmuotoja koulussanne käytetään suunterveyden opetuksessa?

Voit valita yhden tai useamman vaihtoehdon.

- Luennointi
- Ryhmätyöt
- Käytännön opetus (esim. harjaus)
- Muu, mikä _____

11. Minkälaista oppimateriaalia koulussanne käytetään suunterveyden opetuksessa?

Voit valita yhden tai useamman vaihtoehdon.

- Internet
- Informaatiolehtiset
- Oppikirja, mikä? _____
- Muu, mikä _____

12. Kuinka tärkeänä pidät seuraavien asioiden opettamista osana suunterveyden opetusta? *Vastaa kysymykseen, vaikka et tällä hetkellä opettaisikaan suunterveyttä.*

	Erittäin tärkeänä	Melko tärkeänä	En osaa sanoa	En kovin tärkeänä	En lainkaan tärkeänä
Harjaus aamuin illoin	1	2	3	4	5
Harjaus ruokailun jälkeen	1	2	3	4	5
Hampaiden lankaaminen	1	2	3	4	5
Fluorihammastahnan käyttö	1	2	3	4	5
Ksylimuutosten käyttö	1	2	3	4	5
Tupakan ja nuuskan suunterveyshaitat	1	2	3	4	5
Makeisten ja virvoitusjuomien käytön rajoittaminen	1	2	3	4	5

13. Oletko kuullut kaikille Suomen yläkoulujen terveystiedon opettajille syksyllä 2008 lähetetystä oppimateriaalista "Suunhoito-opas yläkouluille"?

- Kyllä *Jos vastasit kyllä, jatka kysymykseen 14.*
- Ei *Jos vastasit ei, siirry suoraan kysymykseen 22.*

14. Oletko saanut käyttöösi Suunhoito-oppaan?

- Kyllä *Jos vastasit kyllä, jatka kysymykseen 15.*
- Ei *Jos vastasit ei, siirry suoraan kysymykseen 22.*

15. Oletko käyttänyt Suunhoito-opasta tai mukana tullutta oppilasmateriaali-CD:tä terveystiedon opetuksessa?

- Kyllä, Suunhoito-opasta
- Kyllä, CD-levyä
- Kyllä, molempia *Jos vastasit kyllä, jatka kysymykseen 16.*
- En kumpaakaan *Jos vastasit "en kumpaakaan", siirry suoraan kysymykseen 22.*

16. Suunhoito-opas on mielestäni tarkoituksenmukainen yläkouluisten suunterveyden opetuksessa?

Täysin samaa mieltä	1	2	3	4	5	Täysin eri mieltä
---------------------	---	---	---	---	---	-------------------

17. Mitä seuraavista Suunhoito-oppaan asiakokonaisuuksista olet hyödyntänyt opetuksessa, kuinka usein ja kuinka monella oppitunnilla yhteensä?

Valitse opetuksen yleisyyttä parhaiten kuvaava vaihtoehto ja oppituntien määrä.

	Joka vuosi- luokalla	Kahdella vuosi- luokalla	Yhdellä vuosi- luokalla	Mainitaan muun aiheen yhteydessä	Ei lainkaan	Kuinka monella oppitunnilla yhteensä?
Hampaisto	1	2	3	4	5	≤1 2 3 4 ≥5
Hampaiden harjaus	1	2	3	4	5	≤1 2 3 4 ≥5
Sylki	1	2	3	4	5	≤1 2 3 4 ≥5
Ravinto ja suun terveys	1	2	3	4	5	≤1 2 3 4 ≥5
Suun sairaudet	1	2	3	4	5	≤1 2 3 4 ≥5
Hammaseroosio	1	2	3	4	5	≤1 2 3 4 ≥5
Tupakka	1	2	3	4	5	≤1 2 3 4 ≥5
Suun alueen lävistykset	1	2	3	4	5	≤1 2 3 4 ≥5
Hammastapaturmat	1	2	3	4	5	≤1 2 3 4 ≥5
Ksylimitali	1	2	3	4	5	≤1 2 3 4 ≥5
Hammashoito peruskoulun päätyessä	1	2	3	4	5	≤1 2 3 4 ≥5

18. Mainitse kolme (3) opetustyötä eniten auttanutta asiakokonaisuutta Suunhoito-oppaassa.

19. Kuinka paljon hyötyä koet Suunhoito-oppaasta olevan suunterveysopetuksen eri aihealueille?
Valitse parhaiten kuvaava vaihtoehto.

	Erittäin paljon	Melko paljon	En osaa sanoa	Vähän	Ei lainkaan
Hampaisto	1	2	3	4	5
Hampaiden harjaus	1	2	3	4	5
Sylki	1	2	3	4	5
Ravinto ja suun terveys	1	2	3	4	5
Suun sairaudet	1	2	3	4	5
Hammaseerosio	1	2	3	4	5
Tupakka	1	2	3	4	5
Suun alueen lävistyks	1	2	3	4	5
Hammastapaturmat	1	2	3	4	5
Ksylitoli	1	2	3	4	5
Hammashoito peruskoulun päättyessä	1	2	3	4	5

20. Mitä Suunhoito-oppaan teoria/tehtävyytyyppejä olet hyödyntänyt terveystiedon opetuksessa ja kuinka paljon?

	Erittäin paljon	Melko paljon	En osaa sanoa	Vähän	Ei lainkaan
Teoria	1	2	3	4	5
Avoimet tehtävät	1	2	3	4	5
Ristikot	1	2	3	4	5
Käytännön kokeet	1	2	3	4	5
Kotitehtävät	1	2	3	4	5

21. Oletko tehnyt Suunhoito-oppaaseen liittyvää yhteistyötä muiden henkilöiden kanssa?

- En
- Kyllä, biologian opettajan
- Kyllä, kotitalousopettajan
- Kyllä, jonkin muun aineen opettajan, minkä _____
- Kyllä, suun terveydenhuollon henkilöstön
- Kyllä, terveydenhoitajan
- Kyllä, jonkun muun _____

22. Miten tärkeänä pidät seuraavien Suunterveysoppaan asiakokonaisuuksien opettamista terveystiedossa?
Vastaa kysymykseen, vaikka et tällä hetkellä opettaisikaan suunterveyttä.

	Erittäin tärkeänä	Melko tärkeänä	En osaa sanoa	En kovin tärkeänä	En lainkaan tärkeänä
Hampaisto	1	2	3	4	5
Hampaiden harjaus	1	2	3	4	5
Sylki	1	2	3	4	5
Ravinto ja suun terveys	1	2	3	4	5
Suun sairaudet	1	2	3	4	5
Hammaseroosio	1	2	3	4	5
Tupakka	1	2	3	4	5
Suun alueen lävistyksen	1	2	3	4	5
Hammastapaturmat	1	2	3	4	5
Ksylimidi	1	2	3	4	5
Hammashoito peruskoulun päättyessä	1	2	3	4	5

23. Vapaa sana

24. Vastaajan sukupuoli

- Mies
- Nainen

25. Vastaajan ikä

- alle 30
- 31-40
- 41-50
- yli 51

26. Vastaajan nimi

27. Vastaajan sähköpostiosoite



Kouluterveyskysely 2007

Sosiaali- ja terveysalan
tutkimus- ja kehittämiskeskus
Stakes
Kouluterveyskysely
PL 220
00531 Helsinki

Tiedonkeruusta vastaa
Erikoistutkija
Minna Pietikäinen

Hei!

Kouluterveyskyselyssä kerätään tietoja koulukokemuksista, koulujen ja oppilaiden työoloista sekä oppilaiden terveydestä ja elämäntavoista. Kysely tehdään huhtikuussa 2007 useissa kunnissa peruskoulujen 8. ja 9. luokille sekä lukioiden 1. ja 2. vuosikursseille. Tuloksia käytetään nuorten hyvinvoinnin edistämiseksi sekä koulutyön ja terveydenhuollon kehittämiseksi.

Vastaaminen on vapaaehtoista. Älä kirjoita nimeäsi lomakkeeseen. Kysely on nimetön ja luottamuksellinen. Tuloksia käsitellään vain tilastollisesti. Lomakkeet suljetaan kirjekuoreen, joka lähetetään koulusta suljettuna tallennuskeskukseen. Tallennuksen jälkeen lomakkeet hävitetään.

Jos kysymykset jäävät askarruttamaan Sinua, keskustele niistä vanhempiesi kanssa tai ota yhteyttä opettajaasi tai kouluterveydenhoitajaan.

Tutkimuksen tulokset valmistuvat syksyllä 2007. Ne julkaistaan koulu- ja kuntakohtaisesti tutkimuksen tilaaville kunnille sekä maakunta- ja läänikohtaisesti nettisivuillamme info.stakes.fi/kouluterveyskysely.

Huhtikuussa 2007

Minna Pietikäinen

Minna Pietikäinen
erikoistutkija

Täyttöohjeet

Lue ensin koko kysymys. Vastaa merkitsemällä rasti oikeaan tai sopivimman vaihtoehdon mukaiseen ruutuun. Käytä pehmeää lyijykynää (tai kuulakärkikynää tai mustekynää).

Virheen sattuessa älä käytä pyyhettä, vaan täytä väärin merkitsemäsi ruutu kokonaan ja rasti oikea vaihtoehto. Näin:

virhe oikea

Joidenkin kysymysten jälkeen huomautetaan, että voit siirtyä suoraan numerolla ilmoitettuun kysymykseen. Tällöin Sinun ei tarvitse vastata väliin jääviin kysymyksiin.

Esimerkki: Jos keskiarvosuosi olisi 7,2, vastaisit oheiseen kysymykseen näin:

Mikä oli keskiarvosuosi (kaikki aineet) viime todistuksessasi?

- | | |
|---|-------------------------------------|
| <input type="checkbox"/> < 6,5 | <input type="checkbox"/> 8,0 - 8,4 |
| <input type="checkbox"/> 6,5 - 6,9 | <input type="checkbox"/> 8,5 - 8,9 |
| <input checked="" type="checkbox"/> 7,0 - 7,4 | <input type="checkbox"/> 9,0 - 9,4 |
| <input type="checkbox"/> 7,5 - 7,9 | <input type="checkbox"/> 9,5 - 10,0 |

Sivujen reunoissa on
merkkejä ja numeroita,
joita tarvitaan
lomakkeen optisessa
tallennuksessa.

1659618321



1. Sukupuoli

- poika tyttö

2. Syntymäkuukausi ja -vuosi

- | | |
|------------------------------------|---|
| <input type="checkbox"/> tammi | <input type="checkbox"/> 1987 tai aiemmin |
| <input type="checkbox"/> helmi | <input type="checkbox"/> 1988 |
| <input type="checkbox"/> maaliskuu | <input type="checkbox"/> 1989 |
| <input type="checkbox"/> huhti | <input type="checkbox"/> 1990 |
| <input type="checkbox"/> touko | <input type="checkbox"/> 1991 |
| <input type="checkbox"/> kesä | <input type="checkbox"/> 1992 |
| <input type="checkbox"/> heinä | <input type="checkbox"/> 1993 |
| <input type="checkbox"/> elokuu | <input type="checkbox"/> 1994 tai myöhemmin |
| <input type="checkbox"/> syys | |
| <input type="checkbox"/> loka | |
| <input type="checkbox"/> marras | |
| <input type="checkbox"/> joulukuu | |

3. Koulu tai oppilaitos

- peruskoulu, 8. luokka
 peruskoulu, 9. luokka
 lukio, 1. vuosikurssi
 lukio, 2. vuosikurssi
 lukio, 3. vuosikurssi

KOULUTYÖ

4. Mitä pidät koulunkäynnistä tällä hetkellä? Pidän koulunkäynnistä

- hyvin paljon
 melko paljon
 melko vähän
 en lainkaan

5. Millaiseksi olet kokenut koulutyöhön liittyvän työmääräsi tämän lukuvuoden aikana?

- jatkuvasti liian suuri
 melko usein liian suuri
 sopiva
 melko usein liian vähäinen
 jatkuvasti liian vähäinen

6. Mikä oli keskiarvosasi (kaikki aineet) viime todistuksessasi?

- | | |
|------------------------------------|-------------------------------------|
| <input type="checkbox"/> < 6,5 | <input type="checkbox"/> 8,0 - 8,4 |
| <input type="checkbox"/> 6,5 - 6,9 | <input type="checkbox"/> 8,5 - 8,9 |
| <input type="checkbox"/> 7,0 - 7,4 | <input type="checkbox"/> 9,0 - 9,4 |
| <input type="checkbox"/> 7,5 - 7,9 | <input type="checkbox"/> 9,5 - 10,0 |

7. Lue jokainen seuraavista väittämistä huolellisesti. Merkitse se vaihtoehto, joka parhaiten kuvaa omaa mielipidettäsi. Vastaa joka kohtaan.

	Täysin samaa mieltä	Samaa mieltä	Eri mieltä	Täysin eri mieltä
Opettajat rohkaisevat minua ilmaisemaan oman mielipiteeni oppitunneilla	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Opettajat ovat kiinnostuneita siitä, mitä minulle kuuluu	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Opettajani odottavat minulta liikaa koulussa	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Opettajat kohtelevat meitä oppilaita oikeudenmukaisesti	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Luokkani oppilaat viihtyvät hyvin yhdessä	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Luokassani on hyvä työrauha	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Oppilaiden mielipiteet otetaan huomioon koulutyön kehittämisessä	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tiedän, miten koulussani voin vaikuttaa koulun asioihin	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

8. Haittaavatko seuraavat seikat työskentelyäsi koulussa? Vastaa joka kohtaan.

	Ei lainkaan	Melko vähän	Melko paljon	Erittäin paljon
Opiskelutilojen ahtaus	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Melu, kaiku	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sopimaton valaistus	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Huono ilmanvaihto tai huoneilma	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lämpötila (kuumuus, kylmyys, veto)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Likaisuus, pölyisyys	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Epämukavat työtuolit tai -pöydät	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Huonot sosiaalitilat (WC, pukeutumis- ja peseytymistilat)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Työympäristön rauhattomuus	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kiireisyys	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Väkivaltatilanteet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tapaturmavaara	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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55. Oletko OSTANUT viimeksi kuluneen KUUKAUDEN aikana tupakkaa?

en (siirry kysymykseen 56)

olen ostanut

Mistä ostit? Vastaa joka kohtaan.

	En	Kyllä
Kaupasta	<input type="checkbox"/>	<input type="checkbox"/>
Kioskista	<input type="checkbox"/>	<input type="checkbox"/>
Huoltoasemalta	<input type="checkbox"/>	<input type="checkbox"/>
Baarista	<input type="checkbox"/>	<input type="checkbox"/>
Automaatista	<input type="checkbox"/>	<input type="checkbox"/>
Kavereilta	<input type="checkbox"/>	<input type="checkbox"/>
Muualta	<input type="checkbox"/>	<input type="checkbox"/>

56. Oletko SAANUT tupakkaa viimeksi kuluneen KUUKAUDEN aikana jollain muulla tavalla?

	En	Kyllä
Isältä tai äidiltä	<input type="checkbox"/>	<input type="checkbox"/>
Muilta aikuisilta	<input type="checkbox"/>	<input type="checkbox"/>
Sisaruksilta	<input type="checkbox"/>	<input type="checkbox"/>
Kavereilta	<input type="checkbox"/>	<input type="checkbox"/>
Otin kotoa	<input type="checkbox"/>	<input type="checkbox"/>

57. Kuinka monta savuketta, piipullista ja sikaria olet polttanut yhteensä tähän mennessä?

en yhtään (siirry kysymykseen 60)

vain yhden (siirry kysymykseen 60)

noin 2-50

yli 50

58. Mikä seuraavista vaihtoehdoista kuvaa parhaiten NYKYISTÄ TUPAKOINTIASI?

tupakoin kerran päivässä tai useammin

tupakoin kerran viikossa tai useammin, en kuitenkaan päivittäin

tupakoin harvemmin kuin kerran viikossa

olen lakossa tai lopettanut tupakoinnin

59. Miten usein tupakoit koulumatkalla tai koulussa? Vastaa joka kohtaan.

	En koskaan	Silloin tällöin	Joka päivä
Koulumatkalla	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Koulussa, koulualueella	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Koulun läheisyydessä kouluaikana	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

60. Onko tupakointi sallittua siinä koulussa, jota käyt?

kielletty kokonaan

sallittu tietyissä paikoissa

sallittu rajoituksetta

61. Miten tarkkaan oppilaiden tupakointirajoituksia valvotaan koulussasi?

erittäin tarkasti

melko tarkasti

ei juuri lainkaan

62. Tupakoivatko opettajat tai muu henkilökunta koulurakennuksessa tai koulun alueella?

kyllä, päivittäin

kyllä, joskus

eivät tupakoi

en osaa sanoa

63. Ovatko vanhempasi tupakoineet Sinun elin-aikanasi?

	Äiti	Isä
Ei ole koskaan tupakoinut	<input type="checkbox"/>	<input type="checkbox"/>
On tupakoinut, mutta lopettanut	<input type="checkbox"/>	<input type="checkbox"/>
Tupakoi nykyisin	<input type="checkbox"/>	<input type="checkbox"/>
En osaa sanoa	<input type="checkbox"/>	<input type="checkbox"/>

64. Oletko koskaan kokeillut nuuskaamista? Montako kertaa yhteensä tähän mennessä?

en ole kokeillut

olen kokeillut kerran

olen nuuskannut 2-50 kertaa

olen nuuskannut yli 50 kertaa

65. Nuuskaatko nykyisin?

en lainkaan

silloin tällöin

päivittäin

MUUT PÄIHTEET

66. Miten helppoa ikäistesi on nykyisin ostaa KESKIOLUTTA TAI SIIDERIÄ kotisi lähikaupoista, kioskeista tai huoltoasemilta?

erittäin helppoa

melko helppoa

melko vaikeaa

erittäin vaikeaa



76. Ihmisillä on erilaisia käsityksiä siitä, mikä on hyväksyttävää ja mikä ei. Hyväksytkö Sinä seuraavat asiat? Vastaa joka kohtaan.

	Kyllä	En	En osaa sanoa
Tupakointi silloin tällöin	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10 tai useamman savukkeen poltto päivässä	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Parin alkoholiannoksen juominen muutaman kerran viikossa	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Humala kerran viikossa	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Marihuanan polttaminen silloin tällöin	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Marihuanan polttaminen säännöllisesti	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

MUUT TERVEYSTOTTUMUKSET

77. Kuinka usein harrastat urheilua tai liikuntaa vapaa-aikanasi vähintään PUOLEN TUNNIN ajan?

- useita kertoja päivässä
 noin kerran päivässä
 4-6 kertaa viikossa
 2-3 kertaa viikossa
 kerran viikossa
 harvemmin
 en lainkaan

78. Koulutuntien ulkopuolella: Kuinka monta tuntia VIIKOSSA tavallisesti harrastat liikuntaa niin, että HENGÄSTYT JA HIKOILET?

- en yhtään
 noin ½ tuntia
 noin 1 tunnin
 noin 2-3 tuntia
 noin 4-6 tuntia
 noin 7 tuntia tai enemmän

79. Kuinka usein syöt aamupalaa (muutakin kuin vain kahvia, mehua tai muita juomia) kouluviikon aikana?

- viitenä aamuna
 3-4 aamuna
 1-2 aamuna
 harvemmin

80. Mikä seuraavista vaihtoehdoista parhaiten kuvaa perheesi ateriointia iltpäivällä tai illalla?

- ei varsinaista ateriaa, vaan jokainen ottaa itselleen syötävää
 valmistetaan ateria, mutta koko perhe ei syö yhtä aikaa
 syömme yhteisen aterian, jolloin yleensä kaikki ovat ruokapöydässä

81. Millainen koulusi ruokailutilanne on yleensä? Vastaa joka kohtaan.

	Kyllä	Ei
Ruokasalissa on rauhallista	<input type="checkbox"/>	<input type="checkbox"/>
Ruokajono kulkee nopeasti	<input type="checkbox"/>	<input type="checkbox"/>
Aikuisia syö kanssamme ruokasalissa	<input type="checkbox"/>	<input type="checkbox"/>
Pöytätoverini käyttäytyvät hyvin	<input type="checkbox"/>	<input type="checkbox"/>

82. Mikä seuraavista vaihtoehdoista parhaiten kuvaa kouluruokailuasi?

- syön yleensä tarjotun ruoan
 syön yleensä leivän, juoman ja/tai salaatin, mutta harvoin pääruokaa
 en yleensä syö kouluruokaa (siirry kysymykseen 84)

83. Mitä aterianosia yleensä syöt kouluruoalla?

	Kyllä	Ei
pääruokaa	<input type="checkbox"/>	<input type="checkbox"/>
salaattia	<input type="checkbox"/>	<input type="checkbox"/>
maitoa tai piimää	<input type="checkbox"/>	<input type="checkbox"/>
leipää	<input type="checkbox"/>	<input type="checkbox"/>

84. Mitä MUUTA kuin kouluruokalassa tarjottua ruokaa syöt yleensä koulussa kouluviikon aikana?

- en syö muuta (siirry kysymykseen 86)
 syön muuta, **mitä? Vastaa joka kohtaan.**

	Harvemmin kuin kerran viikossa	1-2 kertaa viikossa	3-5 kertaa viikossa
Hedelmiä/hedelmäsoseita	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Leipää	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Makeaa kahvileipää	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lihapiirakkaa, hampurilaista tms.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Makeisia	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Jäätelöä	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sokeroitua virvoitusjuomaa	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vähäkalorista virvoitusjuomaa	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Jotain muuta	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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85. Jos syöt koulussa välipaloja, niin mistä hankit ne? Vastaa joka kohtaan.

	Kyllä	Ei
Koulun välipalatarjoilusta	<input type="checkbox"/>	<input type="checkbox"/>
Koulussa olevista automaateista	<input type="checkbox"/>	<input type="checkbox"/>
Kaupasta, kioskista tai huolto-asemalta	<input type="checkbox"/>	<input type="checkbox"/>
Tuon välipalat kotoa	<input type="checkbox"/>	<input type="checkbox"/>

86. Kuinka usein olet juonut tai syönyt seuraavia viimeksi kuluneen VIIKON (7 pv) aikana? Vastaa joka kohtaan.

	En ker- taakaan	1-2 päivänä	3-5 päivänä	6-7 päivänä
Sokeroituvia virvoitusjuomia	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vähäkalorisia virvoitusjuomia	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Makeisia	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Suklaata	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tuoreita vihanneksia, salaattia	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hedelmiä, marjoja	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ranskanperunoita	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Perunalastuja tms.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hampurilaisia, hot dogeja tms.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Makeaa kahvileipää	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pizzaa	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lihapiirakoita, lihapasteijoita	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Jäätelöä	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

87. Mitä mieltä olet painostasi?

Oletko mielestäsi

- selvästi ylipainoinen
 hieman ylipainoinen
 sopivan painoinen
 hieman tai selvästi alipainoinen

88. Mihin aikaan tavallisesti menet nukkumaan koulupäivinä?

- noin 21.00 tai aikaisemmin
 noin 21.30
 noin 22
 noin 22.30
 noin 23
 noin 23.30
 noin 24
 noin 24.30
 noin 01
 noin 01.30 tai myöhemmin

89. Kuinka usein harjaat hampaasi?

- en koskaan
 noin kerran viikossa tai harvemmin
 noin 2-3 kertaa viikossa
 noin 4-5 kertaa viikossa
 noin kerran päivässä
 useampia kertoja päivässä

KOULUTAPATURMAT

90. Onko Sinulle tämän LUKUVUODEN aikana sattunut koulussa tai koulumatkalla tapaturma, joka on edellyttänyt lääkärin tai terveydenhoitajan vastaanotolla käyntiä?

	Ei kertaakaan	Kerran	Kaksi kertaa tai useammin
Välitunnilla	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Liikuntatunnilla	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tekstiili- tai teknisen työn tunnilla	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Muulla tunnilla	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Koulumatkalla	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

RIKKEET JA RIKOKSET

91. Oletko viimeksi kuluneen 12 KUUKAUDEN aikana tehnyt seuraavia asioita?

Vastaa joka kohtaan.

	En ole	Kerran	2-4 kertaa	Yli 4 kertaa
Kirjoittanut tai maalannut kirjoituksia tai graffiteja seiniin, busseihin, pysäkkikatoksiin, ikkunoihin tai muihin vastaaviin paikkoihin	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tahallasi vahingoittanut tai tuhonnut koulun omaisuutta tai koulurakennusta	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tahallisesti vahingoittanut tai tuhonnut muuta kuin koululle kuuluvaa omaisuutta	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Varastanut jotakin kaupasta tai kioskista	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Osallistunut tapeluun	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hakannut jonkun	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>