A longitudinal study of dietary behaviors and BMI among adolescents 15 and 18 years of age, from different ethnic and sociodemographic background in Oslo, Norway.

Master Thesis by
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The youth part of the Oslo Health Study 2000/2001 – Youth 2004

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Summary

Objectives: The main aim of this longitudinal study was to describe dietary behaviors and Body Mass Index (BMI) in an adolescent cohort from age 15 to age 18 in Oslo, Norway. There were three sub-questions: ① To what extend did dietary behaviors change in the period, and were there any differences in dietary behaviors at age 18 by gender, sociodemographic background or ethnicity when controlling for dietary behaviors at age 15 ② To what extend did BMI change in the period from age 15 to age 18 and were there any differences in BMI at age 18 by gender, sociodemographic background or ethnicity when controlling for BMI at age 15. ③ To what extent were dietary behaviors at age 15 able to predict BMI at age 18, and were there any differences by gender, sociodemographic background or ethnicity.

Materials and Methods: The youth part of the Oslo Health Study (UNGHUBRO) constitutes the baseline of this longitudinal study. It was a questionnaire based study conducted in schools in 2000-2001 (N= 3811). The follow-up study, Youth 2004, was conducted partly in school and partly by mail in 2004. A total of 2489 (1112 boys and 1377 girls) or 65 % of the participants in the baseline study also participated in the follow-up study and constitutes the study population. Almost 20 % of the participants were of Non-Western origin. Mean frequencies of intake, correlation coefficients and crosstab analysis were used to describe changes and stability in dietary behaviors. Changes in BMI were described by the use of BMI-percentiles based on the WHO reference and the mean BMI z-score at age 15 and age 18. Multiple linear regression analysis was preformed to study if dietary behaviors and BMI at age 18 differed between adolescents of different sociodemographic background and ethnicity when controlling for dietary behaviors or BMI and physical activity at age 15. Indicators on sociodemographic background were parents' educational level and marital status.

Results: There were reduced mean frequency of intake of most of the registered food and beverage items among both genders in the period from age 15 to age 18. Among the boys, the reduction was significant for intake of juice, fruit/berries, raw vegetables, chocolate/sweets and chips. Among the girls, there were significant reductions in

intake of soda with added sugar, juice, fruit/berries, chocolate/sweets and chips, and a significant increase in the consumption of boiled vegetables. Girls of Norwegian/Western origin with married parents/common law partners, showed a significant higher intake of fruit/berries, boiled vegetables and chocolate/sweets compared to the Norwegian/Western girls with parents of unmarried/other marital status. Girls of Non-Western ethnicity with parents of unmarried/other marital status showed significant higher intake of soda with added sugar compared to the Non-Western girls with married parents/common law partners. At age fifteen, 12.6 % of the boys were at or above the 85th percentile and could be classified as overweight or obese. At age 18, the proportion of overweight boys was 13.2 %. Among the girls, 6.7 % were at or above the 85th percentile at age 15, while 7.5 % of them were at or above the 85th percentile at age 18. The slightly increase in the proportion of overweight adolescents was non-significant in both genders. Mean BMI z-score values were 0.34 for boys 15 years of age and 0.03 for boys 18 years old. The mean BMI z-score values for girls were -0.01 at age 15 and -0.09 at age 18. Results therefore showed a mean decrease in age- and gender adjusted BMI both among girls and among boys. Girls of Non-Western ethnicity with parents of unmarried/other marital status were found to have significant higher BMI z-score at age 18 compared to the Non-Western girls with married partners/common law partners. In addition, there was a significant inverse association between intake of boiled vegetables and intake of chocolate at age 15 and BMI z-score at age 18 among girls of Norwegian/Western origin.

Conclusion: The mean decrease in frequency of intake of fruit and vegetables in the period from age 15 to age 18, support the need for identifying factors that could enhance the adolescents consumption of these healthy food items also in late adolescence. Overweight adolescents showed more variation in weight compared to the adolescents with a BMI < 85th percentile in the period from age 15 to age 18. Further researchers should therefore seek to identify factors that contribute to weight variations and weight stability in late adolescence; especially among overweight

youth. In addition, the relationship between girls' ethnicity, parents' marital status and dietary behaviors and BMI are interesting and should be further researched.

Table content

1 Introduction

1.1 Scope

Overweight and obesity is rapidly becoming a major public health problem in many parts of the world, and in adults as well as in children and adolescents (1-3). Overweight is responsible for a large proportion of the total burden of diseases in the world (1;2). In the WHO European region overweight and obesity contributes to more than 1 million deaths and 12 million life-years of ill health every year (3). Obesity has important consequences for morbidity, disability and quality of life (1;3). Obese adults are especially likely to develop type 2 diabetes, cardiovascular diseases and several common forms of cancer, osteoarthritis and other health problems. Obese children also show raised levels of risk factors for many of these diseases (3).

Dietary intake is a critical determinant of body weight. A consequence of the marked industrialization, urbanization and economic development that has occurred over the past decade, is a marked change in peoples diet and food preferences (1). “Modern diet” generally consists of more fat and sugar and less fiber, something that will have great impact on people’s health and nutritional status. Data suggest that diets with high energy density (high in fat or sugar and low in fiber), sugar-rich drinks and large portion sizes each increases the risk of consuming excess energy (3). This dietary factors together with a more sedentary lifestyle and a decrease in level of physical activity, is probably a key factor in the explanation of the global epidemic of overweight and obesity. Identifying the role of a specific food or nutrient is difficult since many dietary factors are highly correlated and physical activity or other lifestyle traits may contribute to additional confounding.

In this master thesis, the main intention was to study dietary behaviors and BMI in an adolescent cohort from age 15 to age 18 living in Oslo Norway. This longitudinal study is based on data extracted from two studies conducted in Oslo; The Youth part of the Oslo Health Study 2000/2001 (UNGHUBRO) and Youth 2004. The information

collected at both times was based on self-administered questionnaires, and provided information concerning adolescents' weight, height and selected dietary behaviors.

1.2 Prevalence of overweight and obesity

Data from the National Health and Nutrition Examination Survey (NHANES), a nationally representative sample of the US population in 2007-2008, show that the age-adjusted prevalence of obesity was 33.8 % overall (defined as Body Mass Index, BMI $\geq$ 30). The prevalence was 32.2 % among men and 35.5 % among women (4). Prevalence estimates of overweight and obesity combined (BMI $\geq$ 25) were 68 %. Obesity prevalence varied by age group and by racial- and ethnic group for both men and women (4). Data from the same study on the prevalence of high BMI among children and adolescents 2-19 years old, showed that 11.9 % were at or above the 97th percentile, 16.9 % were at or above the 95th percentile and 31.7 % were at or above the 85th percentile of the BMI-for-age growth chart (5).

In spite of the fact that the increase in the prevalence of obesity observed previously do not appear to be continuing in the same rate, the prevalence of obesity in the world continue to rise (4;5). In Europe, the prevalence of obesity has risen threefold or more since the 1980s even in countries with traditionally low rates, and today overweight affects 30-80 % of the adults and about 20 % of children and adolescents (3). One third of the overweight children and youth are obese (3). In the European countries Ireland and United Kingdom, the prevalence of overweight among adults has risen rapidly and by more than 0.8 percentage point a year based on measured data (3). In the Nordic countries, nationally representative surveys (2002) show highest prevalence of overweight and obesity in Finland and Iceland, were 60 % and 57 % of the adult men were overweight or obese. In Norway 38 % of the men and 25.5 % of the women were overweight or obese (3).

The rapidly increase in obesity among children and adolescents is of great concern. It contributes to the obesity epidemic in adults and represents a major health challenge (3;6-8). The annual rate of increase in the prevalence of childhood obesity has been

growing steadily and the current rate is 10 times that in the 1970s (3). Among adolescents, nationally representative data (2000-2001) show highest prevalence of overweight in Irish girls (27.3 %, 9-12 years) and in Spanish boys (31.7 %, 10-17 years). The proportion of overweight adolescents were lowest in the Czech Republic (9.0 %, both genders 14-17 years) (3). In Norway, data from the Norwegian Directorate of Health 2005-2006 shows that 13,6 % of the Norwegian 15 year old boys, and 12,9 % of the Norwegian 15 year old girls were overweight or obese (9).

1.3 Tracking of overweight and obesity from adolescence into adulthood

BMI in childhood and adolescence may be associated with adult mortality as a result of tracking of BMI from childhood to adulthood, or because obesity in early life results in the early development and clustering of risk factors in particular those of cardiovascular disease (10). Many studies report a significant tendency for adiposities to persist from childhood and adolescence into adulthood (8;11-17). The Bogalusa Heart Study report that overweight in adolescence tend to persist into adulthood (11). A longitudinal study by Gordon-Larsen et al, found a dramatic increase in obesity prevalence from adolescence into adulthood (13). It seems that a substantial amount of weight is gained during the transition from adolescence to young adulthood (11-14). In Norway, the Oslo Youth follow-up study report substantial tracking of BMI from adolescence into adulthood suggesting a strong relationship between body weight in adolescence and body weight in adulthood (14).

Tracking of obesity from adolescence into adulthood is likely to continue as a consequence of the high rate of pediatric obesity, and because obese children and adolescents today seems less likely to “grow out of” their obesity than children and adolescents living in the past (13;16;18). Persistence of childhood obesity into adulthood has been found to be more likely if at least one of their parents is obese (8;16). There is also evidence for a stronger relationship between obesity in adolescence and obesity in adulthood than between obesity in childhood and obesity in adulthood (8;15;16;19). A study by Whitaker et al, showed that 69 % of the obese 6-9

year olds in the USA were obese as adults, while 83% of the obese 10-14 year olds in the same cohorts became obese adults (19). Obesity was defined as having a BMI >95th percentile. The reference group had a BMI <85th percentile in both groups.

Since there exist a lot of evidence for strong tracking of obesity from adolescence into adulthood and because the prevalence of obesity among children and adolescents is high and increasing, it seems necessary to implement effective obesity prevention strategies in children and adolescence (3;12;13).

1.4 Health consequences of overweight and obesity in childhood and adolescence

There is well documented evidence for health consequences of childhood obesity both in the short term (for the child) and in the longer term (in the adulthood) (3;8;16).

During childhood, obesity has been shown to be associated with increased risk of metabolic and cardiovascular risk factors such as high blood pressure, dyslipedimia and type 2 diabetes mellitus in addition to orthopedic problems (1;3;8;20). Obese children and adolescents also seem to be more likely to experience physiological problems compared to non-obese children, and they seem to have lower self esteem and underachievement in school (3;8). There is also growing evidence for an association between childhood obesity and asthma (8;16). Obesity appears to increase the risk of developing asthma, as well as increase the risk of deterioration in children who already have diagnosed asthma (8;16). Another adverse effect that has been reported in some studies is the relationship between childhood obesity and chronic inflammation (8;16).

Metabolic and cardiovascular risk profiles tend to track from childhood into adult life, resulting in an elevated risk of ill health and premature mortality (3;8). Obesity mediated cardiovascular morbidity in adulthood might have its origin in childhood and/or adolescents obesity, and it will probably be of greater importance now than in the past because of the rapidly increasing prevalence of childhood obesity (8;16). In

addition, studies have shown that obesity in childhood and adolescence has adverse effects on social and economic outcomes in adulthood (3;8;16;21). Such associations may be more marked in women than in men. A study by Sargent et al found that girls who were obese (BMI > 90th percentile) at age 16 had significantly lower income than non-obese girls (BMI< 85th percentile) at age 23 (22). The association was independent of social class and intelligence quotient (21;22).

1.5 Sociodemographic factors and obesity

Gender, socioeconomic and ethnic differences in the prevalence of obesity is well documented (23-26). Data suggest higher prevalence rates of unhealthy behaviors among lower socioeconomic groups compared to higher socioeconomic groups, and that these socioeconomic disparities in risk of overweight are increasing (26).

Studies have shown an inverse relationship between risk of overweight and parents' educational level. Adolescents having parents of higher educational level show less risk of being overweight than youth having parents of lower educational level (25;27). A study by Neumark et al consisting of 4746 adolescents 11-18 years of age, reported higher prevalence of overweight among boys and girls from families of lower socioeconomic classes (25). Socioeconomic level was primarily defined as the highest level of education of either parent (25). An article from the project EAT (Eating Among Teens-2) on a socioeconomically and ethnically diverse sample of more than 2500 adolescents from 1999 through 2004, found higher risk of overweight among boys and girls of low socioeconomic status compared to adolescents of high socioeconomic status (26). The primary determinant of socioeconomic status in the study was parents' education; defined by the higher level of either parent. Boys in the low and middle socioeconomic classes showed a consistent and relative high prevalence of overweight, while girls of lower socioeconomic classes tended to become overweight during the 5-year of study period (26). Boys in high socioeconomic classes showed a significant decrease in the prevalence of overweight during the study period, while girls of high socioeconomic classes showed a more or less stable prevalence of overweight (26).

Difference in prevalence of overweight in boys and girls has been reported in many studies (23-25;27;28). It is worth mentioning that many of these studies are based on self-reported data on weight and height (23;27;28). Some studies based on measured data on weight and height do not find this difference (29).

It also seems to exist racial- and ethnic differences in the prevalence of overweight (25;26;28). Obesity data from Center for Disease Control and Prevention (CDC) 2006-2008, shows that Blacks have the highest rate of obesity (30). Blacks had 51% higher prevalence of obesity, and Hispanics had 21% higher obesity prevalence compared to Whites (30). A newly published article by de Wilde et al, investigated trends in the prevalence of overweight and obesity among children of the four major ethnic groups (Dutch, Turkish, Moroccan and Surinamese South Asian) in the Netherlands from 1999 to 2007 (31). Results showed a decrease in the prevalence of overweight in Dutch girls from 12.6 % to 10.9 %, and an increase in Turkish boys from 14.6 % to 21.4 %. There was also a significant increase in the obesity prevalence among Turkish boys and girls in the period (31). No significant trends were found among Dutch boys and Moroccan and Surinamese South Asian boys and girls (31).

In Norway, a study by Kumar et al examined ethnic differences in the prevalence of overweight among adolescents living in Oslo (28) . The survey were based on data from the same group of adolescents as in this baseline study, and reported highest prevalence of overweight in adolescents from Western, East Europe and Middle East/North Africa (28).

1.6 Diet, physical activity and obesity

There might be many reasons for the enormous increase in overweight and obesity. At the most basic level, overweight is a result of an imbalance between energy consumed from food and beverage items and energy used to support body functions such as metabolism, growth and development and physical activity. Changes in energy balance can result from changes in food intake and/or levels of physical activity (3). Even

minor changes in activity and/or energy intake can have appreciable effects on body weight and the prevalence of obesity (3).

Overweight and obesity might be the consequence of a gradual increase in body weight during a prolonged period of time. To obtain energy balance, energy intake has to match energy requirement. It is possible to be in energy balance at any level of energy expenditure, but only if energy intake accurately match the energy requirements (3). If energy intake exceeds energy expenditure over time, overweight or obesity is a possible consequence (3;32).

1.6.1 Nutritional factors

Diet and nutrition plays a key role as a risk factor for development of overweight and obesity and chronic diseases such as cardiovascular diseases and diabetes mellitus type 2 (1).

Energy density of food is supposed to be of importance for the total energy intake and thereby the risk of obtaining excess weight (3). WHO defines energy dense food as those high in fat, sugars or starch, and energy dilute food as those high in water (e.g. fruit and vegetables), and the organization considers energy density of food as the major contributor to the global epidemic of obesity (1).

Several studies have examined the relation between intake of different nutrients or food and the risk of energy imbalance and overweight or obesity (33;34). Data suggest that diets rich in energy dense food and sugar rich beverages, increases the risk of consuming excess energy (3). A review article by Drewnowski et al found a positive relationship between energy density of food and total energy intake in both crossover-laboratory studies and in large observational studies (35). On the other hand, cross-sectional and prospective epidemiological studies have failed to report an association between energy density of food and obesity risk (35).

Sugar-rich food items

There is growing evidence for an association between increased consumption of free sugars and sugar rich beverages and obesity (1;3). WHO considers the high and increasing intake of sugar rich beverages by children in many countries in the world as a serious problem since a diet high in free sugars threaten the nutrition quality of diets by providing significant energy without specific nutrients (1). Free sugars contribute to the overall energy density of food something that may promote a positive energy balance and overweight (1).

In the United States, data from the National representative Nationwide Food Consumption Surveys and the National Health and Nutrition Surveys, report a significant increase in the consumption of sugar-containing beverages in the period from 1965 to 2002 (36). This nationally representative data showed that consumption of soft drinks increased from 3 % to 6.9 % of total energy among children and adolescents 2-18 years old in the period from 1977 to 2001 (37). Intake of sweetened beverages increased from 4.8 % to 10.3 % of total energy (37). These trends were associated with increased proportion of individuals who consumed larger portions and more servings per day of sweetened beverages (37). Overall, the energy intake from sweetened beverages increased by 135 % (37). Consumption of fruit juice in children and adolescents aged 2-18, increased from 1.7 % of total energy in 1977 to 2.7 % of total energy in 2001. Intake of fruit drinks increased from 1.8 % to 3.4 % of total energy (37).

Three recent systematic reviews addressed the relationship between sugar-added beverages and obesity (38-40). Malik et al performed a systematic review were thirty cross-sectional, prospective and experimental studies were included. He reported that both large cross-sectional studies and cohort studies found a positive association between greater intake of sugar-sweetened beverages and weight gain in both children and adults (39). Intervention studies showed the same results; less consumption of sugar-sweetened beverages resulted in less overweight and obesity in the intervention group (39). Forshee et al included longitudinal and randomized controlled trials in

their review (38). Conclusions were that both quantitative meta-analysis and qualitative reviews showed a weak positive association between sweetened beverage consumption and BMI. Gibson et al re-examined the evidence for an association between consumption of sugar-sweetened soft drinks and weight gain in children and adults (40). Epidemiologic and intervention studies were included. Approximately half of the cross-sectional and prospective studies found a statistically significant association between consumption of sugar-sweetened soft drinks and BMI, weight, adiposity or weight gain in at least one subgroup (40). Most of the studies suggested that the effect of sugar-sweetened soft drinks were small except in susceptible individuals or at high levels of consumption (40).

A study from the Project EAT (Eating Among Teens) examined the association between beverage consumption and weight change in 2249 adolescents (41). They did not find any association between sugar-containing beverages, including juice, and weight gain during the 5 years of study period (41). Longitudinal and secular trends in adolescents beverage intake in the period from 1994 to 2004 has also been studied based on these data (42). The longitudinal part of the study consisted of two adolescent cohorts in the period from early to middle adolescence (junior high to high school) and from middle to late adolescence (high school to post high school). Results showed a longitudinal increase in the consumption of sugar-sweetened beverages. The intake increased by 33 % in men and by 13 % in females during the middle to high school years (42). Consumption of fruit juice decreased with age. The study also showed a significant secular decrease in fruit juice consumption among high school youth in the period from 1999 to 2004, whereas soda and sugar-sweetened beverages showed no change over time (42). It is worth mentioning that data concerning daily intake of beverages was obtained from self-administered questionnaires.

In Norway, a study by Lien et al showed an increase in the frequency of soft drink consumption in the period from adolescence to young adulthood (43). They also found stability in rank order by frequency of consumption; the group reporting the most frequent consumption at age 14 also reported the most frequent consumption at age 21 (43). Another study in Norway by Kvaavik et al, investigated the tracking of sugar

sweetened soft drinks intake from adolescence into adulthood (age 15 to age 33) (44). They found moderate to high tracking in intake in the period from adolescence to early adulthood (25 years) and from early to late adulthood (33 years). The tracking of sugar sweetened soft drinks from adolescence to later adulthood was low (44). Data concerning the adolescents' beverage intake was obtained from self-administered questionnaires.

The Norwegian Directorate of Health report that the intake of other sugar containing food items such as chocolate and sweets has decreased in the period from 2005 to 2008 in the Norwegian population (45). Adolescents 16 to 24 years of age showed the greatest reduction in intake, and the proportion of adolescents who reported a daily intake of sweets decreased from 13 % in 2005 to 8 % in 2008 (45).

Fruit, vegetables and wholegrain-cereals:

It is supposed that a diet high in vegetables, fruit and wholegrain-cereals is important for preventing weight gain and obesity, partly because of its low energy content (1). Generally, fruit and vegetables have a strong position in all dietary recommendations because of its well documented health benefits (1;3).

Plant based diets are associated with disease prevention in adults, but little is known about the role of plant-based diets in child health and the prevention of childhood obesity (46). Fruit and vegetables are low-energy-dense food that contribute to satiation and thereby might displace other high-energy-dense food (3;46). Relatively few studies have reported a relationship between consumption of fruit and vegetables and weight change (3;46). A review article by Newby report that both prospective and cross-sectional studies failed to find any protective association between fruit and vegetable consumption and obesity in children (46). A review article by Ledoux et al on studies with a longitudinal or experimental design, assessed the evidence concerning the relationship between consumption of fruit and vegetables and obesity in children, adolescents and adults (47). The studies with an experimental design found an association between increased consumption of fruit and vegetables and reduced

adiposity among overweight or obese adults (47). No such relationship was shown among children (47). Longitudinal studies of overweight adults, found an association between greater consumption of fruit and/or vegetables and slower weight gain (47). Only half of the studies on children showed an inverse association between fruit and vegetables consumption and weight gain (47). The authors conclude that the evidence for the proposed inverse relationship between consumption of fruit and vegetables and obesity among overweight adults is weak, and that the relationship in children is unclear (47).

Some studies have investigated the tracking in intake of fruit and vegetables (43;48). A study by te Velde et al assessed to what extent fruit and vegetable intake tracked over a period of 24 years (48). The study showed low to moderate tracking of fruit and vegetable intake from childhood to adulthood (48). They also found higher mean intake of fruit at age 13 compared to age 36, and lower mean intake of vegetables at age 13 compared to age 36. Only a few of the 168 participants met the national recommended intake of fruit and vegetables (48). Intake according to recommendation at younger age increased the likelihood of eating according to the recommendations also later in life (48). The authors therefore conclude that the intake of fruit and vegetables is not established at age 13 and therefore it seems necessary to continue to promote intake of fruit and vegetables also in adolescence and young adulthood (48).

In Norway, a longitudinal study by Lien et al of more than 500 adolescents 14 to 21 years old, showed some stability in consumption of fruit and vegetables (43). They report that 50-70% of the adolescents stayed in the same tracking categories at both times. However, the study also found a decrease in the mean weekly intake of fruit and vegetables in the period (43).

1.6.2 Dietary behavior and sociodemographic factors:

Many studies show an association between sociodemographic factors and frequency of obesity (23;25-28). Both in Europe and in the United States overweight and obesity is more frequent among people in lower socioeconomic categories (3;49-51). Food

choices and intake seem to differ among families with different education levels (49;50). Children and adolescents in families with less education and lower socioeconomic status show less healthy food choices compared to families with more education and higher status (3).

A systematic review of the literature on environmental determinants of energy, fat, fruit, vegetable, snack/fast food and soft drink intake in children and adolescents, showed that parents and siblings intake, parenting practices, household income and parents' educational level were studied most extensively as potential environmental determinants (52). The review showed consistent evidence for a relationship between parental intake and children's fat, fruit and vegetable intake, for parental and siblings' intake with adolescents' energy and fat intake, and for parents' educational level with adolescents' consumption of fruit and vegetables (52). Few studies investigated the association between parents' marital status and children and adolescents dietary habits, and no correlation were found between parents marital status and intake of any of the selected food items (52). A study of more than 18000 Canadian adolescents 12 to 19 years old reported that household education and income had significant impact on intake of fruit and vegetables (53). In addition, adolescents living with only one parent showed a significant lower intake of fruit and vegetables compared to adolescents living with both parents (53).

A systematic review article by Pearson et al investigated the relationship between consumption of fruit and vegetables and family environment (50). They found a positive association between parents occupational status and adolescents fruit consumption and between parents` education and adolescents fruit, juice and vegetable intake (50). An association between low socioeconomic status and higher consumption of fat and sugar-containing beverages but lower consumption of fruit and vegetables has also been reported in other studies (25;51). A review article by Darmon et al, studied the relation between socioeconomic status (SES) and diet quality (49). SES indicators in the review were education, income and/or occupation. Based on several cross-sectional dietary studies they found that higher SES groups were more likely to consume vegetables and fruit in higher quantities and of greater variety, while lower

SES groups consumed more added fats (49). They found less evidence for an association between SES and sweet consumption, but showed that within the sweet category, higher SES groups consumed more candy and pastries, whereas lower SES groups consumed more sugar and cake (49). Both European studies and studies in the United States on nutritional quality of diets among children and adolescents, showed less consumption of fruit and vegetables and higher consumption of sweetened beverages among children and adolescents of lower SES households (49).

In Norway, the Directorate of Health report socioeconomic differences in the prevalence of adolescents consuming fruit and vegetables daily and adolescents consuming sugar-sweetened beverages and chocolate/sweets daily (54). Fever adolescents of low socioeconomic families report daily consumption of fruit and vegetables compared to adolescents of high socioeconomic families (54). On the other hand, more adolescents of lower socioeconomic families consumed sugar-sweetened beverages and snacks daily compared to those of higher socioeconomic families (54). A longitudinal study by Lien et al found an association between socioeconomic status (SES) and intake of sugar and fruit and vegetables among Norwegian adolescents (55). SES measure in this study was parents' educational level. Adolescents with parents of high educational level had higher score on consumption of fruit and vegetables and lower score on sugar intake compared to adolescents with parents of low educational level at both age 15 and age 21 (55).

1.6.3 Physical activity

Physical activity increases energy expenditure and may thereby contribute to better control of body weight. The rising prevalence of overweight and obesity could partly be a consequence of a decline in people's level of physical activity (3;32). In spite of the clear relationship between regular physical activity and health, there only exists moderately strong evidence for an association between lower level of physical activity and increased sedentary behavior and greater weight gain over time (3;32). A review article on physical activity and obesity prevention, found that both observational and longitudinal studies only show a weak association between low levels of physical

activity and future weight gain (32). A longitudinal study by Haerens et al, investigated the relationship between frequency and duration of physical activity and changes in body mass index during a 4-year period from childhood to adolescence (56). They found frequency and not duration of physical activity (sport participation) to play a substantial role in weight development from childhood to adolescence (56).

For children and adolescents, regular physical activity is important for healthy growth and development and for better control of body weight (57). In spite of the health benefits, studies have shown that participation in regular physical activity decline during adolescence (57-59). In Norway, studies by Anderssen et al and Sagatun et al, report a decline in the proportion of physical activity during adolescence (57;58). Anderssen et al showed a decline in the frequency of physical activity in the period from age 13 to age 19, and a slightly increase from age 19 to age 21 (58). They also reported a weak degree of tracking of physical activity. The least active persons during early adolescence were those least likely to change during their teenage years (58). The longitudinal study by Sagatun et al investigated the levels, change and stability of physical activity during the late teens (15 and 18 years of age) among ethnic Norwegians and ethnic minorities, and the association between physical activity and sociodemographic factors (57). Results showed that boys were more physical active than girls at both ages independent of ethnic background (57). Among girls, ethnic Norwegians were more physical active than ethnic minorities (57). Hours per week spent on physical activity were found to decline in all groups during the follow-up period (57).

2 Aim and research questions :

The main aim of this longitudinal study was to describe dietary behaviors and BMI in a cohort of Norwegian adolescents aged 15 to 18, and to what extent dietary behaviors and BMI at age 15 were able to predict dietary behaviors and BMI at age 18.

The following research questions were investigated:

1. To what extent did dietary behaviors change in the period from age 15 to age 18? – Were there any differences in dietary behaviors at age 18 by gender, sociodemographic background or ethnicity when controlling for dietary behaviors at age 15?

2. To what extent did BMI change in the period from age 15 to age 18? – Were there any differences in BMI at age 18 by gender, sociodemographic background or ethnicity when controlling for BMI at age 15?

3. To what extent were dietary behaviors at age 15 able to predict BMI at age 18? - Were there any differences in these predictions by gender, sociodemographic background or ethnicity when controlling for BMI and level of physical activity at age 15?

3 Method

3.1 Background

The objectives of the youth part of The Oslo Health Study, were to obtain more knowledge about the health of adolescents, and to study if there were large geographic, ethnic and social differences in health and illness as well as differences in factors that can influence health and illness later in life (60).

3.2 Design

This study is a longitudinal cohort study based on data collected at two time points three years apart. Baseline data consist of the youth part of The Oslo Health Study (UNGHUBRO), which was conducted in Oslo in 2000-2001. The follow-up study, Youth 2004, was carried out in Oslo in 2003-2004.

The Oslo Health Study was a collaborative project between the municipality of Oslo, the University of Oslo and the Norwegian Institute of Public Health (60).

3.3 Approval

The study was submitted to the Regional Committee for Ethics in Medical Research and approved by the Data Inspectorate of Norway. Additional approval has been given for the linkage of data between the youth part of The Oslo Health Study and Statistics Norway concerning parents educational level and income (60).

The Data Inspectorate of Norway accepted that the informed consent form could be signed by the student under the condition that the adolescents were 16 years of age by the day of the study, and that the parents/guardians were informed about the study (Appendix IIa and IIb) (60). When these criteria were not met the parents were contacted and asked to provide a separate informed consent form (60).

The authority to grant permission to perform the survey in the schools in Oslo was delegated to the management of each school (60).

3.4 Data collection

The youth part of The Oslo Health Study was a questionnaire study conducted in the classrooms of the schools (60). The participating students were given instruction in the classes according to standard procedures prior to the study. They were informed about the background of the study, why the study was important and how the answers would be used (60). It was especially important to inform the students that all information collected was anonymous and that the researchers would not be able to identify any of the participants (60).

Those of the adolescents who were not present at the day of the survey could answer the questionnaire another day. The questionnaire was therefore left for them at school (60).

3.5 Subjects

All students attending 10^{th} grade in Oslo during the school years 1999-2000 and 2000-2001 were invited to participate in the health screening survey (Appendix Ia). A total of 8316 adolescents were invited, and of these 7434 (88 %) participated (60). In the school year 2000-2001 a total of 3811 students (89 %) participated in the survey, and this group comprises the baseline of this longitudinal study.

The procedure for the follow up study, Youth 2004, was similar to the baseline study. All senior year students in secondary high schools in Oslo 2003-2004 were invited to participate in the school-based part of Youth 2004 (Appendix Ib). In this school based study 3308 students participated, and of these 3036 had given their consent to link the questionnaires with other surveys and various registers. The participants from the baseline study who were not enrolled in the senior year of secondary high schools and had given their acceptance to participate in the follow-up study were invited by regular

mail. A total of 466 adolescents participated by regular mail, and of these 384 had given their consent to link the data with other surveys (60).

The students who also participated in the main study in 2001 (N= 3811) and that had given their consent to link the data from the two surveys are included in the analysis of this thesis. This is referred to as the study population or the longitudinal part of the study, and consists of 2489 adolescents, 1377 girls and 1112 boys (Figure 1).

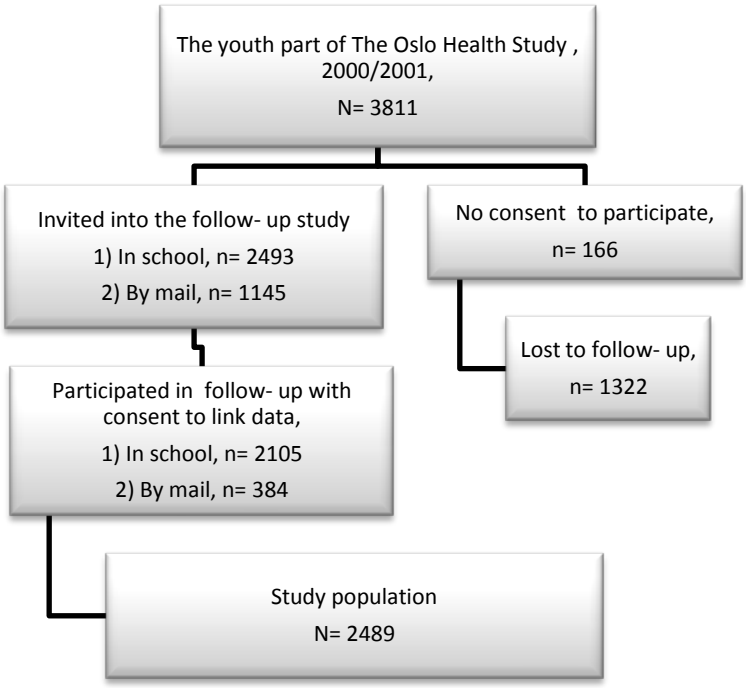


Figure 1. Flow chart of the study population in the longitudinal part of the Oslo Youth Health study (57).

3.5.1 Lost to follow-up

Almost 35 % of the adolescents who participated in the baseline study (UNGHUBRO 2000-2001) did not participate in the follow-up study three years later (Youth 2004). Lost to follow-up may lead to selection bias, and factors associated with non-response among adolescents and predictors of lost to follow-up have been investigated in a study of Bjertness et al (61). Significant predictors of lost to follow-up were male gender, non-western ethnicity and general and mental health problems measured at baseline (61).

3.6 Questionnaires & variables

A group including representatives from the Norwegian Institute of Public Health, the University of Oslo, the Norwegian School of Sport Sciences and the municipality of Oslo designed the questionnaires. It was emphasized that the questions should be validated and preferably used in previous youth surveys (60).

Among other things, there were questions concerning health, weight and height, physical activity, dietary behaviors, smoking, intoxicants, use of medicines, education and plans for the future (Appendix IIIa and IIIb)

3.6.1 Dietary behaviors

Dietary behaviors were assessed by self-reported frequency of intake of different food and beverage items. In the main study UNGHUBRO (2000-2001), the questions concerning nutrition covered nine types of food and eight types of beverages. There were two dietary supplement questions and three meal questions (60). In the follow-up study, Youth 2004, there were questions concerning six types of food, three beverage items and two dietary supplements. Questions concerning frequency of intake of soda (with- and without added sugar), juice, fruit/berries, vegetables (boiled and raw), chocolate/sweets and chips were included in the questionnaires in both the baseline and the follow-up study. Intake of these food and beverage items was therefore included in the analysis.

The questions concerning frequency of beverage consumption were: "*How much soda do you drink?"* and *"How much juice do you drink?"* There were five options, and these were recoded into glasses per day as shown in the parenthesis: *Seldom/never (0), 1-6 glasses per week (0.5), 1 glass per day (1), 2-3 glasses per day (2.5), ≥ 4 glasses per day (4).* When describing changes and stability in beverage intake, glasses per day were recoded into (ordinary categories in the parenthesis): *Reduced intake, stable seldom/never intake (Seldom/never), stable ≤ 1 glass/day (1-6 glasses/week+1 glass/day), stable ≥ 2 glasses/day (2-3 glasses per day+ ≥ 4 glasses per day) and increased intake.*

The questions concerning frequency of intake of the different food items were:*"How much fruit/berries do you usually eat?", "How much boiled vegetables do you usually eat?", "How much raw vegetables do you usually eat?*", "*How much chocolate/sweets do you usually eat?"* and *"How much chips do you usually eat?"* There were six options, and these were recoded into times per week as shown in the parenthesis: *Seldom/never (0), 1-3 t/month (0.5), 1-3 t/week (2), 4-6 t/week (5), 1-2 t/day (10.5), ≥ 3 t/day (21).* When describing changes and stability in food intake, times per week were recoded into (ordinary categories in the parenthesis): *Reduced intake, stable ≤ 1 t /week (Seldom/never + 1-3 t/month), stable weekly intake (1-3 t/week + 4-6 t/week), stable daily intake (1-2 t/day + ≥ 3 t/day) and increased intake.*

3.6.2 Body mass Index

BMI was calculated on basis of the adolescents' self-reported weight and height.

BMI in childhood and adolescence changes substantially with age as part of normal development (62). BMI-percentiles is a very commonly used method to assess the size and growth patterns of individual children and adolescents, and it can be used to screen for obesity, overweight, healthy weight and underweight (63). BMI-percentiles indicates the relative position of a children's BMI among other children of the same age and sex (63). Generally, a BMI between the 5^{th} percentile and the 85^{th} percentile is defined as healthy weight for height. A BMI between the 85^{th} and the 95^{th} percentile is defined as overweight, and a BMI equal to or greater than the 95^{th} percentile represent obesity. Underweight is defined as having a BMI less than the 5^{th} percentile (62;63).

In this study, BMI-percentiles were used to describe the distribution of adolescents within the different percentiles at age 15 and age 18. Cut-off at BMI $\geq 85^{th}$ percentile were used to describe the proportion of overweight (BMI $\geq 85^{th}$ percentile) adolescents at age 15 that were overweight also at age 18, the proportion with an healthy weight (BMI $< 85^{th}$ percentile) at age 15 and overweight at age 18 and the proportion of overweight 15 year olds with a healthy weight at age 18. The BMI percentiles below 85^{th} percentile were coded 0 ($< 5^{th}$ percentile, 5–15^{th} percentile, 15-

50th percentile, 50-85th percentile) both at age 15 and age 18. The BMI percentiles greater than 85th percentile were coded 1 (85-95th percentile, 95-97th percentile, > 97th percentile) both at age 15 and age 18.

When comparing an adolescents BMI with others of the same age and sex, the BMI has to be standardized (64). BMI z-score is a measure of relative weight adjusted for a child's age and sex, and makes it possible to compare group means and to model relative weight longitudinally (65). BMI z-score represent an individuals BMI in a standard, normal distribution with a mean of 0 and a standard deviation of 1 (66). A positive z-score value corresponds to a higher BMI than the mean value of the reference population, while a negative z-score corresponds to a lower BMI than the mean value of the reference population. A positive change in BMI z-score indicates an increase in relative BMI, and a negative change indicates a decrease in relative BMI (56). A BMI z-score value can be determined by knowing a child or adolescents age, sex and BMI together with an appropriate reference standard (65). The reference standard in this study was the WHO 2007 growth reference data for school-aged children and adolescents, where the body mass index curves start at 5 years and make it possible to calculate percentiles and z-score curves on a continuous age scale from age 5 to age 19 (67;68).

3.6.3 Sociodemographic factors

Data concerning parents' educational level and marital status were included as indicators on the adolescents' sociodemographic background.

Parents` educational level

To obtain information regarding parents' educational level, the questionnaires were linked to sociodemographic information collected by Statistics Norway for all participants at age 15. Statistics Norway operates with nine education levels which is thought to provide the best possible picture of the structure of the Norwegian education system; no-education or pre-school education, lower secondary education, upper secondary basic education, upper secondary final year, post-secondary non-

tertiary education, first stage of tertiary education-graduate level, second stage of tertiary education (postgraduate education) and unspecified (69). This educational system was used as the reference when classifying parents' educational level in this study.

The households' educational level was determined on the basis of the parents with the highest level of education or else the one available. For simplicity, the education level was dichotomized into high/university or college (1) and low/maximum upper secondary school (0).

Parents' marital status

Information concerning parents' marital status was obtained from the questionnaires at age 15 based on the question: *"Are your parents..?"*- With the options: *married/common law partners, unmarried, divorced/separated, equal time with both parents or mother/father and new spouse*. We dichotomized into married/common law partners (1) and unmarried/other (0).

3.6.4 Ethnicity

The ethnicity of the participants was determined on the basis of their parents' country of birth and obtained from the questionnaire at age 15. Adolescents having both of their parents born in a country other than Norway is by Statistics Norway defined as ethnic minorities (70). In cases where the birth countries of these parents differed, the mothers country of birth was selected to determine ethnic origin (70). If one of the parents were born in Norway, the ethnic origin was set as Norwegian (70). If the birth country of one of the parents were missing and the other parents were not of Norwegian origin, the case was not included in the analysis (N=832)

The majority of the adolescents in this study were of Norwegian/Western origin. The other ethnic subgroups represented in the adolescent cohort were of very different sample size with some groups being very small. The ethnic origins East Europe, North Africa/Middle East, Africa south of the Sahara, Asia/Pacific and South/Middle

America were collapsed into Non-western ethnicity. The ethnicity variable was dichotomized into Norwegian/Western origin (1) or Non-Western origin (0).

3.7 Statistics

All calculations were performed by the use of SPSS 16.0/18.0 (SPSS INC, Chicago IL), and for all analysis the significance level was set at $p<0.05$.

Descriptive statistics on dietary behaviors and BMI in the period from age 15 to age 18 were mean frequencies of intake of the selected food and beverage items (described in section 3.6.1) at age 15 and age 18, paired t-test of the mean difference in frequency of intake between age 15 and age 18, mean BMI z-score at age 15 and age 18 and Pearson`s correlation coefficients for the relation between dietary behaviors at age 15 and age 18, and the relation between BMI z-score at age 15 and age 18. BMI-percentiles were used to describe the proportion of adolescents within the different BMI-percentiles at age 15 and age 18, and to describe the proportion of overweight adolescents and healthy weight adolescents at age 15 and age 18. Cut off for overweight were set at BMI $\geq 85^{th}$ percentile (described in section 3.6.2).

Changes and stability in dietary behaviors were described by the use of cross tabulations. Before performing this analysis, the frequency of intake of the selected food and beverage items was recoded as described in section 3.6.1. Cross tabulations were also used to describe changes and stability in overweight and healthy weight boys and girls in the period from age 15 to age 18.

Multiple linear regression analysis was preformed to predict if there were any differences in dietary behaviors and BMI at age 18 between subgroups of adolescents. These analyses were stratified by gender and ethnicity. In the models, the dependent variable was the mean intake of the different food or beverage item at age 18 or the mean BMI z-score at age 18, while the independent variables were parents' educational level and marital status. In addition, the models were adjusted for the

intake of the different food and beverage items or the BMI z-score at age 15 respectively.

Multiple linear regression analysis were also used to analyze to what extend intake of the different food and beverage items at age 15 predicted BMI at age 18, and if this differed between the sub-groups of adolescents when controlling for dietary behaviors, BMI z-score and level of physical activity (t/week) at age 15. Also these analyses were stratified on gender and ethnicity while parents' educational level and marital status were used as independent variables. The dependent variable in these models was the BMI z-score at age 18.

4 Results

4.1 Study population

The population in this longitudinal study consisted of a cohort of 2489 adolescents participating both at age 15 and age 18. There were 1112 boys (44.7 %) and 1377 (55.3 %) girls. At age eighteen, 65 % of the adolescents were living together with both parents, and the majority (70 %) of the parents was married/common law partners. More than 80 % of the adolescents were of Norwegian/Western origin. For more details about the study population, see table 1.

Table 1. Characteristics of the cohort of 15 and 18 years olds from Oslo, Norway.

		N	%
Gender	Boys	1112	44.7
	Girls	1377	55.3
Parents`educational level	University/College	930	37.4
	Max upper secondary school	714	28.7
	Missing	845	33.9
Ethnicity	Norwegian/Western origin	1364	82.3
	Non-Western origin	293	17.7
	Missing	832	33.4
Parents` marital status	Married/Common law partners	1763	70.8
	Unmarried/Other	715	28.7
	Missing	11	0.4
Living situation at age 18	With both parents	1620	65.0
	Other	869	35.0

4.1.1 Lost to follow-up and loss due to missing on education or ethnicity

In addition to lost to follow-up, some of the participants were lost in the analyses due to missing data primarily on their parents`ducational level and ethnicity. These participants were characterized at baseline by significant higher mean (SD) intake of soda with added sugar (2.5 (1.1) vs. 2.3 (1.0), $p< 0.002$), lower mean frequency consumption of fruit/berries (3.9 (1.4) vs. 4.1 (1.3), $p< 0.03$) and higher mean BMI (20.7 (2.9) vs. 20.4 (2.8), $p< 0.01$) compared to the adolescents with data on their parents' educational level and ethnicity.

4.2 Dietary behaviors

4.2.1 Changes in mean frequency of intake of the selected food

Both boys and girls reduced their mean frequency of intake of most of the registered food and beverage items in the period from age 15 to age 18 (Table 2 and 3). Among boys, the reductions were significant ($p < 0.001$) for intake of juice, fruit/berries, raw vegetables, chocolate/sweets and chips (Table 2). Among girls, there were significant reductions in intake of soda with added sugar, juice, fruit/berries, chocolate/sweets and chips ($p < 0.001$), and a significant increase in the consumption of boiled vegetables ($p = 0.05$) (Table 3). The Pearson`s correlations coefficients between intake at age 15 and 18 were below 0.5 among both the boys and the girls for all food and beverage items.

Table 2. Mean frequency of intake (t/week) of some food and beverages at age 15 and 18 among boys in Oslo, Norway (N=1112).

Food item	Mean frequency of intake		Mean diff*	95 % CI of the diff*	P-value	Pearson´s Corr
	15 y	18 y				
Soda (added sugar)	8.5	8.2	-0.38	(0.16, -0.91)	0.17	0.41
Juice	8.9	8.0	-0.96	(-0.44, -1,48)	< 0.001	0.36
Fruit/berries	6.4	4.7	-1.74	(-1.38, -2.1)	< 0.001	0.45
Boiled vegetables	3.6	3.6	-0.03	(0.23, -0.29)	0.830	0.39
Raw vegetables	4.4	3.7	-0.69	(-0.39, -0.99)	< 0.001	0.32
Chocolate/sweets	5.4	3.3	-2.05	(-1.72, -2.39)	< 0.001	0.30
Chips	3.3	2.2	-1.01	(-0.73, -1.29)	< 0.001	0.26

*Paired t-test

Table 3. Mean frequency of intake (t/week) of some food and beverages at age 15 and 18 among girls in Oslo, Norway (N=1377).

Food item	Mean frequency of intake		Mean diff*	95 % CI of the diff*	P-value	Pearson´s Corr
	15 y	18 y				
Soda (added sugar)	5.1	3.9	-1.2	(-0.87, -1.54)	< 0.001	0.41
Juice	8.6	6.7	-1.92	(-1.48, -2.36)	< 0.001	0.31
Fruit/berries	8.0	6.2	-1.79	(-1.43, -2.14)	< 0.001	0.44
Boiled vegetables	3.5	3.7	0.24	(0.06, -2.01)	0.045	0.32
Raw vegetables	5.2	4.8	-0.34	(-0.63,- 2.33)	0.200	0.34
Chocolate/sweets	4.5	3.5	-1.04	(-1.3, -7.91)	< 0.001	0.38
Chips	2.4	1.8	-0.58	(-0.42,-0.75)	< 0.001	0.47

* Paired t-test

4.2.2 Distribution of changes in dietary behaviors

Tables 4 to 6 show the distribution of changes in dietary behaviors among boys and girls in the period from age 15 to age 18. Generally, between 50 % and 65 % of both the boys and the girls showed a stable intake of the selected food and beverage items in the period.

Table 4 shows that 25 % of the boys reduced their intake of soda with added sugar, while 16 % of them increased their intake in the period. Nearly 30 % of the boys reported having a stable intake of ≥1 glass per day of soda with added sugar. Thirty-four percent of the boys had a stable intake of more than 1 glass per day of juice. There were 33 % of the girls who reduced their intake of soda with added sugar, while 12 % increased their intake of this beverage item. Only 9 % of the girls reported having a stable intake of at least 1 glass per day of soda with added sugar in the period, while almost 30 % of the girls had a stable intake of at least one glass per day of juice in the period from age 15 to age 18. Approximately 20 % of both the boys and the girls increased their intake of juice in the period.

Table 4. Stability and changes in intake of some beverage items in the period from age 15 to age 18 among boys (N=112) and girls (N=1377) in Oslo, Norway.

	Soda (added sugar)		Juice	
	Boys (%)	Girls (%)	Boys (%)	Girls (%)
↓ intake	25	33	27	31
Stable seldom/never	5	17	7	7
Stable 1-6 gl/week	28	29	15	18
Stable 1 - 4 or more gl/day	27	9	34	29
↑intake	16	12	17	16

Table 5 shows the distribution of changes in fruit and vegetable consumption. Thirty percent of both the boys and the girls reduced their intake of fruit/berries, while 15 % of both genders increased their intake in the period from age 15 to age 18. There were 14 % of the boys and 23 % of the girls who remained in the group that consumed fruit/berries at least 1 t/day. The majority of both the boys and the girls reported having a stable intake of vegetables corresponding to 1-6 t/week in the period. Only approximately 5 % of the boys and less than 10 % of the girls were in the group that consumed boiled or raw vegetables at least 1 t/day in this period.

Table 5. Stability and changes in intake of fruit/berries and vegetables in the period from age 15 to age 18 among boys (N=1112) and girls (N=1377) in Oslo, Norway.

	Fruit/berries		Boiled vegetables		Raw vegetables	
	Boys (%)	Girls (%)	Boys (%)	Girls (%)	Boys (%)	Girls (%)
↓ intake	31	30	16	16	22	19
Stable ≤ 1 t/week	12	9	18	17	14	8
Stable 1-6 t/week	28	23	43	43	43	45
Stable ≥ 1 t/day	14	23	4	3	5	9
↑ intake	15	15	18	22	17	19

Table 6 shows that the majority of both the boys and the girls had a stable intake corresponding to 1-6 t/week of chocolate/sweets and chips in the period from age 15 to age 18. More than 30 % of the boys reduced their intake of chocolate/sweets, while 9 % increased their intake of these food items. There were 26 % of the boys who reduced their intake of chips, while 13 % increased their intake of chips in the period. Among girls, 24 % reduced their intake of chocolate/sweets, while 13 % increased

their intake of these food items. Twenty-two percent of the girls reduced their intake of chips, while 13 % increased the consumption of this food item in the period from age 15 to age 18. Only 2-5 % of the boys and the girls reported a daily intake of chocolate/sweets and chips at both time points.

Table 6. Stability and changes in intake of chocolate/sweets and chips in the period from age 15 to age 18 among boys (N=1112) and girls (N=1377) in Oslo, Norway.

	Chocolate/sweets		Chips	
	Boys (%)	Girls (%)	Boys (%)	Girls (%)
↓ intake	31	24	26	22
Stable ≤ 1 t/week	8	9	21	32
Stable 1-6 t/week	47	50	38	31
Stable ≥ 1 t/day	5	5	2	2
↑ intake	9	13	13	13

4.2.3 Differences in dietary behaviors at age 18 by parents` educational level and marital status

Dietary behaviors at age 18 in adolescent boys and girls of different ethnicity and their relationship with parents' educational level and marital status are shown in table 7. Among boys, there were no significant relationship between parents' educational level and dietary behaviors at age 18 or between parents' marital status reported at age 15 and dietary behaviors at age 18 in either of the two ethnic groups when controlling for the respective dietary behaviors at age 15. However, among the girls of Norwegian/Western origin those with married parents/common law partners had significant higher intake of fruit/berries (p=0.05), boiled vegetables (p=0.02) and chocolate/sweets (p=0.03) compared to the Norwegian/Western girls with parents of unmarried/other marital status. Among the girls of Non-Western ethnicity, there were significant higher intake of soda with added sugar among the girls with parents of unmarried/other marital status compared to those with married parents/common law partners (p=0.05).

Table 7: The relationship between parents' educational level and marital status reported at age 15 and intake of the different food and beverage items at age 18 in boys and girls of different ethnicity in Oslo, Norway. The model is adjusted for food and beverage intake at age 15*

	Boys				Girls			
	Norwegian/ Western origin		Non-Western origin		Norwegian/ Western origin		Non-Western origin	
	B	p	B	p	B	p	B	p
Soda (added sugar) intake at age 18								
Parents` marital status[#]	-0.03	0.7	0.10	0.4	0.01	0.8	-0.21	0.05
Parents` educ. level[##]	-0.05	0.4	0.01	0.9	< 0.01	1	0.08	0.4
Juice intake at age 18								
Parents` marital status[#]	-0.06	0.3	-0.12	0.4	0.08	0.1	0.12	0.3
Parents` educ. level[##]	-0.01	0.9	-0.06	0.6	-0.04	0.4	-0.06	0.6
Fruit/berries intake at age 18								
Parents` marital status[#]	0.10	0.1	0.20	0.2	0.11	0.05	-0.11	0.4
Parents` educ. level[##]	-0.01	1	0.06	0.7	-0.06	0.2	-0.05	0.7
Boiled vegetables intake at age 18								
Parents` marital status[#]	0.04	0.5	-0.03	0.76	0.11	0.02	-0.05	0.7
Parents` educ. level[##]	0.06	0.2	-0.04	0.7	-0.07	0.2	-0.05	0.7
Raw vegetables intake at age 18								
Parents` marital status[#]	-0.01	0.85	0.02	0.85	0.09	0.1	-0.03	0.8
Parents` educ. level[##]	0.01	0.9	0.01	0.9	-0.08	0.1	0.09	0.4
Chocolate/sweets intake at age 18								
Parents` marital status[#]	0.07	0.2	0.13	0.2	0.09	0.03	0.01	0.9
Parents` educ. level[##]	0.21	0.4	0.15	0.1	-0.05	0.3	0.14	0.2
Chips intake at age 18								
Parents` marital status[#]	0.08	0.1	0.11	0.3	0.01	0.9	0.04	0.7
Parents` educ. level[##]	-0.01	0.9	0.20	0.1	-0.02	0.7	0.05	0.6

* Multivariate adjusted model: Food/beverage intake at age 18 = Parents' marital status+ parents` educational level+ food/beverage intake at age 15

[#] Unmarried/Other (0) Married/Common law partners (1)

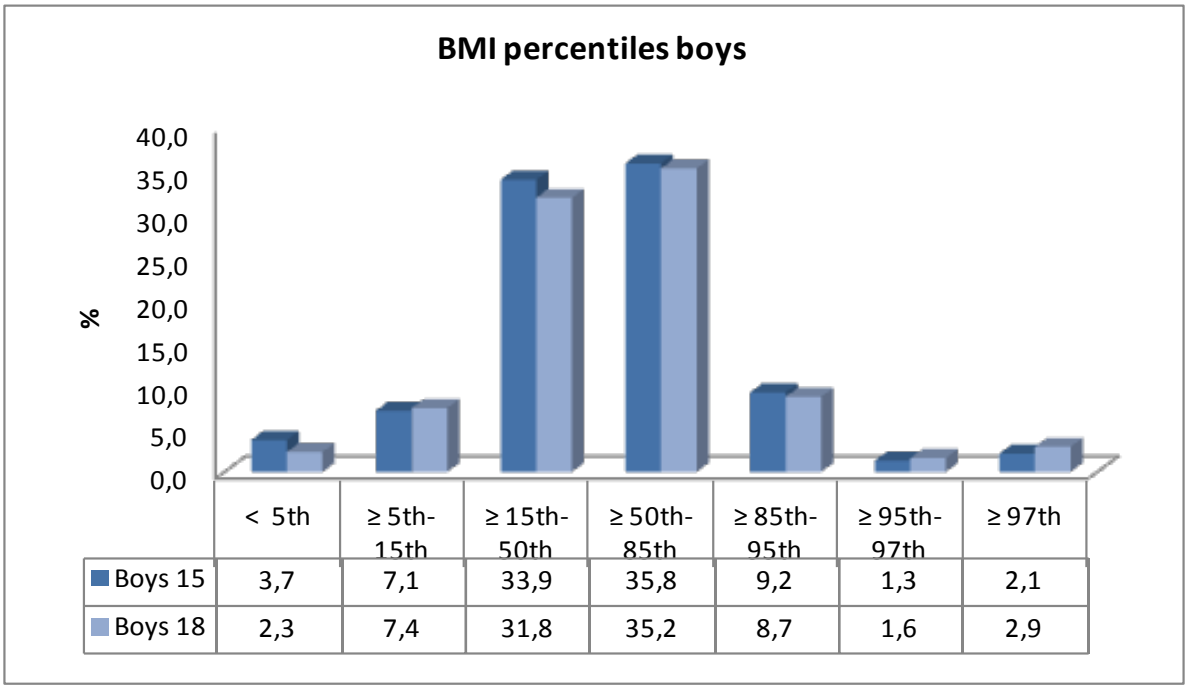
[##] Max upper secondary school (0) University/College (1)

4.3 Body Mass Index (BMI)

The distribution of boys and girls within the different BMI-percentiles are shown in figure 2 and 3. Almost 4 % of the boys were in the group below the 5th percentile and

could be classified as underweight at age 15. At age 18, nearly 2 % of the boys were underweight.

At age fifteen, 12.6 % of the boys were at or above the 85th percentile and could be classified as overweight or obese (Fig.2). At age 18, the proportion of overweight adolescents was 13.2 %. The increase in the proportion of overweight was slightly and not significant (data not shown). Results also showed that 92.5 % of the boys with a BMI < 85th percentile at age 15 also had a healthy weight at age 18. On the other hand, only 55 % of the boys who were overweight at age 15 were also overweight at age 18.



	< 5th	≥ 5th-15th	≥ 15th-50th	≥ 50th-85th	≥ 85th-95th	≥ 95th-97th	≥ 97th
Boys 15	3,7	7,1	33,9	35,8	9,2	1,3	2,1
Boys 18	2,3	7,4	31,8	35,2	8,7	1,6	2,9

Figure 2. Percentage of 15 and 18 year old boys (N=1035) in Oslo, Norway within the different BMI-percentiles defined by the WHO growth reference 2007 (68).

Four percent of the girls were in the group below the 5th percentile at age 15. At age 18, the proportion of underweight girls was 2.5 %.

Among the girls, 6.7 % were at or above the 85th percentile at age 15, while 7.5 % of theme were at or above the 85th percentile at age 18 (Fig.3). Ninety-six percent of the girls with a BMI< 85th percentile at age 15 also had a BMI < 85th percentile at age 18. Forty-eight percent of the overweight girls at age 15 were also overweight at age18.

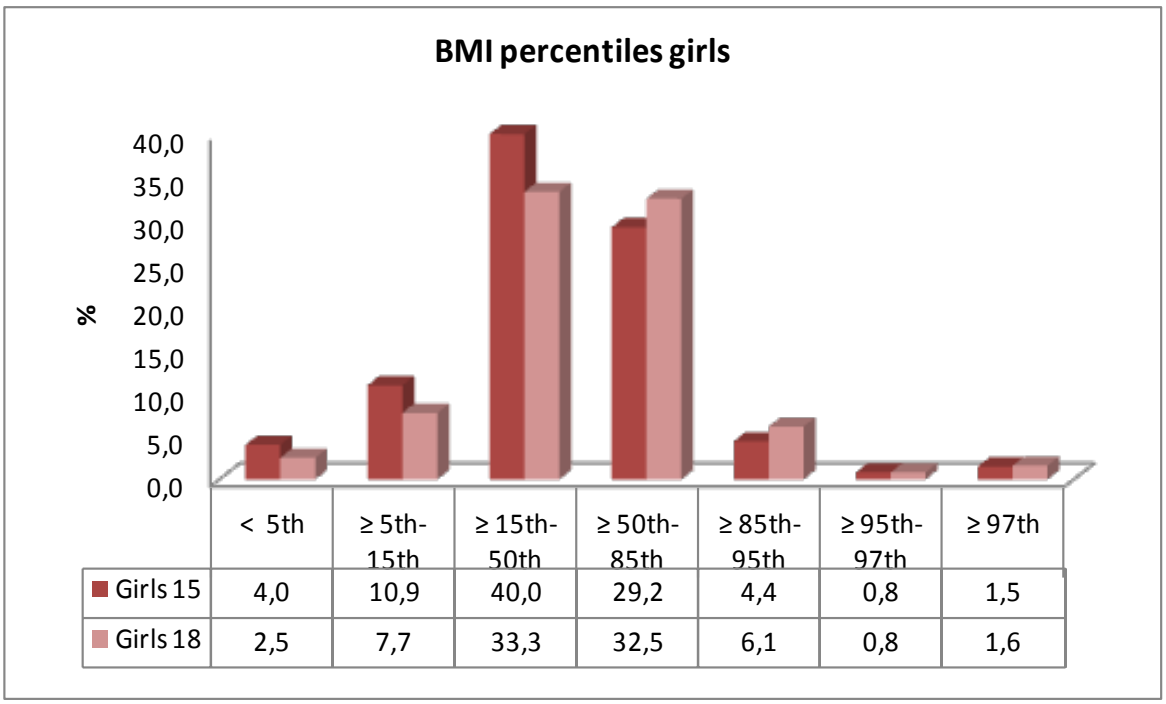


Figure 3. Percentage of 15 and 18 year old girls (N=1249) in Oslo, Norway within the different BMI-percentiles defined by the WHO growth reference 2007 (68).

In the period from age 15 to age 18, the mean BMI changed from 20.8 kg/m^2 to 22.7 kg/m^2 among the boys, and from 20.3 kg/m^2 at age 15 to 21.4 kg/m^2 at age 18 among the girls (Table 13). These values correspond to a mean BMI z-score value of 0.34 for boys 15 years old and 0.03 for boys 18 years old. Among the girls the mean BMI z-score values were -0.01 at age 15 and -0.09 at age 18. Results therefore showed a mean decrease in the age- and gender adjusted BMI both among the boys and the girls in the period from age 15 to age 18.

Table 13. Mean weight (kg), height (cm), BMI (kg/ m^2) and BMI z-score in boys and girls 15 and 18 years old in Oslo, Norway.

	15 year olds				18 year olds				
	Weight	Height	BMI	Mean BMI z-score*	Weight	Height	BMI	Mean BMI z-score*	Corr BMI z-score
Boys	65.8	176.8	20.8	0.343	73.5	180.4	22.7	0.034	0.61
Girls	56.4	166.5	20.3	- 0.01	60.1	167	21.4	- 0.092	0.73

* Significant difference in the mean BMI z-score at age 15 and 18 for both gender, p< 0.001

Results from paired t-test on the BMI z-score at age 15 and 18 showed significant differences in the BMI z-score value at age 18 compared to age 15 in both genders ($p < 0.001$). Correlations between BMI z-scores at age 15 and age18 were 0.61 for boys and 0.73 for girls.

4.3.1 Differences in BMI at age 18 by parents' educational level and marital status

There were no significant difference in BMI z-score at age 18 among boys with parents of different educational level and marital status adjusted for BMI z-score at age 15 (Table 14). Among girls, there were no significant difference among those of Norwegian/Western origin with parents of different educational level and marital status and the BMI z-score at age 18. On the other hand, we found significant higher ($p= 0.05$) BMI z-score at age 18 among the Non-Western girls with parents of unmarried/other marital status compared to the Non-Western girls with married parents/common law partners (Table 14).

Table 14. The relationship between parents' educational level and marital status reported at age 15 and BMI z-score at age 18 in boys and girls of different ethnicity in Oslo, Norway. The model is adjusted for BMI z-score at age 15*.

	Boys				Girls			
	Norwegian/ Western origin		Non-Western origin		Norwegian/ Western origin		Non-Western origin	
BMI z- score age 18	B	p	B	p	B	p	B	p
Parents` marital status#	-0.02	0.8	-0.23	0.2	0.02	0.7	-0.29	0.05
Parents` educ. level##	0.12	0.1	-0.25	0.1	0.05	0.3	-0.10	0.5

* Multivariate adjusted model: BMI z-score age18= Parents`marital status+ parents`educational level + BMI z-score at age 15

Unmarried/Other (0) Married/Common law partners (1)

Max upper secondary school (0) University/College (1)

4.4 Dietary behaviors at age 15 and differences in BMI at age 18

Neither among boys of Norwegian/Western origin nor among boys of Non-Western ethnicity, were there any significant association between intake of any of the selected food and beverage items at age 15 and BMI z-score at age 18 when adjusting for BMI z-score and physical activity level at age 15, as well as parents' educational level and marital status (Table 15).

Among girls of Norwegian/Western origin, the intake of boiled vegetables and the intake of chocolate/sweets at age 15 was significantly and inversely associated with BMI z-score at age 18 when adjusting for BMI z-score and physical activity level at age 15, parents' educational level and marital status (Table 15). When including both intake of boiled vegetables and intake of chocolate/sweets at age 15 in the model, there was still a significant inverse association between intake of boiled vegetables at age 15 ($p= 0.04$) and BMI z-score at age 18 (data not shown). The association between intake of chocolate/sweets and BMI z-score at age 18 was "borderline" inverse significant ($p= 0.06$) in this model. Among girls of Non-Western ethnicity there were no significant associations between intake of any of the actual food and beverage items at age 15 and BMI z-score at age 18.

Table 15: The relationship between dietary behaviors at age 15 and BMI z-score at age 18 in boys and girls of different ethnicity in Oslo, Norway. The model is adjusted for BMI z-score and physical activity level at age 15 and parents' educational level and marital status*

	Boys				Girls			
	Norwegian/ Western origin		Non-Western origin		Norwegian/ Western origin		Non-Western origin	
BMI z-score at age 18	B	p	B	p	B	p	B	p
Soda (added sugar) intake at age 15	0.01	0.84	0.06	0.68	-0.06	0.10	0.02	0.9
BMI z-score at age 15	0.46	<0.001	0.58	<0.001	0.70	<0.001	0.70	<0.001
Physical activity level at age 15#	0.02	0.37	0.04	0.37	0.03	0.29	-0.01	0.87
Juice intake at age 15	-0.03	0.51	0.02	0.90	0.01	0.87	-0.07	0.51
BMI z-score at age 15	-0.46	<0.001	0.58	<0.001	0.70	<0.001	0.68	<0.001
Physical activity level at age 15#	0.03	0.32	0.04	0.41	0.03	0.21	0.00	1.00
Fruit/berries intake at age15	0.02	0.70	0.17	0.15	-0.03	0.53	0.08	0.43
BMI z-score at age 15	0.46	<0.001	0.58	<0.001	0.70	<0.001	0.70	<0.001
Physical activity level at age 15#	0.02	0.44	0.04	0.47	0.02	0.27	-0.04	0.95
Boiled vegetables intake at age 15	-0.10	0.07	0.06	0.6	-0.09	0.03	0.19	0.09
BMI z-score at age 15	0.46	<0.001	0.58	<0.01	0.70	<0.001	0.67	<0.001
Physical activity level at age 15#	0.02	0.33	0.04	0.41	0.02	0.30	-0.02	0.74
Raw vegetables intake at age 15	0.01	0.83	0.01	0.94	-0.01	0.89	0.06	0.65
BMI z-score at age 15	0.46	<0.001	0.58	<0.001	0.70	<0.001	0.69	<0.001
Physical activity level at age 15#	0.02	0.40	0.04	0.43	0.02	0.25	-0.02	0.97
Chocolate/sweets intake at age 15	-0.07	0.27	0.09	0.48	-0.09	0.04	0.03	0.82
BMI z-score at age 15	0.46	<0.001	0.58	<0.001	0.69	<0.001	0.70	<0.001
Physical activity level at age 15#	0.02	0.38	0.04	0.38	0.02	0.36	-0.02	0.97
Chips intake at age 15	-0.01	0.93	-0.03	0.79	-0.07	0.1	-0.16	0.2
BMI z-score at age 15								
Physical activity level at age 15#	0.46	<0.001	0.58	<0.001	0.69	<0.001	0.68	<0.001
	0.02	0.41	0.04	0.44	0.02	0.30	-0.01	0.92

* Multivariate adjusted model: BMI z-score age 18= Food/beverage intake at age 15+ BMI z-score at age 15+ physical activity level at age 15+ parents' marital status+ parents' educational level

t/week

In all models, there were a significant relationship between BMI z-score at age 15 and BMI z-score at age 18. Among boys, the multivariate models explained approximately 30 % (R^2= 0.3) of the variation in the BMI z-score at age 18. The models explained approximately 50 % (R^2= 0.5) of the variations in the girls BMI z-score at age 18 (data not shown).

5 Discussion

In this longitudinal study of adolescents from age 15 to age 18 there were three main findings. ① A significant reduction in the mean frequency of intake of most of the studied food and beverage items among boys as well as among girls. Girls of different ethnicity and with parents of different marital status were found to have significant different mean frequency of intake of a few of the selected food at age 18. ② The study showed a significant reduction in the mean age- and gender adjusted BMI in the period from age 15 to age 18 in both genders. On the other hand, there was a slightly and non-significant increase in the proportion of adolescents with an age- and gender adjusted BMI > 85th percentile at age 18 compared to age 15. Differences in BMI at age 18 were found among the girls of Non-Western ethnicity with parents of different marital status. ③ Associations between dietary behaviors at age 15 and BMI at age 18 was only found among girls of Norwegian/Western origin who showed a significant inverse association between intake of boiled vegetables and intake of chocolate/sweets at age 15 and BMI at age 18.

5.1 Methodological consideration

5.1.1 Study design

This study is an epidemiological prospective cohort study. It had a longitudinal design, since information about dietary behaviors and weight/height were collected at two time points from the same individuals.

Strengths of the study

An epidemiological study makes it possible to include a large number of subjects, something that increases the strength of the study. It also makes it possible to compare subgroups of participants. In our study, there was a high response rate from the start since 88 % of the 10th graders in Oslo participated in the baseline study. In addition, there was a substantial group of non-western adolescents.

Our study had a longitudinal design; something that made it possible to study changes and stability in dietary behaviors and weight status between the two measure points (age 15 and age 18). The longitudinal design also made it possible to identify predictors of lost to follow-up.

Additionally, an epidemiological study is relatively easy and inexpensive to conduct (71).

5.1.2 Biases in epidemiological studies

There are several potential biases associated with epidemiological studies, something that might impact the validity of the study (72). A study is considered as valid if the design, method and procedure of the study will produce credible results (73).

The most common errors in epidemiological studies are systematic errors, random errors and confounding (72).

Systematic errors

A systematic error in the design or conduct of the study results in an incorrect or invalid association between the exposure and outcome (74). A study can be biased because of the way the participants have been selected (**selection bias**), the way the study variables have been measured (**information bias**), or some confounding factor that is not completely controlled (**confounding**) (71;72).

Selection bias occur if the subjects studied are not representative for the target population on which conclusions are to be drawn (72;74). Selection biases as a consequence of invitees who decline to participate are well known in epidemiological studies. In this longitudinal study 88 % of all 10^{th} graders participated in the baseline study, UNGHUBRO (2000-2001). There might be a problem that the adolescents who did not attend the study differed systematically from the participants in the study. However, because of the relatively high participant rate (N= 3811) and because of the substantial group of non-western adolescents, the study population were considered as rather representative for the 10^{th} graders in Oslo, Norway in 2000-2001.

Selection bias due to lost to follow-up is also well known in epidemiological studies (61). Minimizing lost to follow up is important because it reduces the ability of the study to detect an eventual association between exposure and outcome because those who are lost to follow-up may differ in important ways from those who are traced (74). It will therefore be of importance to check if the non-responders differ from participants in important ways. In this study, there were some significant differences in dietary behaviors and BMI between those adolescents who participated in both the baseline and the follow-up study, and those who were lost to follow-up. In addition some of the adolescents were lost in the analysis due to missing data on their parents' ethnicity and educational level. This has clearly reduced the sample sizes of the adolescent subgroups, and especially the group of Non-Western adolescents. Thus, there might be a problem that we compared changes in dietary behaviors and BMI in a healthier selection of adolescents 15 and 18 years of age living in Oslo, Norway. Non-responders and predictors of lost to follow-up were discussed in a study of Bjertness et al (61). The study were based on data from the same group of adolescents as in our study, and showed that significant predictors of lost to follow-up were invitation by post, male gender, Non-Western ethnicity, postal survey compared to school-based survey, lower educational plans than university/higher education, low education- and income of father, low perceived economy in the family, unmarried as compared to married parents, poor self-reported health, externalized symptoms and smoking (61).

Information bias is a systematic error that might occur if the information collected from the study subjects is erroneous (72;74). In this study, self-administered questionnaires were used to obtain information about adolescents' weight, height and dietary behaviors. Information bias is therefore likely to be a main type of systematic error in this study because of imperfect information about dietary behaviors and weight/height. Questions concerning dietary behaviors in the questionnaires only covered frequency of intake of the different food and beverages something that might give rather weak estimates on intake. In addition, information obtained from questionnaires may be biased due to a permanent tendency to exaggerate or

underestimate behavior and/or because of a subjects state of mind when answering the questions (71).

Underestimation of weight and thus BMI in self-reported data is documented and discussed in a review article by Sherry et al (75). The review examined the accuracy of self-reported data in contrast to directly measured data for identifying and monitoring overweight among US adolescents (75). They concluded from results on sensitivity tests that self-reported height and weight were relatively weak estimates of directly measured values for categorizing overweight status (75). They also found females to underestimate their weight and BMI more than males, and overweight youth to underestimate their weight and BMI more than normal weight youth (75). On the other hand, validation studies on adolescents self-reported weight and height have shown high correlation between self-reported and measured weight and height (76). We therefore consider the proportion of overweight adolescents found in our study as rather credible.

Recall bias and social desirability bias are other well-known factors that can contribute to information bias in self-reported studies (71). The inverse association between consumption of chocolate/sweets at age 15 and BMI at age 18 found in this study, might be due to an underestimation of chocolate/sweets intake, and an example of social desirability because consumption of chocolate/sweets often is considered as unhealthy food items.

Confounding is often present in epidemiological studies and may impact the validity of the study. A confounder will disturb the association between the exposure and the outcome because of its relationship with both the exposure and the outcome (74).

In this study possible confounders were; already established dietary behaviors and physical activity. We have tried to minimize the effect of these possible confounders by including and adjusting for baseline levels (age 15) of dietary behaviors, BMI as well as physical activity in the multivariate analysis. Another possible confounder is dieting which is not included in the analysis because of rather weak estimates on

occurrence (e.g. only one question concerning dieting was present in both baseline- and follow-up study).

Random errors

Random errors are those errors that remain after the systematic errors are eliminated, and they are a consequence of variability in the data that we can not really explain (72). There are two main types of random errors; sampling variation and random measurement errors (72).

Sampling variation arises as no sample will be exactly identical to the target population and because individual variation always occurs. A method for reducing the sample variation is to enlarge the sample size (72). Our study consisted of 2489 adolescents; a sample size that probably were large enough to produce rather precise overall results.

Random measurement errors may lead to a reduction in the reliability of the measurements. In this study, information about dietary behaviors and weigh/height was self-reported, and it was therefore impossible to secure precision in measurements. It is also probable that the different questions were interpreted differently among the participants. In addition, there exists no reliability study on the questionnaire used in the study.

Ambrosini et al, evaluated the reliability of a food frequency questionnaire for use among adolescents (77). A food frequency questionnaire (FFQ) was compared to a 3-day food record (FR) in adolescents 14 years old in Western Australia. They found an agreement between absolute nutrition intake, their correlations and the ranking ability, but the FFQ tended to overestimate nutrient intake compared to FR (77). They also showed that boys performed marginally better than girls for all indicators of reliability (77). Reliability of questionnaires used to asses adolescents dietary behaviors were also discussed in a master thesis by Skårer (78). Questions concerning intake of fruit and vegetables, soda with added sugar and chocolate/sweets were found to have low reliability (78). There were lower reliability in questionnaires with many answering

categories, and a tendency to lower values when re-testing the questionnaires (78). A study by Andersen et al, investigated the reproducibility and the validity of a questionnaire on the intake of fruit and vegetables among Norwegian 6th graders (79). A 7-day precoded food diary was used as the reference method, and they found good reproducibility of the questionnaire in the test-retest (79). The validity test showed overestimated intake of fruit, fruit juice and potato compared to the reference method, while no significant differences were observed for vegetables (79).

5.1.3 Statistical aspect

An association between an exposure and an outcome or lack of association might be the result of chance. The probability that the results are due to chance decreases as the sample size increases (74). Our study consisted of 2489 Norwegian adolescents. Because of this relatively large sample size it was possible to detect very small differences in dietary behaviors and BMI as significant. Whether a small effect size is considered as important depend on the context of measurements compared. In medical and nutritional research, small effect sizes usually reflected by small increases of risk are often considered clinically relevant (73). On the other hand, the small sample sizes of some of the ethnic subgroups in this study probably reduce our possibility to obtain adequate statistical power to detect significant relationship between dietary behaviors and outcome variables.

5.2 Discussion of the specific results

5.2.1 Dietary behaviors in the period from age 15 to age 18

Sugar-containing beverages

The consumption of soda with added sugar and juice were found to decrease in the period from age 15 to age 18. But, there was a high (> 8 t/week e.g. >1 t/day) and more or less stable mean frequency of intake of soda with added sugar among the boys in the period from age 15 to age 18. The mean frequency of intake of soda with added

sugar was lower among the girls both at age 15 and at age 18, and decreased from 5 t/week to nearly 4 t/week. Mean frequency of juice intake was high in both genders and at both ages (≥ 8 t/week at both ages among girls, and > 8 t/week at age 15 and nearly 7 t/week at age 18 among girls).

Many epidemiological studies report an increase in the intake of sugar-rich beverages in adults as well as in children and adolescents (36;43;80;81). The high intake of sugar-containing beverages during adolescence found in this and other studies are apprehensive because there might be a link between increased consumption of sugar-rich beverages and weight gain/promoting obesity (1;3;82). Mali et al, Forshee et al and Gibson et al concluded from their review articles on the relationship between sugar-sweetened beverages and obesity that the associations were week and non-conclusive (38-40). More research is needed, but sufficient evidence exists for public health strategies to discourage consumption of sugary-drinks as part of a healthy lifestyle (39).

A recent report from the Norwegian Directorate of Health, shows that energy intake from sugar among adolescents still is higher than the recommended 10 % of energy intake (45). National diet and nutrition surveys shows that in the period from 1993 to 2000, sugar intake among adolescents 13 years of age has increased from 11-12 % of energy intake to 18 % of energy intake (45). On the other hand, the Norwegian Directorate of Health report a decrease in daily consumption of soda with added sugar among adolescent 16-24 years of age in the period from 2005 to 2008 (45). Based on the growing evidence for a link between increased consumption of sugar-rich beverages and obesity (1;3;83), it is natural to consider the mean decrease in frequency of intake found in this study as positive. However, 30 % of the boys showed a daily intake of at least 1 glass of soda with added sugar both at age 15 and age 18.

Consumption of fruit-juice has also been questioned as a potential risk factor for obesity development (84). A high proportion of the adolescents in our study were found to have a high and stable daily intake of juice in the period from age 15 to age 18. The adolescents showed a mean frequency of juice consumption that corresponds

to a daily frequency of intake at both times. Approximately 30 % of both the boys and the girls had a daily intake of at least one glass of juice both at age 15 and age 18.

The American Academy of Pediatrics (2001) has recommended that in the evaluation of over-nutrition in children, consumption of 100 % fruit-juice should be evaluated because it might contribute to a child`s over-nutrition (85). To our knowledge no study has identified a significant relationship between consumption of fruit juice and obesity development, but in some studies there seems to exist a relationship between fruit juice consumption in already overweight children and obesity development (86-89). This suggests that a reduction in fruit-juice intake should be included in obesity treatment.

Fruit/berries and vegetables

In this study there was a significant reduction in the mean frequency of intake of fruit/berries in the period from age 15 to age 18 in both genders. Boys showed an intake of fruit/berries and vegetables that correspond to < 1 t/day both at age 15 and at age 18. Girls mean weekly frequency of fruit/berries intake correspond to at least 1 time per day at age 15, but the consumption decreased to < 1 t/day at age 18. Like boys, the girls did not show a daily consumption of either raw or boiled vegetables neither at age 15 nor at age 18.

A decrease in the consumption of fruit and vegetables during adolescence has also been reported in other studies (43;48;90). A study by Larson et al examined the longitudinal and secular trends in intake of fruit and vegetables among two cohorts of American adolescents in the period from 1999-2004 (90). They found a decrease in the total daily servings of fruit and vegetables during the transition from early to middle adolescence and from middle to late adolescence. They also reported a mean decrease in total daily servings of fruit and vegetables among middle adolescent boys and girls in the period from 1999-2004 (90).

Because of the well documented health benefits of a diet high in fruit and vegetables (1;3;90), the low intake and the longitudinal decrease in consumption of fruit and vegetables found in this and other studies are rather apprehensive.

Chocolate/sweets and chips

In our study, there was a mean decrease in intake of chocolate/sweets and chips in the period from age 15 to age 18 in both genders. The majority of both the boys and the girls showed a stable weekly (1-6 t/week) consumption of chocolate/sweets and chips. Only about 5 % of both the boys and the girls had a stable daily consumption of chocolate/sweets (≥ 1 t/day), while less than 2 % of the adolescents showed a stable daily consumption of chips. More girls than boys increased their intake of chocolate/sweets in the period, while there were small gender differences in the proportion that increased their intake of chips.

Similar results have been reported in a longitudinal study by Lien et al, who showed that 1 % of the Norwegian boys and 2 % of the Norwegian girls had a stable daily consumption of chocolate/sweets in the period from age 14 to age 21 (43). The Norwegian Directorate of Health also showed a decrease in the Norwegians consumption of sweet snacks (45). In spite of this, the Directorate of Health reports a higher sugar intake in the Norwegian population than the recommended 10 % of total energy intake (45). This might be related to soda with added sugar as a more important source of sugar compared to sweets among adolescents (43;45;91;92). A study by Guthrie et al showed that adolescents aged 12 to 17 consumed 20 % of their total energy from added sugar (91). Most of the adolescents in our study reported an intake of chocolate/sweets corresponding to 1-6 t/week both at age 15 and age 18. Since there seem to exist an association between a diet high in sugar and increased risk of consuming excess energy and thereby become overweight or obese (1;3), it seems necessary to promote efforts that contribute to reduced sugar consumption also in late adolescence.

Dietary behaviors at age 18 by parents` educational level and marital status

In this study we found significant differences between girls of Norwegian/Western origin with parents of different marital status and between girls of Non-Western origin with parents of different marital status on dietary behaviors at age 18 when controlling for dietary behaviors at age 15. Girls of Norwegian/Western origin with married

parents/common law partners were found to have significant more frequent intake of fruit/berries, boiled vegetables and chocolate/sweets compared to the Norwegian/Western girls with parents of unmarried/other marital status. Girls of Non-Western ethnicity with parents of unmarried/other marital status showed significant higher intake of soda with added sugar compared to those with married parents/common law partners.

Differences in dietary behaviors based on indicators of family circumstances are also reported in other studies (93;94). A study by Pearson et al examined cross-sectional and longitudinal relationship between indicators of family circumstances and consumption of snacks and fruit and vegetables among adolescents at year 7 and 9 in secondary schools in Australia (94). The study showed that adolescent boys from dual-parent families were less likely to be low-vegetable consumers, and that girl of dual-parent families were less likely to increase their snacks and vegetables consumption with age compared to those of single-parent families (94). A Swedish study investigated the relationship between mothers' marital status and their children's food consumption (93). Girls with single mothers were found to consume significant more soft drinks compared to girls with married/cohabiting mothers. No significant difference was found among the boys (93). In Norway, a study of Wandel among others investigated the relationship between household structure and consumption of fruit and vegetables (95). Households with two or more members were found to consume significantly more fruit and vegetables compared to persons living alone (95).

Our study failed to find any relationship between parents 'educational level and dietary behaviors. This is in contrast to many other studies that show a positive association between parents' educational level and consumption of fruit and vegetables and a negative association between parents' educational level and intake of sweetened beverages (49;50;52;53).

5.2.2 BMI at age 15 and age 18

In this study there was a mean decrease in the age- and gender adjusted BMI both among girls and among boys in the period from age 15 to age 18. On the other hand, there was a slightly and non significant increase in the proportion of adolescents of both genders with an age- and gender adjusted BMI $\geq 85^{th}$ percentile at age 18 compared to age 15. In addition, BMI at age 18 was more spread out.

Results also showed greater stability in age- and gender adjusted BMI among those adolescents with a BMI $< 85^{th}$ percentile in the period from age 15 to age 18. More than 90 % of both the boys and the girls had a BMI $< 85^{th}$ percentile both at age 15 and age 18. On the other hand, approximately 50 % of the adolescents of both genders that were overweight (BMI $\geq 85^{th}$ percentile) at age 15, had a BMI $< 85^{th}$ percentile at age 18. This group of adolescents therefore showed more variations in weight in the period from age 15 to age 18.

BMI at age 18 by parents' educational level and marital status

In this study there was no significant differences in BMI z-score at age 18 neither in boys of Norwegian/Western origin with parents of different educational level and marital status, or in boys of Non-Western ethnicity with parents of different educational level and marital status. On the other hand, girls of Non-Western ethnicity with parents of unmarried/other marital status showed a significant higher BMI z-score at age 18 compared to the Non-Western girls with married parents/common law partners.

Gender, socioeconomic and ethnic differences in the prevalence of obesity is well documented (23-26;28). To our knowledge, there are few studies on the relationship between parents' marital status and adolescents' weight status. However, the Swedish study by Elfhag et al supports findings in our study (93). Girls with single mothers were found to have a significant higher BMI and a higher proportion of child overweight and obesity compared to married/cohabiting mothers (93). A smaller and non-significant difference in BMI and child overweight/obesity was found among the

boys (93). A study by Gray et al, investigated the relationship between children's weight status and family characteristics (96). They found low household income to be an important predictor of overweight, but parents' marital status and race added no further explanatory power to the model (96).

Many studies show an inverse association between risk of overweight and parents' educational level (23-27). Adolescents with parents of higher educational level show less risk of being overweight compared to adolescents with parents of lower educational level. Our study failed to find any association between adolescents` BMI and parents' educational level.

5.2.3 Dietary behaviors at age 15 and BMI at age 18

In this study we only found a relationship between dietary behaviors at age 15 and BMI at age 18 in girls of Norwegian/Western origin. Results showed a significant inverse association between intake of boiled vegetables at age 15 and BMI at age 18, and a significant inverse association between consumption of chocolate/sweets at age 15 and BMI at age 18.

The significant inverse relationship between intake of chocolate/sweets at age 15 and BMI at age 18 may be a result of underestimation of intake of these food items, especially among the overweight Norwegian/Western girls. Studies have shown greater variation in dietary intake among girls compared to boys (97). This might be because girls are more likely to be concerned about body image and therefore are more aware of healthy eating and/or they are on a diet (97). Because chocolate/sweets often is considered as unhealthy food items and linked to weight gain/overweight, the overweight Norwegian/Western girls in our study might have underestimated their intake of these food items. In addition, our data are based on self-reported frequency of intake and we therefore know nothing about quantities of intake.

An inverse relationship between intake of sweets and overweight has also been reported in a study by Andersen et al (76). In this nationwide survey of fourth and eight grade Norwegian schoolchildren, those in the highest quartile of sweet intake

(candy and chocolate) were found to have 50 % lower odds of being overweight compared to those in the lowest quartile of sweet intake (76). Like our study, data on intake was self-reported. Such finding was also reported in 91 % of the 34 countries included in the WHO Health Behavior in School-aged children 2001-2002 cross-sectional study (98). On the other hand, a longitudinal 21-year follow-up study of Finnish children and adolescents from adolescence to adulthood did not find any clear association between consumption of sweets and sugar-sweetened soft drinks in childhood and adolescence and BMI in adulthood (99). No association was found between changes in consumption of sweets and BMI in adulthood or between overweight in adulthood and consumption of sweets in childhood or the change in consumption from childhood to adulthood (99). A recent published study by Gibson et al on trends in sugar intakes and BMI between 1983 and 1997 among children in Great Britain also failed to find any causal relationship between sugar-intake and obesity (100).

6 Conclusion and implications

The results showed a significant reduction in the mean frequency of intake of most of the studied food and beverage items in the period from age 15 to age 18. The found reduction in the mean consumption of fruit/berries and vegetables, support the need for further research to investigate determinants and potential intervention strategies that could enhance consumption of these healthy food items also in late adolescence.

The boys had a stable mean frequency of intake of both soda with added sugar and juice corresponding to more than 1 glass per day in the age period covered. Future research on consumption of these sugar-rich beverages should therefore focus on boys, and seek to identify factors that could reduce their consumption in this late adolescence.

Significant mean decreases in the age- and gender adjusted BMI were found for both genders in the period from age 15 to age 18. On the other hand, there was a slightly and non-significant increase in the proportion of overweight or obese (BMI $\geq 85^{th}$ percentile) adolescents at age 18 compared to age 15. There was a strong degree of stability in the group of adolescents with a BMI $< 85^{th}$ percentile both at age 15 and at age 18. On the other hand, the overweight adolescents showed more variations in weight in the period from age 15 to age 18. Future researcher should therefore have a special focus on overweight adolescents, and seek to identify factors that contribute to these weight variations in late adolescence.

The results also indicated that parents' marital status was of significant importance for girls' intake of fruit/berries, boiled vegetables, soda with added sugar and chocolate/sweets. Among the girls of Non-western ethnicity, there was also a significant higher BMI at age 18 among girls with parents of unmarried/other marital status compared to girls with married parents/common law partners. No such association was found among the boys. This relationship between parents' marital status and adolescent girls' dietary behaviors and BMI is interesting and should be further investigated to find potential mechanisms explaining these relationships. This

might be especially important since family situations and household structure are more varied than in the past; something that could influence the needs for different intervention strategies.

Reference List

(1) WHO. Diet, nutrition and the prevention of chronic diseases: report of a joint WHO/FAO expert consultation. 2003.

(2) WHO. Global Database on Body Mass Index. WHO 2010Available from: URL: http://www.who.int/nutrition/databases/en/index.html

(3) WHO/Europe. The challenge of obesity in the WHO European Region and the strategies for response. WHO 2007Available from: URL: http://www.euro.who.int/InformationSources/Publications/Catalogue/20070914_1

(4) Flegal KM, Carroll MD, Ogden CL, Curtin LR. Prevalence and trends in obesity among US adults, 1999-2008. JAMA 2010 Jan 20;303(3):235-41.

(5) Ogden CL, Carroll MD, Curtin LR, Lamb MM, Flegal KM. Prevalence of high body mass index in US children and adolescents, 2007-2008. JAMA 2010 Jan 20;303(3):242-9.

(6) Juliusson PB, Roelants M, Eide GE, Hauspie R, Waaler PE, Bjerknes R. Overweight and obesity in Norwegian children: secular trends in weight-for-height and skinfolds. Acta Paediatr 2007 Sep;96(9):1333-7.

(7) Lobstein T, Frelut ML. Prevalence of overweight among children in Europe. Obes Rev 2003 Nov;4(4):195-200.

(8) Reilly JJ, Methven E, McDowell ZC, Hacking B, Alexander D, Stewart L, et al. Health consequences of obesity. Arch Dis Child 2003 Sep;88(9):748-52.

(9) KMI 15-åringer: Gjennomsnitt og andel med overvekt og fedme, 2005-06. Helsedirektoratet/Norgeshelsa 2010

(10) Strand BH, Kuh D, Shah I, Guralnik J, Hardy R. Childhood, adolescent and early adult body mass index in relation to adult mortality: results from the British 1946 birth cohort. J Epidemiol Community Health 2010 Oct 1;1-8.

(11) Deshmukh-Taskar P, Nicklas T A, Morales M, Yang S-J et al. Tracking of overweight status from childhood to young adulthood: the Bogalusa Heart Study. Eur J Clin Nutr 2010;60:48-5.

(12) Gordon-Larsen P, Adair LS, Nelson MC, Popkin BM. Five-year obesity incidence in the transition period between adolescence and adulthood: the National Longitudinal Study of Adolescent Health. Am J Clin Nutr 2004 Sep;80(3):569-75.

(13) Gordon-Larsen P, The NS, Adair LS. Longitudinal Trends in Obesity in the United States From Adolescence to the Third Decade of Life. Obesity (Silver Spring) 2009 Dec 24.

(14) Kvaavik E, Tell GS, Klepp KI. Predictors and tracking of body mass index from adolescence into adulthood: follow-up of 18 to 20 years in the Oslo Youth Study. Arch Pediatr Adolesc Med 2003 Dec;157(12):1212-8.

(15) Maffeis C, Tato L. Long-term effects of childhood obesity on morbidity and mortality. Horm Res 2001;55 Suppl 1:42-5.

(16) Reilly JJ. Descriptive epidemiology and health consequences of childhood obesity. Best Pract Res Clin Endocrinol Metab 2005 Sep;19(3):327-41.

(17) Singh AS, Mulder C, Twisk JW, van MW, Chinapaw MJ. Tracking of childhood overweight into adulthood: a systematic review of the literature. Obes Rev 2008 Sep;9(5):474-88.

(18) Gordon-Larsen P, The NS, Adair LS. Longitudinal trends in obesity in the United States from adolescence to the third decade of life. Obesity (Silver Spring) 2010 Sep;18(9):1801-4.

(19) Whitaker RC, Wright JA, Pepe MS, Seidel KD, Dietz WH. Predicting obesity in young adulthood from childhood and parental obesity. N Engl J Med 1997 Sep 25;337(13):869-73.

(20) Peeters A, Barendregt JJ, Willekens F, Mackenbach JP, Al MA, Bonneux L. Obesity in adulthood and its consequences for life expectancy: a life-table analysis. Ann Intern Med 2003 Jan 7;138(1):24-32.

(21) Gortmaker SL, Must A, Perrin JM, Sobol AM, Dietz WH. Social and economic consequences of overweight in adolescence and young adulthood. N Engl J Med 1993 Sep 30;329(14):1008-12.

(22) Sargent JD, Blanchflower DG. Obesity and stature in adolescence and earnings in young adulthood. Analysis of a British birth cohort. Arch Pediatr Adolesc Med 1994 Jul;148(7):681-7.

(23) Groholt EK, Stigum H, Nordhagen R. Overweight and obesity among adolescents in Norway: cultural and socio-economic differences. J Public Health (Oxf) 2008 Sep;30(3):258-65.

(24) Kimm SY, Barton BA, Obarzanek E, McMahon RP, Kronsberg SS, Waclawiw MA, et al. Obesity development during adolescence in a biracial cohort: the NHLBI Growth and Health Study. Pediatrics 2002 Nov;110(5):e54.

(25) Neumark-Sztainer D, Story M, Hannan PJ, Croll J. Overweight status and eating patterns among adolescents: where do youths stand in comparison with

the healthy people 2010 objectives? Am J Public Health 2002 May;92(5):844-51.

(26) Sherwood NE, Wall M, Neumark-Sztainer D, Story M. Effect of socioeconomic status on weight change patterns in adolescents. Prev Chronic Dis 2009;6(1):A19.

(27) Lien N, Kumar BN, Lien L. [Overweight among adolescents in Oslo]. Tidsskr Nor Laegeforen 2007 Sep 6;127(17):2254-8.

(28) Kumar BN, Holmboe-Ottesen G, Lien N, Wandel M. Ethnic differences in body mass index and associated factors of adolescents from minorities in Oslo, Norway: a cross-sectional study. Public Health Nutr 2004 Dec;7(8):999-1008.

(29) Lien N, Henriksen HB, Nymoen LL, Wind M, Klepp KI. Availability of data assessing the prevalence and trends of overweight and obesity among European adolescents. Public Health Nutr 2010 Oct;13(10A):1680-7.

(30) CDC. Obesity by race ethnicity 2006- 2008. Center for Disease Control and Prevention 2010Available from: URL: http://www.cdc.gov/obesity/data/trends.html#Race

(31) de Wilde JA, van DP, Middelkoop BJ, Verkerk PH. Trends in overweight and obesity prevalence in Dutch, Turkish, Moroccan and Surinamese South Asian children in the Netherlands. Arch Dis Child 2009 Oct;94(10):795-800.

(32) Wareham NJ, van Sluijs EM, Ekelund U. Physical activity and obesity prevention: a review of the current evidence. Proc Nutr Soc 2005 May;64(2):229-47.

(33) Newby PK, Muller D, Hallfrisch J, Qiao N, Andres R, Tucker KL. Dietary patterns and changes in body mass index and waist circumference in adults. Am J Clin Nutr 2003 Jun;77(6):1417-25.

(34) Ritchie LD, Spector P, Stevens MJ, Schmidt MM, Schreiber GB, Striegel-Moore RH, et al. Dietary patterns in adolescence are related to adiposity in young adulthood in black and white females. J Nutr 2007 Feb;137(2):399-406.

(35) Drewnowski A, Almiron-Roig E, Marmonier C, Lluch A. Dietary energy density and body weight: is there a relationship? Nutr Rev 2004 Nov;62(11):403-13.

(36) Duffey KJ, Popkin BM. Shifts in patterns and consumption of beverages between 1965 and 2002. Obesity (Silver Spring) 2007 Nov;15(11):2739-47.

(37) Nielsen SJ, Popkin BM. Changes in beverage intake between 1977 and 2001. Am J Prev Med 2004 Oct;27(3):205-10.

(38) Forshee RA, Anderson PA, Storey ML. Sugar-sweetened beverages and body mass index in children and adolescents: a meta-analysis. Am J Clin Nutr 2008 Jun;87(6):1662-71.

(39) Malik VS, Schulze MB, Hu FB. Intake of sugar-sweetened beverages and weight gain: a systematic review. Am J Clin Nutr 2006 Aug;84(2):274-88.

(40) Gibson S. Sugar-sweetened soft drinks and obesity: a systematic review of the evidence from observational studies and interventions. Nutr Res Rev 2008 Dec;21(2):134-47.

(41) Vanselow MS, Pereira MA, Neumark-Sztainer D, Raatz SK. Adolescent beverage habits and changes in weight over time: findings from Project EAT. Am J Clin Nutr 2009 Dec;90(6):1489-95.

(42) Nelson MC, Neumark-Sztainer D, Hannan PJ, Story M. Five-year longitudinal and secular shifts in adolescent beverage intake: findings from project EAT (Eating Among Teens)-II. J Am Diet Assoc 2009 Feb;109(2):308-12.

(43) Lien N, Lytle LA, Klepp KI. Stability in consumption of fruit, vegetables, and sugary foods in a cohort from age 14 to age 21. Prev Med 2001 Sep;33(3):217-26.

(44) Kvaavik E, Andersen LF, Klepp KI. The stability of soft drinks intake from adolescence to adult age and the association between long-term consumption of soft drinks and lifestyle factors and body weight. Public Health Nutr 2005 Apr;8(2):149-57.

(45) Utviklingen i norsk kosthold 2010. Oslo: Helsedirektoratet; 2011.

(46) Newby PK. Plant foods and plant-based diets: protective against childhood obesity? Am J Clin Nutr 2009 May;89(5):1572S-87S.

(47) Ledoux TA, Hingle MD, Baranowski T. Relationship of fruit and vegetable intake with adiposity: a systematic review. Obes Rev 2010 Jul 14.

(48) te Velde SJ, Twisk JW, Brug J. Tracking of fruit and vegetable consumption from adolescence into adulthood and its longitudinal association with overweight. Br J Nutr 2007 Aug;98(2):431-8.

(49) Darmon N, Drewnowski A. Does social class predict diet quality? Am J Clin Nutr 2008 May;87(5):1107-17.

(50) Pearson N, Biddle SJ, Gorely T. Family correlates of fruit and vegetable consumption in children and adolescents: a systematic review. Public Health Nutr 2009 Feb;12(2):267-83.

(51) Xie B, Gilliland FD, Li YF, Rockett HR. Effects of ethnicity, family income, and education on dietary intake among adolescents. Prev Med 2003 Jan;36(1):30-40.

(52) van der Horst K, Oenema A, Ferreira I, Wendel-Vos W, Giskes K, van LF, et al. A systematic review of environmental correlates of obesity-related dietary behaviors in youth. Health Educ Res 2007 Apr;22(2):203-26.

(53) Riediger ND, Shooshtari S, Moghadasian MH. The influence of sociodemographic factors on patterns of fruit and vegetable consumption in Canadian adolescents. J Am Diet Assoc 2007 Sep;107(9):1511-8.

(54) Helsedirektoratets årlige rapport om arbeidet med å utjevne sosiale helseforskjeller. Oslo: Helsedirektoratet; 2009.

(55) Lien N, Jacobs DR, Jr., Klepp KI. Exploring predictors of eating behaviour among adolescents by gender and socio-economic status. Public Health Nutr 2002 Oct;5(5):671-81.

(56) Haerens L, Vereecken C, Maes L, De B, I. Relationship of physical activity and dietary habits with body mass index in the transition from childhood to adolescence: a 4-year longitudinal study. Public Health Nutr 2010 Oct;13(10A):1722-8.

(57) Sagatun A, Kolle E, Anderssen SA, Thoresen M, Sogaard AJ. Three-year follow-up of physical activity in Norwegian youth from two ethnic groups: associations with socio-demographic factors. BMC Public Health 2008;8:419.

(58) Anderssen N, Wold B, Torsheim T. Tracking of physical activity in adolescence. Res Q Exerc Sport 2005 Jun;76(2):119-29.

(59) van MW, Twisk JW, Post GB, Snel J, Kemper HC. Physical activity of young people: the Amsterdam Longitudinal Growth and Health Study. Med Sci Sports Exerc 2000 Sep;32(9):1610-6.

(60) Søgaard AJ, Eie T. Helseundersøkelsen i bydeler og regioner i Oslo (HUBRO), Ungomsdelen (UNGHUBRO). Oslo: Norsk folkehelseinstitutt; 2009.

(61) Bjertness E, Sagatun A, Green K, Lien L, Sogaard AJ, Selmer R. Response rates and selection problems, with emphasis on mental health variables and DNA sampling, in large population-based, cross-sectional and longitudinal studies of adolescents in Norway. BMC Public Health 2010;10:602.

(62) Cole TJ, Bellizzi MC, Flegal KM, Dietz WH. Establishing a standard definition for child overweight and obesity worldwide: international survey. BMJ 2000 May 6;320(7244):1240-3.

(63) About BMI for Children and Teens. Division of Nutrition, Physical activity and Obesity, National Center for Chronic Disease Prevention and Health Promotion 2011 February 15

(64) Cole TJ, Faith MS, Pietrobelli A, Heo M. What is the best measure of adiposity change in growing children: BMI, BMI %, BMI z-score or BMI centile? Eur J Clin Nutr 2005 Mar;59(3):419-25.

(65) Must A, Anderson SE. Body mass index in children and adolescents: considerations for population-based applications. Int J Obes (Lond) 2006 Apr;30(4):590-4.

(66) Tyler C, Fullerton G. The Definition and Assessment of Childhood Overweight: A Developmental Perspective. Handbook of Childhood and Adolescent Obesity. 2008. p. 63-72.

(67) de OM, Onyango AW, Borghi E, Siyam A, Nishida C, Siekmann J. Development of a WHO growth reference for school-aged children and adolescents. Bull World Health Organ 2007.

(68) WHO. Growth references 5-19 years. WHO 2010Available from: URL: http://www.who.int/growthref/who2007_bmi_for_age/en/index.html

(69) Norwegian Standard Classification of Education (NOS C 751). Oslo: Statistisk sentralbyrå; 2000.

(70) Innvandring og innvandrere 2006. Oslo: Statistisk sentralbyrå; 2008.

(71) Sagatun Å. Physical activity and mental health in adolescence- a longitudinal study in a multiethnic cohort [Dissertation]. Oslo: University of Oslo, Faculty of Medicine; 2010.

(72) Rothman KJ. Epidemiology: an introduction. Oxford: Oxford University Press; 2002.

(73) Rothman KJ. Modern epidemiology. 2008.

(74) Aschengrau A, Seage G.R. Essentials of epidemiology in Public Health. Second edition ed. 2008.

(75) Sherry B, Jefferds ME, Grummer-Strawn LM. Accuracy of adolescent self-report of height and weight in assessing overweight status: a literature review. Arch Pediatr Adolesc Med 2007 Dec;161(12):1154-61.

(76) Andersen LF, Lillegaard IT, Overby N, Lytle L, Klepp KI, Johansson L. Overweight and obesity among Norwegian schoolchildren: changes from 1993 to 2000. Scand J Public Health 2005;33(2):99-106.

(77) Ambrosini GL, de Klerk NH, O'Sullivan TA, Beilin LJ, Oddy WH. The reliability of a food frequency questionnaire for use among adolescents. Eur J Clin Nutr 2009 Oct;63(10):1251-9.

(78) Skårer C. En metodevurdering av spørsmål stilt ved 16-,18- og 19- års alder i den longitudinelle spørreundersøkelsen; "Voksen i år 2000" [dissertation]. Oslo: Universitetet i Oslo. Institutt for ernæringsforskning/Det medisinske fakultet; 2001.

(79) Andersen LF, Bere E, Kolbjornsen N, Klepp KI. Validity and reproducibility of self-reported intake of fruit and vegetable among 6th graders. Eur J Clin Nutr 2004 May;58(5):771-7.

(80) Bleich SN, Wang YC, Wang Y, Gortmaker SL. Increasing consumption of sugar-sweetened beverages among US adults: 1988-1994 to 1999-2004. Am J Clin Nutr 2009 Jan;89(1):372-81.

(81) Wang YC, Bleich SN, Gortmaker SL. Increasing caloric contribution from sugar-sweetened beverages and 100% fruit juices among US children and adolescents, 1988-2004. Pediatrics 2008 Jun;121(6):e1604-e1614.

(82) Wolff E, Dansinger ML. Soft drinks and weight gain: how strong is the link? Medscape J Med 2008;10(8):189.

(83) Libuda L, Kersting M. Soft drinks and body weight development in childhood: is there a relationship? Curr Opin Clin Nutr Metab Care 2009 Nov;12(6):596-600.

(84) Moreno LA, Rodriguez G, Fleta J, Bueno-Lozano M, Lazaro A, Bueno G. Trends of dietary habits in adolescents. Crit Rev Food Sci Nutr 2010 Feb;50(2):106-12.

(85) American Academy of Pediatrics: The use and misuse of fruit juice in pediatrics. Pediatrics 2001 May;107(5):1210-3.

(86) Faith MS, Dennison BA, Edmunds LS, Stratton HH. Fruit juice intake predicts increased adiposity gain in children from low-income families: weight status-by-environment interaction. Pediatrics 2006 Nov;118(5):2066-75.

(87) Johnson L, Mander AP, Jones LR, Emmett PM, Jebb SA. Is sugar-sweetened beverage consumption associated with increased fatness in children? Nutrition 2007 Jul;23(7-8):557-63.

(88) Skinner JD, Carruth BR. A longitudinal study of children's juice intake and growth: the juice controversy revisited. J Am Diet Assoc 2001 Apr;101(4):432-7.

(89) Tam CS, Garnett SP, Cowell CT, Campbell K, Cabrera G, Baur LA. Soft drink consumption and excess weight gain in Australian school students: results from the Nepean study. Int J Obes (Lond) 2006 Jul;30(7):1091-3.

(90) Larson NI, Neumark-Sztainer D, Hannan PJ, Story M. Trends in adolescent fruit and vegetable consumption, 1999-2004: project EAT. Am J Prev Med 2007 Feb;32(2):147-50.

(91) Guthrie JF, Morton JF. Food sources of added sweeteners in the diets of Americans. J Am Diet Assoc 2000 Jan;100(1):43-51, quiz.

(92) Lytle LA, Seifert S, Greenstein J, McGovern P. How do children's eating patterns and food choices change over time? Results from a cohort study. Am J Health Promot 2000 Mar;14(4):222-8.

(93) Elfhag K, Rasmussen F. Food consumption, eating behaviour and self-esteem among single v. married and cohabiting mothers and their 12-year-old children. Public Health Nutr 2008 Sep;11(9):934-9.

(94) Pearson N, MacFarlane A, Crawford D, Biddle SJ. Family circumstance and adolescent dietary behaviours. Appetite 2009 Jun;52(3):668-74.

(95) Wandel M. Dietary intake of fruits and vegetables in Norway: influence of life phase and socio-economic factors. Int J Food Sci Nutr 1995 Aug;46(3):291-301.

(96) Gray VB, Byrd SH, Cossman JS, Chromiak J, Cheek WK, Jackson GB. Family characteristics have limited ability to predict weight status of young children. J Am Diet Assoc 2007 Jul;107(7):1204-9.

(97) Livingstone MB, Robson PJ, Wallace JM. Issues in dietary intake assessment of children and adolescents. Br J Nutr 2004 Oct;92 Suppl 2:S213-S222.

(98) Janssen I, Katzmarzyk PT, Boyce WF, Vereecken C, Mulvihill C, Roberts C, et al. Comparison of overweight and obesity prevalence in school-aged youth from 34 countries and their relationships with physical activity and dietary patterns. Obes Rev 2005 May;6(2):123-32.

(99) Nissinen K, Mikkila V, Mannisto S, Lahti-Koski M, Rasanen L, Viikari J, et al. Sweets and sugar-sweetened soft drink intake in childhood in relation to adult BMI and overweight. The Cardiovascular Risk in Young Finns Study. Public Health Nutr 2009 Nov;12(11):2018-26.

(100) Gibson S. Trends in energy and sugar intakes and body mass index between 1983 and 1997 among children in Great Britain. J Hum Nutr Diet 2010 Aug;23(4):371-81.

Appendices

Appendix I

Information brochures

a) The youth part of The Oslo Health study

- Parents (1)
- Youth (2)

b) Youth 2004

Helseundersøkelsen i Oslo er et samarbeid mellom:

Oslo kommune
Byrådsavdeling for eldre og bydelene
Rådhuset, 0037 OSLO.
Tlf. 22 86 16 00

Universitetet i Oslo
Institutt for allmennmedisin og samfunnsmedisin
Postboks 1130 Blindern, 0317 OSLO.
Tlf. 22 85 05 50.

Statens helseundersøkelser
Postboks 8155 Dep., 0033 OSLO
Tlf. 22 24 21 00 (9-15)
e-post: post@shus.no

Du finner også informasjon om helseundersøkelsen på hjemmesidene våre
www.shus.no

Kontaktperson for ungdomsundersøkelsen:
Tove Eie
Tlf. 22 24 21 22
tove.eie@shus.no

Helse-undersøkelsen i Oslo

UNGDOM

Informasjon til foreldre/foresatte til ungdom som fyller 15/16 år i 2000

Til foreldre/foresatte til ungdom
som fyller 15/16 år i 2000

Nå skal Oslohelsa under lupen.
Hvordan står det egentlig til i hovedstaden?
Hvordan har ungdommen i Oslo det i dag?
Hvordan vurderer ungdommen sine egne problemer, vaner og situasjon?

Dette er noe av det vi håper å få svar på gjennom denne helseundersøkelsen. Data som samles inn skal bl.a. brukes til å finne ut hva som er viktig for ungdommens helse og trivsel, både i den enkelte bydel og i hele Oslo. Resultatene skal brukes til å planlegger en bedre helsetjeneste, og til å finne ut mer om årsaker til sykdom.

I tillegg til ungdomsprosjektet inviterer vi utvalgte voksne aldersgrupper til Helseundersøkelsen i Oslo, til sammen ca. 50.000 personer.

Dette er første gang vi inviterer ungdom til en slik undersøkelse!

Hvorfor bør ungdommene være med i denne helseundersøkelsen?
Hva vil vi med ungdomsundersøkelsen?

- ***finne ut hvordan helsa til ungdommene er***
- ***finne ut hvordan de trives***
- ***finne ut hva som bidrar til god helse og trivsel***
- ***bedre helsetjenesten og det forebyggende helsearbeidet for ungdom***
- ***arbeide for å finne ut mer om forskjeller mellom bydelene***
- ***finne ut hva som kjennetegner et godt oppvekstmiljø***

Hvordan foregår undersøkelsen?
Helseundersøkelsen (utfylling av to spørreskjemaer, ingen helsesjekk) foregår på skolen i skoletiden, og finner sted i løpet av våren og høsten 2000.

Hva spør vi om?
Vi spør bl.a. om sykdom og helse, kosthold, idrett, nærmiljøet og hvordan ungdommen selv synes de har det.

Må alle være med?
Undersøkelsen er frivillig. Vi håper at alle deltar. De som ikke deltar i undersøkelsen, bruker tiden til vanlig skolearbeid .

Hvordan skal resultatene brukes?
Elever som er 15 år og eldre skriver selv under på samtykke om bruk av data til planlegging og forskning. Vi ber også om muligheten til å ta ny kontakt for å gi tilbud om eventuelle nye undersøkelser senere. Spørreskjemaene inneholder ikke navn eller personnummer, men skal merkes med en kode som bare kan leses av en datamaskin. De utfylte skjemaene blir samlet inn av en person fra Statens helseundersøkelser. Dataene blir behandlet strengt fortrolig.
Etter godkjenning fra Datatilsynet kan svarene kobles mot andre helse-trygde- og sykdomsregistre og mot registre fra for eksempel folketellinger. Dataene kan lagres uten noen spesiell tidsbegrensning. Det er likevel fullt mulig når som helst å trekke seg fra undersøkelsen, og be om å bli slettet fra registeret. Dette må i så fall gjøres skriftlig.

Hvem godkjenner undersøkelsen?
Undersøkelsen er forelagt Den regionale komite for medisinsk forskningsetikk, og den er godkjent av Datatilsynet.

De som står bak undersøkelsen.
Statens helseundersøkelser har i over 50 år drevet store befolkningsundersøkelser i hele landet. Denne undersøkelsen gjennomføres i samarbeid med Oslo kommune og Universitetet i Oslo.
Skolesjefen i Oslo har anbefalt undersøkelsen.

Undersøkelsen er tilknyttet Oslos 1000-års jubileum.

Helseundersøkelsen i Oslo er et samarbeid mellom:

Oslo kommune
Byrådsavdeling for eldre og bydelene
Rådhuset, 0037 OSLO.
Tlf. 22 86 16 00

Universitet i Oslo
Institutt for allmennmedisin og samfunnsmedisin
Postboks 1130 Blindern, 0317 OSLO.
Tlf. 22 85 05 50.

Statens helseundersøkelser
Postboks 8155 Dep., 0033 OSLO
Tlf. 22 24 21 00.(9-15)
e-post: post@shus.no

Du finner også informasjon om helseundersøkelsen på hjemmesidene våre **www.shus.no**

Kontaktperson for ungdomsundersøkelsen:
tove Eie Tlf. 22 24 21 22
E-mail: tove.eie@shus.no

Ønsker du å snakke med noen etter at du har svart på spørsmålene, kan du kontakte **skolehelsetjenesten** på skolen din, eller du kan ringe til:

Barn og unges Kontakttelefon: Tlf. 80 03 33 21
Kontakttelefonen er åpen mellom kl. 14.00 og 20.00 alle ukedager, fra mandag til fredag.

Helse-undersøkelsen i Oslo

UNGDOM

Informasjon til dere som fyller 15/16 år i 2000

Hei!

Hvordan har **du** det?
Hvordan er **helsa di** for tida?
Hvordan synes **du** det er å være ungdom i Oslo?

Dette er noe av det vi håper å få svar på gjennom denne helseundersøkelsen. Opplysningene som samles inn skal bl.a. brukes til å finne ut hva som er viktig for ungdommens helse og trivsel - både i din bydel og i hele Oslo. Resultatene skal brukes til å planlegge en bedre helsetjeneste, og til å finne ut mer om årsaker til sykdom.

Nå har du sjansen til å være med å planlegge framtida!
Dere som er 15 og 16 år er de eneste ungdommene som blir spurt om å være med.

Det er første gang vi inviterer ungdom i Oslo til en helseundersøkelse!

Flere voksne aldersgrupper vil også bli invitert til Helseundersøkelsen i Oslo, til sammen ca. 50.000 personer.

Hvordan foregår undersøkelsen?

Undersøkelsen blir gjort i skoletiden, og vi ber deg svare på to spørreskjemaer. Vi spør om sykdom og helse, kosthold, idrett, nærmiljø, og hvordan du har det. Du skal ikke gjennom en helsesjekk.

Hvordan skal resultatene brukes?

Før du fyller ut skjemaene, ber vi deg skrive under en godkjenning (samtykkeerklæring). Der sier du deg enig i at vi kan bruke svarene fra spørreskjemaene til planlegging og forskning. Vi ber også om muligheten til å kontakte deg senere for å gi deg tilbud om å være med i eventuelle nye undersøkelser.
Dataene blir behandlet strengt fortrolig. Det er ikke noen spesiell tidsbegrensning for hvor lenge opplysningene kan lagres. Du kan når som helst trekke deg fra undersøkelsen. Dette må i såfall gjøres skriftlig. Opplysningene kan kobles opp mot andre registre hvis Datatilsynet gir tillatelse til det. Dette kan for eksempel være andre helse-, trygde- og sykdomsregistre, eller data fra for eksempel folketellinger. Det er ikke navn og personnummer på spørreskjemaene, men en kode som bare kan leses av en datamaskin.

Undersøkelsen er frivillig.

Undersøkelsen er frivillig. Vi håper at du vil delta. Det er veldig viktig at flest mulig er med. De som ikke ønsker å delta, vil få vanlig skolearbeid mens undersøkelsen pågår.

Hvem står bak undersøkelsen?

Vi i Statens helseundersøkelser (SHUS) samarbeider med Oslo kommune og Universitetet i Oslo. Datatilsynet har godkjent undersøkelsen. Skolesjefen i Oslo har anbefalt undersøkelsen

Du skal vite at:

- **alle som jobber med helseundersøkelsen har taushetsplikt**
- **resultatene skal brukes i planlegging og forskning og blir behandlet helt fortrolig**
- **dine foreldre/foresatte er informert om undersøkelsen**
- **det er viktig at nettopp du deltar**

KOPI AV SAMTYKKEERKLÆRING

for å delta i Helseundersøkelsen av ungdom i Oslo UNGDOM 2004

Jeg har mottatt informasjon om Helseundersøkelsen av ungdom - UNGDOM 2004, som er en del av Landsomfattende helseundersøkelse i Norge. Jeg er informert om **formålet** med undersøkelsen og at:

- opplysninger om meg blir behandlet strengt fortrolig
- undersøkelsen er godkjent av Datatilsynet og forelagt Den regionale komité for medisinsk forskningsetikk
- ingen forskere vil få tilgang til opplysninger som direkte kan tilbakeføres til meg
- børsteprøver og spørreskjema lagres nedlåst ved Nasjonalt folkehelseinstitutt
- det ikke er satt noen spesiell tidsbegrensning for hvor lenge opplysningene om meg kan lagres
- jeg på et senere tidspunkt kan be om å bli slettet fra registeret og/eller at børsteprøven destrueres uten å oppgi noen grunn, ved å sende skriftlig henvendelse til: Nasjonalt folkehelseinstitutt, Postboks 4404, Nydalen, 0403 Oslo.

Erklæringen nedenfor er avgitt innenfor rammene av informasjon jeg har mottatt om helseundersøkelsen.

ERKLÆRING

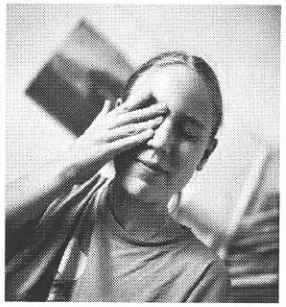
1. **Jeg vil delta i spørreskjemaundersøkelsen og samtykker til at data kan benyttes til planlegging og forskning nå og i fremtiden.**
2. **Jeg vil avgi børsteprøve og samtykker til at data kan benyttes til forskning, herunder analyser av arvemateriale og sammenheng med sykdom og helseplager nå og i fremtiden.**
3. **Jeg samtykker til at jeg på et senere tidspunkt kan bli kontaktet og få tilbud om å være med i nye undersøkelser.**
4. **Jeg samtykker til at dataene etter godkjenning fra Datatilsynet, kan kobles med opplysninger om meg i andre helseundersøkelser og registre. Dette kan for eksempel være tidligere helseundersøkelser, helse-, trygde- eller sykdomsregistre, eller data fra folketellinger.**

Jeg samtykker i punktene ovenfor.
Jeg samtykker ikke til følgende punkter:.....

Dette eksemplaret beholder du selv. Du vil motta en ny samtykkeerklæring i forbindelse med selve undersøkelsen. Denne underskrives og returneres sammen med spørreskjema/børsteprøver. Den returnerte samtykkeerklæringen vil bli oppbevart på et nedlåst sted atskilt fra spørreskjema/børsteprøver slik at forskere ikke vil ha adgang til opplysninger som kan identifisere deg som person.

Invitasjon til å delta i Helseundersøkelsen

UNGDOM 2004



Et samarbeidsprosjekt mellom:

Universitet i Oslo
Institutt for allmenn- og samfunnsmedisin
Postboks 1130 Blindern, 0317 OSLO.
Prosjektleder professor
Espen Bjertness

folkehelseinstituttet

Nasjonalt folkehelseinstitutt
Postboks 4404 Nydalen
0403 Oslo
Avd.direktør Wenche Nystad

Kontaktperson for undersøkelsen:
Åse Sagatun tlf 22 85 06 77
E-post ase.sagatun@samfunnsmed.uio.no

Hva er viktig for ungdoms helse og velvære? Hvordan kan vi unngå at ungdom blir syke?

Dette er noe av det vi håper å få svar på gjennom helseundersøkelsen UNGDOM 2004.

DU er invitert til å delta sammen med alle dine medelever som går siste året på videregående skole i Oslo. Målet er å få en bedre helsetjeneste for ungdom, og å finne ut mer om årsaker til sykdom. Derfor er nettopp DINE svar viktige.

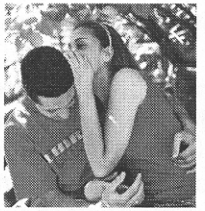
Undersøkelsen er unik i Norge, bl.a. fordi mange av dere har deltatt på en tilsvarende undersøkelse i 10. klasse. Ved å sammenligne resultatene med forrige undersøkelse, kan vi lære mye om hvordan ungdoms helse endrer seg over tid.

Undersøkelsen dreier seg om hvordan du har det, om sykdom og helse, om sosial støtte og mestring, om nærmiljøet, om idrett, lese-/skrivevansker og kosthold. Vi vil også undersøke om forhold knyttet til arvematerialet kan forklare hvorfor noen har helseproblemer mens andre ikke har det.

Som takk for at du deltar, blir du med i trekningen av tre pengepremier à kr. 15.000

Hvordan foregår undersøkelsen?
Undersøkelsen blir gjort i skoletiden, og vi ber deg svare på et spørreskjema. Vi vil også be om at du tar en børsteprøve, som fungerer omtrent som å gni en tannbørste over tannkjøttet. Børsteprøvene skal brukes til å studere arvestoffet for å se om spesielle typer arvestoff kan beskytte mot eller gi økt risiko for lærevansker eller helseproblemer som f. eks. angst, depresjon, astma, allergi og kreft.

Hvordan skal resultatene brukes?
Før du tar børsteprøven og fyller ut spørreskjemaet, ber vi deg skrive under en godkjenning (samtykkeerklæring). Der sier du deg enig i at vi kan bruke



opplysningene til planlegging og forskning. Vi ber også om muligheten til å kontakte deg senere for å gi deg tilbud om å være med i eventuelle nye undersøkelser.
Opplysningene dine blir behandlet strengt fortrolig, og de blir oppbevart og sikret i henhold til regelverk vedtatt av Stortinget. Det er ikke noen spesiell tidsbegrensning for hvor lenge børsteprøve og spørreskjema kan lagres. Du kan når som helst senere be om å bli slettet fra registeret uten å oppgi noen grunn. Dette må i så fall skje skriftlig til Nasjonalt folkehelseinstitutt.
Opplysningene kan kobles opp mot andre helseundersøkelser (f.eks. fra 10. klasse) og fra andre registre f.eks. Medisinsk fødselsregister (for å se hvordan forhold ved fødsel kan påvirke helsen senere), Kreftregisteret og Utdanningsregisteret dersom Datatilsynet gir tillatelse til det. Det er ikke navn eller fødselsnummer på spørreskjemaet og børsteprøvene, men en kode som bare kan leses av en datamaskin, slik at forskere ikke kan gjenkjenne deltakerne.

Undersøkelsen er frivillig.
Undersøkelsen er frivillig. Vi håper at du vil delta, slik at vi kan få et mest mulig riktig og nyansert bilde av ungdoms helse. Det er veldig viktig at flest mulig er med. De som ikke ønsker å delta, vil få vanlig skolearbeid mens undersøkelsen pågår.

Hvem står bak undersøkelsen?
Undersøkelsen er et samarbeid mellom Nasjonalt folkehelseinstitutt og Universitetet i Oslo. Undersøkelsen er godkjent av Datatilsynet og forelagt Regional etisk komité for medisinsk forskning. Skoleetaten i Oslo har anbefalt at alle videregående skoler i Oslo deltar i undersøkelsen.

Du skal vite at:
- **alle som jobber med helseundersøkelsen har taushetsplikt**
- **resultatene skal bare brukes i planlegging og forskning og blir behandlet helt fortrolig**
- **det er viktig at nettopp <u>du</u> deltar**

Appendix II

Informed consents

a) The youth part of the Oslo Health study

b) Youth 2004

Lim inn etikett med
navn og personnummer

SAMTYKKEERKLÆRING
for deltakelse i Helseundersøkelsen i Oslo

UNGDOM

Jeg har mottatt informasjon om ungdomsdelen av Helseundersøkelsen i Oslo. Jeg er informert om formålet med undersøkelsen. Jeg er også kjent med at opplysninger om meg blir behandlet strengt fortrolig og at undersøkelsen er godkjent av Datatilsynet. Undersøkelsen er forelagt Den regionale komité for medisinsk forskningsetikk. Jeg er videre kjent med at det ikke er satt noen spesiell tidsbegrensning for hvor lenge opplysningene om meg kan lagres. Jeg kan på et senere tidspunkt be om å bli slettet fra registeret uten å oppgi noen grunn.
Dette må i så fall sendes skriftlig til Statens helseundersøkelser.

1. **Jeg samtykker i at svarene mine kan brukes til planlegging og forskning.**
2. **Jeg samtykker i at jeg på et senere tidspunkt kan bli kontaktet og få tilbud om å være med i nye undersøkelser.**
3. **Jeg samtykker i at dataene, etter godkjenning fra Datatilsynet, kan kobles med opplysninger om meg i andre registre. Dette kan for eksempel være andre helse-, trygde- eller sykdomsregistre, eller data fra for eksempel folketellinger.**

Du kan stryke det eller de punkter som du vil reservere deg mot.

Elevens underskrift

Dato

← *Lim inn etikett nr. 2 (med navn og løpenr.) her!*

SAMTYKKEERKLÆRING

for å delta i Helseundersøkelsen av ungdom i Oslo UNGDOM 2004

Jeg har mottatt informasjon om Helseundersøkelsen av ungdom - UNGDOM 2004, som er en del av Landsomfattende helseundersøkelse i Norge.
Jeg er informert om **formålet** med undersøkelsen og at:

- opplysninger om meg blir behandlet strengt fortrolig
- undersøkelsen er godkjent av Datatilsynet og forelagt Den regionale komité for medisinsk forskningsetikk
- ingen forskere vil få tilgang til opplysninger som direkte kan tilbakeføres til meg
- børsteprøver og spørreskjema lagres nedlåst ved Nasjonalt folkehelseinstitutt
- det ikke er satt noen spesiell tidsbegrensning for hvor lenge opplysningene om meg kan lagres
- jeg på et senere tidspunkt kan be om å bli slettet fra registeret og/eller at børsteprøven destrueres uten å oppgi noen grunn, ved å sende skriftlig henvendelse til: Nasjonalt folkehelseinstitutt, Postboks 4404, Nydalen, 0403 Oslo.

Erklæringen nedenfor er avgitt innenfor rammene av informasjon jeg har mottatt om helseundersøkelsen.

ERKLÆRING

1. **Jeg vil delta i spørreskjemaundersøkelsen og samtykker til at data kan benyttes til planlegging og forskning nå og i fremtiden.**
2. **Jeg vil avgi børsteprøve og samtykker til at data kan benyttes til forskning, herunder analyser av arvemateriale og sammenheng med sykdom og helseplager nå og i fremtiden.**
3. **Jeg samtykker til at jeg på et senere tidspunkt kan bli kontaktet og få tilbud om å være med i nye undersøkelser.**
4. **Jeg samtykker til at dataene etter godkjenning fra Datatilsynet, kan kobles med opplysninger om meg i andre helseundersøkelser og registre. Dette kan for eksempel være tidligere helseundersøkelser, helse-, trygde- eller sykdomsregistre, eller data fra folketellinger.**

Jeg samtykker i punktene ovenfor.

Jeg samtykker <u>ikke</u> til følgende punkter:.....

Dette eksemplaret <u>underskrives og returneres</u> sammen med spørreskjema/ børsteprøver. Kopi av samtykkeerklæringen har du fått i informasjonsbrosjyren. Du kan også få en ekstra kopi etter undersøkelsen. Den returnerte samtykkeerklæringen vil bli oppbevart på et nedlåst sted atskilt fra spørreskjema/børsteprøver slik at forskere ikke vil ha adgang til opplysninger som kan identifisere deg som person.

_____ _____

Dato ***Underskrift***

Appendix III

Questionnaires

a) The youth part of the Oslo Health Study 2000-2001

b) Youth 2004

Etikett

U Helse-undersøkelsen i Oslo

Dato for utfylling:
Dag Måned År

U1. EGEN HELSE

1.1 Hvordan er helsen din nå? *(Sett bare ett kryss)*

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

1.2 Har du, eller har du hatt? *(Sett ett kryss for hver linje)*

	JA	NEI
Astma	☐	☐
Høysnue (pollenallergi, allergisk reaksjon, rennende nese, svie i øynene)	☐	☐
Eksem	☐	☐
Diabetes (sukkersyke)	☐	☐

1.3 Har du de siste 12 mnd hatt? *(Sett ett kryss for hver linje)*

Ørebetennelse	☐	☐
Halsbetennelse *(minst 3 ganger)*	☐	☐
Bronkitt eller lungebetennelse	☐	☐
Psykisk plage som det er søkt hjelp for	☐	☐
Alvorlig skade eller sykdom	☐	☐

Hvis du svarte «JA»; hva slags alvorlig skade eller sykdom var dette:

_____

1.4 Har du følgende funksjonshemming? *(Sett ett kryss for hver linje)*

	Nei	Ja, litt	Ja, mye
Bevegelseshemming	☐	☐	☐
Nedsatt syn	☐	☐	☐
Nedsatt hørsel	☐	☐	☐

1.5 Har du i løpet av de siste 12 mnd flere ganger vært plaget med smerter i? *(Sett ett kryss for hver linje)*

	JA	NEI
Hode (hodepine, migrene e.l.)	☐	☐
Nakke/skuldre	☐	☐
Armer/ben/knær	☐	☐
Mage	☐	☐
Rygg	☐	☐

Hvis du svarte «NEI» på alle spørsmålene under 1.5: Hopp til U2

1.6 Har disse smertene ført til at du har vært hjemme fra skolen?

Oppgi også ca. antall skoledager de siste 12 mnd: *(Sett bare ett kryss)*

Nei ☐ 1 | Ja, 1-2 dager ☐ 2 | Ja, 3-5 dager ☐ 3 | Ja, 6-10 dager ☐ 4 | Ja, mer enn 10 dager ☐ 5

1.7 Har smertene ført til redusert aktivitet i fritida? JA ☐ NEI ☐

U2. TANNHELSE

2.1 Mener du at du har bedre eller dårligere tenner enn andre ungdommer på din alder? *(Sett bare ett kryss)*

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

2.2 Bryr du deg om at du har fine tenner? *(Sett bare ett kryss)*

Ja, mye ☐ 1 | Ja, litt ☐ 2 | Nei ☐ 3

2.3 Hvor ofte pusser du tennene dine? *(Sett bare ett kryss)*

Flere ganger om dagen ☐ 1 | En gang om dagen ☐ 2 | Annenhver dag ☐ 3 | Sjeldnere enn annenhver dag ☐ 4

2.4 Har du hatt tannverk på grunn av hull? *(Sett eventuelt flere kryss)*

Ja, men før jeg begynte på skolen ☐ | Ja, etter at jeg begynte på skolen ☐ | Nei, aldri ☐ | Vet ikke ☐

U3. MOSJON OG FYSISK AKTIVITET

3.1 Utenom skoletid: Hvor mange ganger i uka driver du idrett/mosjon slik at du blir andpusten eller svett? ☐☐ *ganger pr. uke*

3.2 Omtrent hvor mange timer pr. uke bruker du på dette?

0 timer ☐ 1 | 1-2 timer ☐ 2 | 3-4 timer ☐ 3 | 5-7 timer ☐ 4 | 8-10 timer ☐ 5 | 11 timer eller mer ☐ 6

3.3 Driver du med konkurranseidrett? JA ☐ NEI ☐
(Individuelt eller på lag)

3.4 Bruker du naturen (skog og mark) til turer?

	Aldri	Ja, mindre enn 1 gang i måneden	Ja, 1 gang i måneden eller mer
Sommer:	☐ 1	☐ 2	☐ 3
Vinter:	☐ 1	☐ 2	☐ 3

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

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

3.6 Hvordan kommer du deg normalt til skolen i sommerhalvåret? *(Sett bare ett kryss)*

Med buss/tog e.l. *(offentlig transport)*	☐ 1
Med bil/moped	☐ 2
På sykkel	☐ 3
Til fots	☐ 4

3.7 Hvor lang skolevei har du?

Mindre enn 2 km ☐ 1 | 2-4 km ☐ 2 | Over 4 km ☐ 3

Ikke skriv her: 1.3 *(skade)* ☐☐ 8.1 *(utdanning - annet)* ☐☐ 9.5 *(far født)* ☐☐☐☐ *(mor født)* ☐☐☐☐

9.7 *(far - yrke)* ☐☐☐☐ 9.7 *(mor - yrke)* ☐☐☐☐ 12.5 *(prevensjon)* ☐☐ 12.6 *(p-pille merke)* ☐☐ ☐

U4. RØYKING, RUSMIDLER OG DOP

4.1 Røyker du, eller har du røykt? *(Sett bare ett kryss)*

Nei, aldri ☐ 1 | Ja, men jeg har sluttet ☐ 2 | Ja, av og til ☐ 3 | Ja, hver dag ☐ 4

Hvis du har svart «NEI, ALDRI»; hopp til pkt. 4.3

4.2 Hvor gammel var du da du begynte å røyke? ☐☐ år

4.3 Bruker du eller har du brukt snus, skrå eller lignende? *(Sett bare ett kryss)*

Nei, aldri ☐ 1 | Ja, men jeg har sluttet ☐ 2 | Ja, av og til ☐ 3 | Ja, hver dag ☐ 4

4.4 Røyker noen av de du bor sammen med? *(Sett ett eller flere kryss)*

Ja, mor ☐ | Ja, far ☐ | Ja, søsken ☐ | Ja, andre ☐ | Nei ☐

	JA	NEI
4.5 Har du noen gang drukket alkohol? *(f.eks. alkoholholdig øl, rusbrus, vin, brennevin eller hjemmebrent)*	☐	☐

Hvis du svarte «NEI»; hopp til pkt. 4.8

4.6 Har du noen gang drukket så mye alkohol at du har vært beruset (full)? *(Sett bare ett kryss)*

Nei, aldri ☐ | Ja, en gang ☐ | Ja, 2-3 ganger ☐ | Ja, 4-10 ganger ☐ | Ja, mer enn 10 ganger ☐

4.7 Omtrent hvor ofte har du i løpet av det siste året drukket alkohol? *(Sett bare ett kryss)*
(Lettøl og alkoholfritt øl regnes ikke med)

4-7 ganger i uka ☐ 1 | 2-3 ganger i uka ☐ 2 | ca. 1 gang i uka ☐ 3 | 2-3 ganger pr. måned ☐ 4

Omtrent 1 gang i måneden ☐ 5 | Noen få ganger siste år ☐ 6 | Har ikke drukket alkohol siste år ☐ 7 | Har aldri drukket alkohol ☐ 8

4.8 Har du noen gang prøvd dopingmidler? *(Sett bare ett kryss)*

Nei, aldri ☐ 1 | Ja, en gang ☐ 2 | Ja, flere ganger ☐ 3 | Ja, jeg bruker det regelmessig ☐ 4

U5. MAT, DRIKKE OG SPISEVANER

5.1 Hvor ofte spiser du vanligvis disse matvarene?
(Sett ett kryss for hver linje)

	Sjelden /aldri	1-3 g. pr.mnd	1-3 g. pr.uke	4-6 g. pr.uke	1-2 g. pr.dag	3 g. el. mer pr.dag
Frukt, bær	☐	☐	☐	☐	☐	☐
Ost *(alle typer)*	☐	☐	☐	☐	☐	☐
Poteter	☐	☐	☐	☐	☐	☐
Kokte grønnsaker	☐	☐	☐	☐	☐	☐
Rå grønnsaker/salat	☐	☐	☐	☐	☐	☐
Feit fisk *(f.eks. laks, ørret, makrell, sild)*	☐	☐	☐	☐	☐	☐
Sjokolade/smågodt	☐	☐	☐	☐	☐	☐
Chips, potetgull	☐	☐	☐	☐	☐	☐
	1	2	3	4	5	6

U5. Mat, drikke og spisevaner (fortsettelse)

5.2 Hvor mye drikker du vanligvis av følgende?
(Sett ett kryss pr. linje)
(1/2 liter = 3 glass)

	Sjelden /aldri	1-6 glass pr.uke	1 glass pr.dag	2-3 glass pr.dag	4 glass el. mer pr.dag
Helmelk, kefir, yoghurt	☐	☐	☐	☐	☐
Lettmelk, cultura, lettyoghurt	☐	☐	☐	☐	☐
Skummet melk (sur/søt)	☐	☐	☐	☐	☐
Cola/brus med sukker	☐	☐	☐	☐	☐
Cola/brus «light»	☐	☐	☐	☐	☐
Fruktjuice	☐	☐	☐	☐	☐
Saft	☐	☐	☐	☐	☐
Vann	☐	☐	☐	☐	☐
	1	2	3	4	5

5.3 Hva slags fett bruker du oftest på brødet? *(Sett bare ett kryss)*

Smør/hard margarin ☐ 1 | Myk/lett margarin ☐ 2 | Oljer ☐ 3 | Bruker ikke ☐ 4

5.4 Hvor ofte spiser du disse måltidene en vanlig uke?
(Sett ett kryss for hver linje)

	Sjelden /aldri	1-2 ganger pr.uke	3-4 ganger pr.uke	5-6 ganger pr.uke	Hver dag
Frokost	☐	☐	☐	☐	☐
Formiddagsmat/matpakke	☐	☐	☐	☐	☐
Middag	☐	☐	☐	☐	☐
	1	2	3	4	5

5.5 Hvor mye penger bruker du i uka på snop, snacks, cola/brus og gatekjøkkenmat? *(Sett bare ett kryss)*

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

5.6 Bruker du følgende kosttilskudd:

	Ja, daglig	Iblant	Nei
Tran, trankapsler, fiskeoljekapsler?	☐	☐	☐
Vitamin- og/eller mineraltilskudd?	☐	☐	☐

5.7 Har du noen gang prøvd å slanke deg? *(Sett bare ett kryss)*

Nei, aldri ☐ 1 | Ja, tidligere ☐ 2 | Ja, nå ☐ 3 | Ja, hele tiden ☐ 4

Hvis du svarte «NEI, ALDRI»; hopp til pkt. 5.9:

5.8 Hva har du gjort for å slanke deg?
(Sett ett kryss for hver linje)

	Aldri	Sjelden	Ofte	Alltid
Jeg spiser mindre	☐	☐	☐	☐
Jeg faster	☐	☐	☐	☐
Jeg trener mer	☐	☐	☐	☐
Jeg kaster opp	☐	☐	☐	☐
Jeg bruker avføringspiller eller vanndrivende midler	☐	☐	☐	☐
Jeg tar mettende eller sult-dempende piller	☐	☐	☐	☐

5.9 Hva veide du sist du veide deg? ☐☐☐ *hele kg*

5.10 Hvor høy var du sist du målte deg? ☐☐☐ *hele cm*

5.11 Hva synes du om vekta di? *(Sett bare ett kryss)*

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

5.12 Jeg bryr meg mye om vekta mi. *(Sett bare ett kryss)*

Enig ☐ | Litt enig ☐ | Ikke enig ☐

5.13 Hvilken vekt ville du vært tilfreds med nå (din «trivselsvekt»)? ☐☐☐ *hele kg*

5.14 Har du vært behandlet for spiseforstyrrelser *(Sett bare ett kryss)*

Nei ☐ | Nei, men jeg ønsker hjelp ☐ | Ja ☐

U6. PÅKJENNINGER OG MESTRING

6.1 Under finner du en liste over ulike plager. Har du opplevd noe av dette den siste uken (til og med i dag)?
(Sett ett kryss for hver linje)

	Ikke plaget	Litt plaget	Ganske mye	Veldig mye
Plutselig frykt uten grunn	☐	☐	☐	☐
Føler deg redd eller engstelig	☐	☐	☐	☐
Matthet eller svimmelhet	☐	☐	☐	☐
Føler deg anspent eller oppjaget	☐	☐	☐	☐
Lett for å klandre deg selv	☐	☐	☐	☐
Søvnproblemer	☐	☐	☐	☐
Nedtrykt, tungsindig (trist)	☐	☐	☐	☐
Følelse av å være unyttig, lite verd	☐	☐	☐	☐
Følelse av at alt er et slit	☐	☐	☐	☐
Følelse av håpløshet mht. framtida	☐	☐	☐	☐
	1	2	3	4

6.2 Under finner du noen påstander.
(Sett ett kryss for hver linje)

	Helt galt	Nokså galt	Nokså riktig	Helt riktig
Jeg klarer alltid å løse vanskelige problemer hvis jeg prøver hardt nok	☐	☐	☐	☐
Hvis noen motarbeider meg, så kan jeg finne måter og veier for å få det som jeg vil	☐	☐	☐	☐
Hvis jeg har et problem og står helt fast, så finner jeg vanligvis en vei ut	☐	☐	☐	☐
Jeg føler meg trygg på at jeg ville kunne takle uventede hendelser på en effektiv måte	☐	☐	☐	☐
Jeg beholder roen når jeg møter vanskeligheter, fordi jeg stoler på mine evner til å mestre/få til ting	☐	☐	☐	☐
	1	2	3	4

6.3 Har du i løpet av de siste 12 mnd selv opplevd noe av følgende?
(Sett ett kryss for hver linje)

	JA	NEI
Foreldre (foresatte) har blitt arbeidsløse eller uføretrygdet	☐	☐
Alvorlig sykdom eller skade hos deg selv	☐	☐
Alvorlig sykdom eller skade hos noen som står deg nær	☐	☐
Dødsfall hos noen som sto deg nær	☐	☐
Seksuelle overgrep *(f.eks. blotting, beføling, ufrivillig samleie m.m.)*	☐	☐

6.4 Har du opplevd noe av følgende?
(Sett ett kryss for hver linje)

	Nei	Ja, av og til	Ja, ofte
Stort arbeidspress på skolen	☐	☐	☐
Stort press fra andre for å lykkes/ gjøre det bra på skolen	☐	☐	☐
Store vansker med å konsentrere deg i timen	☐	☐	☐
Store vansker med å forstå læreren når hun/han underviser	☐	☐	☐

6.5 Har fagpersonell sagt at du har eller har hatt skrivevansker. *(Sett bare ett kryss)*

Ja, store	Ja, middels	Ja, lette	Nei
☐ 1	☐ 2	☐ 3	☐ 4

6.6 Har du i løpet av de siste 12 mnd. opplevd problemer med mobbing på skolen/skoleveien?
(Sett bare ett kryss)

Aldri	Av og til	Omtrent en gang i uka	Flere ganger i uka
☐ 1	☐ 2	☐ 3	☐ 4

U7. BRUK AV HELSETJENESTER

7.1 Har du de siste 12 mnd. selv brukt?:
(Sett ett kryss for hver linje)

	Ingen ganger	1-3 ganger	4 ganger eller mer
Skolehelsetjenesten	☐	☐	☐
Helsestasjon for ungdom	☐	☐	☐
Vanlig lege (Allmennpraktiserende lege)	☐	☐	☐
PP-tjenesten	☐	☐	☐
Psykolog eller psykiater *(privat eller på poliklinikk)*	☐	☐	☐
Familierådgivning	☐	☐	☐
Annen spesialist *(privat eller på poliklinikk)*	☐	☐	☐
Legevakt *(privat eller offentlig)*	☐	☐	☐
Sykehusinnleggelse	☐	☐	☐
Sosialtjenesten i kommunen	☐	☐	☐
Fysioterapeut	☐	☐	☐
Tannlege/skoletannlege	☐	☐	☐
Alternativ behandler	☐	☐	☐

U8. UTDANNING OG UTDANNINGSPLANER

8.1 Hva er den høyeste utdanning du har tenkt å ta?
(Sett bare ett kryss)

- Universitet eller høyskoleutdanning av høyere grad ☐ 1
  (F.eks. lektor, advokat, sivilingeniør, tannlege, lege, psykolog, siviløkonom)
- Universitet eller høyskoleutdanning på mellomnivå ☐ 2
  (F.eks. cand.mag., lærer, sosionom, sykepleier, politi, ingeniør, journalist)
- Videregående allmennfaglig/økonomisk administrative fag ☐ 3
- Yrkesfaglig utdanning på videregående skole ☐ 4
  (kokk, frisør, byggfag, elektrofag, helse- og sosialfag o.l.)
- Ett år på videregående skole ☐ 5
- Annet: _____ ☐ 6
- Har ikke bestemt meg ☐ 7

8.2 Hvor mye egne penger brukte du siste uke? *kr*
(Småinnkjøp pluss større gjenstander som f.eks. musikkanlegg o.l.)

	JA	NEI
8.3 Har du lønnet arbeid i løpet av skoleåret?	☐	☐

Hvis du svarte «JA»:
Hvor mange timer i uka arbeider du? *ca.* ☐☐ *hele timer*

Hvor mye tjener du i gjennomsnitt pr. måned på dette arbeidet? *kr* ☐☐☐☐☐

8.4 Hvilken karakter fikk du siste gangen i karakterboken? *(Sett bare inn hele tallkarakterer)*

Matte	Norsk skriftlig	Engelsk	Samfunnsfag
☐	☐	☐	☐

U9. OPPVEKST OG TILHØRIGHET

9.1 Hvor lenge har du bodd i Norge? ☐☐ *hele år*

9.2 Hvor lenge har du bodd der du bor nå? ☐☐ *hele år*

9.3 Har du flyttet i løpet av de siste 5 årene? *(Sett bare ett kryss)*

Nei	Ja, en gang	Ja, 2-4 ganger	Ja, 5 ganger eller flere
☐ 1	☐ 2	☐ 3	☐ 4

9.4 Mine foreldre er: *(Sett bare ett kryss)*

Gift/samboere	Ugift	Skilt/separert	En eller begge er døde	Annet
☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

9.5 Hvor er dine foreldre født?

	Norge	Annet land	Hvilket land:
Far:	☐	☐	Far: _____
Mor:	☐	☐	Mor: _____

U9. Oppvekst og tilhørighet (fortsettelse)

9.6 Jeg tror vår familie, sett i forhold til andre i Norge, har:
(Sett bare ett kryss)

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

9.7 Er far og/eller mor i arbeid nå?

	Ja, heltid	Ja, deltid	Arbeidsløs/ trygdet	Hjemme-værende	Går på skole/ studerer	Død
Far:	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
Mor:	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6

Hvis far og/eller mor er i arbeid, hvilket yrke har de?

Far: _____

Skriv kort hva han gjør på jobben:

_____

Mor: _____

Skriv kort hva hun gjør på jobben:

_____

U10. FAMILIE OG VENNER

10.1 Hvem bor du sammen med nå? *(Sett bare ett kryss)*
(Ta ikke med søsken og halvsøsken.)

Mor og far ☐ 1 | Bare mor ☐ 2 | Bare far ☐ 3 | Omtrent like mye hos mor og far ☐ 4

Mor el. far og ny samboer el. ektefelle ☐ 5 | Fosterforeldre ☐ 6 | Andre ☐ 7

10.2 Hvor mange søsken eller halvsøsken bor du sammen med? *Antall søsken* ☐☐

10.3 Hvor mange av disse er like gamle eller eldre enn deg? *Antall søsken* ☐☐

10.4 Når du tenker på familien din, vil du si at:
(Sett ett kryss for hver linje)

	Helt enig	Delvis enig	Delvis uenig	Helt uenig
Jeg føler meg knyttet til familien min	☐	☐	☐	☐
Jeg blir tatt på alvor i familien min	☐	☐	☐	☐
Familien legger vekt på mine meninger	☐	☐	☐	☐
Jeg betyr mye for familien min	☐	☐	☐	☐
Jeg kan regne med familien min når jeg trenger hjelp	☐ 1	☐ 2	☐ 3	☐ 4

10.5 Hvilket forhold har du til dine foreldre?
(Sett ett kryss for hver linje)

	Stemmer meget godt	Stemmer ganske godt	Stemmer ikke særlig godt	Stemmer ikke i det hele tatt
Foreldrene mine vet hvor jeg er og hva jeg gjør i helgene	☐	☐	☐	☐
Foreldrene mine vet hvor jeg er og hva jeg gjør på hverdagene	☐	☐	☐	☐
Foreldrene mine vet hvem jeg er sammen med i fritida	☐	☐	☐	☐
Foreldrene mine liker vennene jeg er sammen med på fritida	☐ 1	☐ 2	☐ 3	☐ 4

10.6 Når du tenker på vennene dine, vil du si at: *(Sett ett kryss for hver linje)*

	Helt enig	Delvis enig	Delvis uenig	Helt uenig
Jeg føler meg nært knyttet til vennene mine.	☐	☐	☐	☐
Vennene mine legger vekt på mine meninger.	☐	☐	☐	☐
Jeg kan bidra/være til støtte for vennene mine.	☐	☐	☐	☐
Jeg kan regne med vennene mine når jeg trenger hjelp	☐ 1	☐ 2	☐ 3	☐ 4

10.7 Hvor mange personer utenfor din nære familie står deg så nær at du kan regne med å få hjelp hvis du:

Har personlige problemer *Antall personer* ☐☐

Har praktiske problemer *(f.eks. m/ skolearbeidet)* *Antall personer* ☐☐

10.8 Har du selv vært utsatt for vold (blitt slått, sparket e.l.) de siste 12 mnd.? *(Sett bare ett kryss)*

Aldri ☐ 1 | Ja, bare av ungdom ☐ 2 | Ja, bare av voksne ☐ 3 | Ja, av både ungdom og voksne ☐ 4

U11. SEKSUELL ADFERD OG PREVENSJON

	Ja, med en partner	Ja, med flere partnere	Nei
11.1 Har du noen gang hatt samleie?	☐	☐	☐

Hvis du svarte «NEI»; hopp til U12

11.2 Alder første gang? ..... Jeg var ☐☐ år

11.3 Brukte du/dere prevensjon ved siste samleie?

Nei ☐ 1 | Ja, kondom ☐ 2 | Ja, p-pille/p-sprøyte ☐ 3 | Ja, annet ☐ 4 | Vet ikke ☐ 5

	JA	NEI	Vet ikke
11.4 Har du noen gang blitt gravid/gjort ei jente gravid?	☐	☐	☐

Hvis du svarte «JA»;

Hvor gammel var du da dette skjedde? Jeg var ☐☐ år

	JA	NEI	Vet ikke
Ble det utført abort?	☐	☐	☐

U12. BRUK AV MEDISINER M.M

12.1 Hvor ofte har du i løpet av de 4 siste ukene brukt følgende medisiner? *(Sett ett kryss for hver linje)*
Med medisiner mener vi her medisiner kjøpt på apotek.
Kosttilskudd og vitaminer regnes ikke med her.

	Aldri	Daglig	Hver uke, men ikke daglig	Sjeldnere enn hver uke	Ikke brukt siste 4 uker
Smertestillende uten resept	☐	☐	☐	☐	☐
Smertestillende på resept	☐	☐	☐	☐	☐
Allergi-medisin	☐	☐	☐	☐	☐
Astma-medisin	☐	☐	☐	☐	☐
Sovemedisin	☐	☐	☐	☐	☐
Beroligende medisin	☐	☐	☐	☐	☐
Medisin mot depresjon	☐	☐	☐	☐	☐
Annen medisin på resept	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

12.2 Skriv navnet på medisinene som du har krysset av for ovenfor, og hva grunnen var til at du tok medisinene (sykdom eller symptom):
(Kryss av for hvor lenge du har brukt medisinen)

Navn på medisinen: *(ett navn pr. linje):*	Grunn til bruk av medisinen:	Hvor lenge har du brukt medisinen? Inntil 1 år	Ett år eller mer
		☐	☐
		☐	☐
		☐	☐

Dersom det ikke er nok plass her, kan du fortsette på eget ark som du legger ved.

SPØRSMÅL TIL JENTENE

	JA	NEI
12.3 Har du fått menstruasjon («mensen»)?	☐	☐

Hvis du svarte «NEI»; hopp til 12.5

12.4 Hvor gammel var du da du fikk din første menstruasjon?

Jeg var ☐☐ år

12.5 Bruker du, eller har du brukt:
(Sett ett kryss for hver linje)

	Nå	Før, men ikke nå	Aldri
P-pille/minipille/ p-sprøyte	☐	☐	☐
Annen prevensjon	☐	☐	☐

Hvilken type prevensjon?:

_____

12.6 Til deg som bruker p-pille/minipille:
Hvilket merke bruker du nå?:

_____

IE 03000-1002-1 - 10.000 - Beyer-Hecos 03.00

Etikett

U/T

Helse-undersøkelsen i Oslo

Dato for utfylling:
Dag ☐☐ Måned ☐☐ År ☐☐☐☐

HER KOMMER FLERE SPØRSMÅL!!!

Du synes kanskje vi allerede har spurt deg om det meste - men enda er det mer vi gjerne vil vite. Dette skjemaet har blant annet spørsmål om de sterke og svake sidene dine, om skolesituasjonen, om kultur og kontakt og om idrett og aktivitet.

Vi håper du tar deg tid til å tenke gjennom det vi spør om og at du svarer det **du** mener er riktig for **deg.**

Lykke til!

U/T1. DINE STERKE OG SVAKE SIDER

1.1 Svar på grunnlag av slik du har hatt det de siste 6 månedene. *(Sett ett kryss for hver linje)*

	Stemmer ikke	Stemmer delvis	Stemmer helt
Jeg prøver å være hyggelig mot andre. Jeg bryr meg om hva de føler.	☐	☐	☐
Jeg er rastløs. Jeg kan ikke være lenge i ro	☐	☐	☐
Jeg får ofte hodepine, vondt i magen eller kvalme	☐	☐	☐
Jeg deler gjerne med andre (mat, spill, blyanter osv.)	☐	☐	☐
Jeg blir veldig sint og har et hissig temperament	☐	☐	☐
Jeg er vanligvis for meg selv. Jeg gjør som regel ting alene	☐	☐	☐
Jeg gjør vanligvis det jeg får beskjed om	☐	☐	☐
Jeg bekymrer meg mye	☐	☐	☐
Jeg er hjelpsom hvis noen er såret, oppskaket eller føler seg dårlig	☐	☐	☐
Jeg er stadig urolig, det kribler i kroppen	☐	☐	☐
Jeg har en eller flere gode venner	☐	☐	☐
Jeg slåss mye. Jeg kan presse andre til å gjøre det jeg vil	☐ 1	☐ 2	☐ 3

	Stemmer ikke	Stemmer delvis	Stemmer helt
Jeg er ofte lei meg, nedfor eller på gråten	☐	☐	☐
Jeg blir som regel likt av andre på min alder	☐	☐	☐
Jeg blir lett forstyrret. Jeg synes det er vanskelig å konsentrere meg	☐	☐	☐
Jeg blir nervøs i nye situasjoner. Jeg blir lett usikker	☐	☐	☐
Jeg er snill mot de som er yngre enn meg	☐	☐	☐
Jeg blir ofte beskyldt for å lyve eller jukse	☐	☐	☐
Andre barn eller unge erter eller plager meg	☐	☐	☐
Jeg tilbyr meg ofte å hjelpe andre (foreldre, lærere, andre barn/unge)	☐	☐	☐
Jeg tenker meg om før jeg handler (gjør noe)	☐	☐	☐
Jeg tar ting som ikke er mine, hjemme, på skolen eller andre steder	☐	☐	☐
Jeg kommer bedre overens med voksne enn de på min egen alder	☐	☐	☐
Jeg er redd for mye. Jeg blir lett skremt	☐	☐	☐
Jeg fullfører oppgaver. Jeg er god til å holde på oppmerksomheten	☐ 1	☐ 2	☐ 3

U/T2. BEKYMRINGER OG PROBLEMER

2.1 Har du i løpet av de siste 12 månedene hatt noen av disse problemene? *(Sett ett kryss for hver linje)*

	Nei, aldri	Ja, av og til	Flere ganger	Svært ofte
Krangler, eller konflikter med foreldrene dine	☐	☐	☐	☐
Bekymringer i forhold til seksualitet	☐	☐	☐	☐
Psykiske problemer hos foreldre/foresatte	☐	☐	☐	☐
Problemer i forhold til venner	☐	☐	☐	☐
Økonomiske problemer hos foreldre/foresatte	☐	☐	☐	☐
Rusproblemer hos foreldre/foresatte	☐	☐	☐	☐
Andre problemer	☐	☐	☐	☐
	1	2	3	4

U/T3. SKOLESITUASJONEN DIN

3.1 Hvordan har du det på skolen? *(Sett ett kryss for hver linje)*

	Helt enig	Delvis enig	Delvis uenig	Helt uenig
Jeg trives i klassen	☐	☐	☐	☐
Jeg har mye til felles med andre i klassen	☐	☐	☐	☐
Jeg føler meg knyttet til klassen	☐	☐	☐	☐
Klassen legger vekt på mine meninger	☐	☐	☐	☐
Lærerne legger vekt på meningene mine	☐	☐	☐	☐
Lærerne mine setter pris på meg	☐	☐	☐	☐
Lærerne hjelper meg med fagene når jeg trenger det	☐	☐	☐	☐
Lærerne hjelper meg med personlige problemer hvis jeg trenger det	☐	☐	☐	☐
	1	2	3	4

3.2 Hvor lett er det for deg å få nye venner på skolen? *(Sett ett kryss for hver linje)*

	Alltid lett	Som regel lett	Som regel vanskelig	Alltid vanskelig
Blant ungdom med norsk bakgrunn	☐	☐	☐	☐
Blant ungdom med innvandrerbakgrunn	☐	☐	☐	☐
	1	2	3	4

U/T4. FORHOLDET TIL FAMILIEN DIN

4.1 Hvor viktig er det for deg: *(Sett ett kryss for hver linje)*

	Meget viktig	Ganske viktig	Litt viktig	Ikke viktig i det hele tatt
Å tilfredsstille behovene til familien din, selv om dine egne behov er forskjellige fra deres.	☐	☐	☐	☐
Å unngå krangling med andre medlemmer av familien	☐	☐	☐	☐
Å sette familiens behov foran dine egne	☐	☐	☐	☐
Å dele tingene (eiendelene) dine med andre i familien	☐	☐	☐	☐
Å dele pengene dine med familien din	☐	☐	☐	☐
Å leve opp til forventningene fra familien din	☐	☐	☐	☐
	1	2	3	4

U/T5. KULTUR OG KONTAKT

5.1 Hvordan er det å ha kontakt med folk fra forskjellige kulturer? *(Sett ett kryss for hver linje)*

	Helt enig	Delvis enig	Delvis uenig	Helt uenig
Jeg liker meg like godt blant nordmenn som blant folk fra andre land og kulturer	☐	☐	☐	☐
Jeg foretrekker å være sammen med folk fra det landet jeg kommer fra	☐	☐	☐	☐
Jeg synes at folk fra andre land og kulturer burde tilpasse seg norske kultur-tradisjoner og ikke holde på sine egne	☐	☐	☐	☐
Jeg har like godt forhold til nordmenn som til folk fra andre land og kulturer	☐	☐	☐	☐
Siden jeg bor i Norge, er det best jeg lever helt som nordmenn	☐	☐	☐	☐
Jeg synes at folk fra andre land og kulturer skal leve som de gjør i hjemlandet sitt, selv om de bor i Norge.	☐	☐	☐	☐
Jeg synes det er vanskelig å velge om jeg skal leve som nordmenn, eller som folk fra andre land og kulturer	☐	☐	☐	☐
Det er ofte vanskelig for ungdom med norsk og innvandrer bakgrunn å være sammen på fritida, fordi vi har ulike regler vi må følge	☐	☐	☐	☐
Foreldrene mine har godt kjennskap til hva ungdommene her i Norge gjør på fritida	☐	☐	☐	☐
Jeg synes det er vanskelig å bestemme om jeg skal leve som nordmenn, eller som folk fra andre land og kulturer	☐	☐	☐	☐
	1	2	3	4

5.2 Du kan føle deg som medlem av ulike etniske eller kulturelle grupper, som pakistanere, vietnamesere, eller andre, og du kan føle at du er en del av et større samfunn som for eksempel Norge.

Hvordan ser du på deg selv? *(Sett ett kryss for hver linje)*

	Helt enig	Delvis enig	Delvis uenig	Helt uenig
Jeg ser på meg selv som norsk	☐	☐	☐	☐
Jeg ser på meg selv som pakistaner/ vietnameser/ chilener/ iraner/ annet	☐	☐	☐	☐
Jeg føler jeg er en del av kulturen til pakistanere/ vietnamesere/ chilenere/ iranere/ annet	☐	☐	☐	☐
Jeg er glad for å være norsk	☐	☐	☐	☐
Jeg er stolt av å være pakistaner/ vietnameser/ chilener/ iraner/ annet	☐	☐	☐	☐
Jeg føler at jeg er en del av den norske kulturen	☐	☐	☐	☐
Jeg er glad for å være pakistaner/ vietnameser/ chilener/ iraner/ annet	☐	☐	☐	☐
Jeg er stolt av å være norsk	☐	☐	☐	☐
	1	2	3	4

5.3 Når folk med forskjellig bakgrunn er sammen, kan noen føle seg urettferdig behandlet. Følgende utsagn handler om dette. *(Sett ett kryss for hver linje)*

	Helt enig	Delvis enig	Delvis uenig	Helt uenig
Jeg synes at andre har oppført seg urettferdig eller negativt overfor folk fra min kultur	☐	☐	☐	☐
Jeg føler meg ikke akseptert av folk fra andre kulturer	☐	☐	☐	☐
Jeg føler at folk fra andre kulturer har i mot meg	☐	☐	☐	☐
Jeg har blitt ertet og fornærmet på grunn av min kulturelle bakgrunn	☐	☐	☐	☐
Jeg har blitt truet eller angrepet på grunn av min kulturelle bakgrunn	☐	☐	☐	☐
	1	2	3	4

U/T6. KRIGSOPPLEVELSER

	JA	NEI	Vet ikke
6.1 Har noen av foreldrene dine opplevd krig og følgene av krig på nært hold?	☐	☐	☐
6.2 Har du noen gang opplevd krig og følgene av krig på nært hold?	☐	☐	

U/T7. SORG

7.1 Har du opplevd sorg, som har eller har hatt betydning for din helse? *(Sett bare ett kryss)*

Ja, en gang før	Ja, flere ganger før	Ja, har nå	Nei
☐ 1	☐ 2	☐ 3	☐ 4

7.2 Hvilke helseplager fikk du i så fall av hendelsen?
(den siste, hvis du har opplevd flere)

Mest kroppslige	Mest følelsesmessige	Begge omtrent like mye
☐ 1	☐ 2	☐ 3

7.3 Omtrent hvor lenge varte/ har helseplagene vart?
(den siste, hvis du har opplevd flere)

☐☐ uker eller ☐☐ måneder eller ☐☐ år

7.4 Hvis du har opplevd slik sorg, var den en følge av?
(den siste, hvis du har opplevd flere)
(Sett ett kryss for hver linje)

Dødsfall av:	JA	NEI
Foreldre	☐	☐
Besteforeldre	☐	☐
Søsken	☐	☐
Annen nær slektning	☐	☐
Venn	☐	☐
Andre	☐	☐
Alvorlig sykdom:	☐	☐
Kjærlighetssorg:	☐	☐
Annet:	☐	☐

Hvis «JA» på annet, spesifiser:

_____

7.5 Har du fått profesjonell hjelp etter hendelsen? *(den siste, hvis du har opplevd flere)* ..... JA ☐ NEI ☐

Hvis «JA»;
Kryss av for hvem som har gitt denne hjelpen:
(Sett ett kryss for hver linje)

Allmennpraktiker	☐	☐
Psykiater	☐	☐
Psykolog	☐	☐
Lærer	☐	☐
Annen rådgiver	☐	☐
Prest	☐	☐
Sorggruppe	☐	☐
Annet	☐	☐

Hvis «JA» på annet, spesifiser:

_____

7.6 Fikk du medisiner på resept som en del av behandlingen? *(siste gang, hvis du har opplevd flere sorger)* JA ☐ NEI ☐

U/T8. TANNHELSE

8.1 Dersom du skulle til tannlegen i morgen, hva ville du da føle?
(Med tannlege menes også skoletannlege)
(Sett kryss ved det alternativet som passer best)

Jeg ville se frem til det som en ganske hyggelig opplevelse	☐ 1
Ville ikke føle noe, det ville være det samme for meg	☐ 2
Det ville gjøre meg litt urolig	☐ 3
Jeg ville bli redd for at det skulle bli ubehagelig og vondt	☐ 4
Jeg ville bli svært redd med tanke på hva tannlegen skulle gjøre	☐ 5

8.2 Når du venter på tannlegens venteværelse, eller venter på å bli hentet til tannlegen, hvordan føler du deg da?
(Sett kryss ved det alternativet som passer best)

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

8.3 Når du sitter i tannlegestolen og venter på at tannlegen skal begynne behandlingen, hvordan føler du deg da?
(Sett kryss ved det alternativet som passer best)

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

8.4 Tenk deg at du sitter i tannlegestolen og skal få tennene renset og pusset. Mens du sitter og venter på at tannlegen skal finne instrumentene som brukes til å pusse og skrape med, hvordan føler du deg da?
(Sett kryss ved det alternativet som passer best)

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

8.5 Hvor redd er du for å få utført tannbehandlingen, alle forhold tatt i betraktning?
(Sett kryss ved det alternativet som passer best)

Ikke i det hele tatt	☐ 1
Litt	☐ 2
Noe	☐ 3
Mye	☐ 4
Veldig mye	☐ 5

U/T9. FOREBYGGING AV SKADE

9.1 Når du er passasjer i bil, bruker du bilbelte når du sitter? *(Sett ett kryss for hver linje)*

	Aldri	Sjelden	Ofte	Alltid
Foran:	☐	☐	☐	☐
Bak:	☐	☐	☐	☐
	1	2	3	4

9.2 Hvis du har stått slalåm / utfor i løpet av de siste 12 måneder, har du da fått kontrollert bindingene i forhold til din vekt? *(Sett bare ett kryss)*

Ja ☐ 1 Nei ☐ 2 Har ikke stått på ski ☐ 3

9.3 Brukte du legg-/knebeskytter ved dine aktiviteter i løpet av de siste 12 måneder? *(Sett ett kryss for hver linje)*

	Aldri	Sjelden	Ofte	Alltid	Ikke aktuelt
Rulleskøyter/ rullebrett	☐	☐	☐	☐	☐
Håndball	☐	☐	☐	☐	☐
Fotball	☐	☐	☐	☐	☐
Annen ballsport	☐	☐	☐	☐	☐
Slalåm/ utfor	☐	☐	☐	☐	☐
Snøbrett	☐	☐	☐	☐	☐
Ishockey	☐	☐	☐	☐	☐
Annen aktivitet	☐	☐	☐	☐	☐
	1	2	3	4	5

Hvis "Annen aktivitet" - hvilken:

_____

9.4 Brukte du håndledd-/ albuebeskytter ved dine aktiviteter i løpet av de siste 12 måneder? *(Sett ett kryss for hver linje)*

	Aldri	Sjelden	Ofte	Alltid	Ikke aktuelt
Sykkel	☐	☐	☐	☐	☐
Rulleskøyter/ rullebrett	☐	☐	☐	☐	☐
Håndball	☐	☐	☐	☐	☐
Annen ballsport	☐	☐	☐	☐	☐
Snøbrett	☐	☐	☐	☐	☐
Ishockey	☐	☐	☐	☐	☐
Annen aktivitet	☐	☐	☐	☐	☐
	1	2	3	4	5

Hvis "Annen aktivitet" - hvilken:

_____

9.5 Brukte du hjelm ved dine aktiviteter i løpet av de siste 12 måneder? *(Sett ett kryss for hver linje)*

	Aldri	Sjelden	Ofte	Alltid	Ikke aktuelt
Sykkel	☐	☐	☐	☐	☐
Rulleskøyter/ rullebrett	☐	☐	☐	☐	☐
Slalåm-/ utfor	☐	☐	☐	☐	☐
Snøbrett	☐	☐	☐	☐	☐
Ishockey	☐	☐	☐	☐	☐
Ridning	☐	☐	☐	☐	☐
Annen aktivitet	☐	☐	☐	☐	☐
	1	2	3	4	5

Hvis "Annen aktivitet" - hvilken:

_____

U/T10. FYSISK AKTIVITET

10.1 Hvor ofte har du drevet med følgende aktiviteter i løpet av de siste 12 måneder?

Vinter er fra oktober til mars. Sommer er fra april til september.

(Sett ett kryss for hver linje)

		Aldri	1-5 ganger i sesongen	1-3 ganger i mnd.	1 gang i uka	Flere ganger i uka
Sykling	vinter	☐	☐	☐	☐	☐
	sommer	☐	☐	☐	☐	☐
Rulleskøyter/ rullebrett	vinter	☐	☐	☐	☐	☐
	sommer	☐	☐	☐	☐	☐
Håndball	vinter	☐	☐	☐	☐	☐
	sommer	☐	☐	☐	☐	☐
Fotball	vinter	☐	☐	☐	☐	☐
	sommer	☐	☐	☐	☐	☐
Annen ballsport	vinter	☐	☐	☐	☐	☐
	sommer	☐	☐	☐	☐	☐
Ishockey	vinter	☐	☐	☐	☐	☐
	sommer	☐	☐	☐	☐	☐
Ridning	vinter	☐	☐	☐	☐	☐
	sommer	☐	☐	☐	☐	☐
Turn	vinter	☐	☐	☐	☐	☐
	sommer	☐	☐	☐	☐	☐
Kampsport	vinter	☐	☐	☐	☐	☐
	sommer	☐	☐	☐	☐	☐
Friidrett	vinter	☐	☐	☐	☐	☐
	sommer	☐	☐	☐	☐	☐
Svømming i basseng	vinter	☐	☐	☐	☐	☐
	sommer	☐	☐	☐	☐	☐
Slalåm/ utfor	vinter	☐	☐	☐	☐	☐
Snøbrett	vinter	☐	☐	☐	☐	☐
Telemark	vinter	☐	☐	☐	☐	☐
Langrenn	vinter	☐	☐	☐	☐	☐
Annen aktivitet	vinter	☐	☐	☐	☐	☐
	sommer	☐	☐	☐	☐	☐
		1	2	3	4	5

Hvis "Annen aktivitet" - hvilken:

_____

Ikke skriv her:

7.4 *(Annen sorg)* 7.5 *(Annen hjelp)*

9.3 9.4

9.5 10.1

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9. KOSTHOLD OG SLANKING

9.1 Hvor mye drikker du vanligvis av følgende? *(1/2 liter = 3 glass)*
(Sett ett kryss for hver linje)

	Sjelden/ aldri	1-6 gl. pr. uke	1 gl. pr. dag	2-3 gl. pr. dag	4 gl. el. mer pr. dag
Cola/brus med sukker	☐	☐	☐	☐	☐
Cola/brus «light»	☐	☐	☐	☐	☐
Fruktjuice	☐	☐	☐	☐	☐
	1	2	3	4	5

9.2 Hvor ofte spiser du vanligvis disse matvarene?
(Sett ett kryss for hver linje)

	Sjelden/ aldri	1-3 g. pr. mnd	1-3 g. pr. uke	4-6 g. pr. uke	1-2 g. pr. dag	3 g. el. mer pr. dag
Frukt, bær	☐	☐	☐	☐	☐	☐
Kokte grønnsaker	☐	☐	☐	☐	☐	☐
Rå grønnsaker/salat	☐	☐	☐	☐	☐	☐
Feit fisk *(f.eks. laks, makrell, sild, ørret)*	☐	☐	☐	☐	☐	☐
Sjokolade/smågodt	☐	☐	☐	☐	☐	☐
Chips, potetgull	☐	☐	☐	☐	☐	☐
	1	2	3	4	5	6

9.3 Bruker du følgende kosttilskudd?
(Sett ett kryss for hver linje)

	Ja, daglig	Iblant	Nei
Tran, trankapsler, fiskeoljekapsler	☐	☐	☐
Vitamin-og/eller mineraltilskudd	☐	☐	☐

9.4 Har du noen gang prøvd å slanke deg? *(Sett bare ett kryss)*
Nei, aldri ☐ 1 Ja, tidligere ☐ 2 Ja, nå ☐ 3 Ja, hele tiden ☐ 4

9.5 Har du noen gang vært til behandling for spiseforstyrrelser?
Nei ☐ Nei, men jeg burde vært ☐ Ja ☐

9.6 Er det viktig for hva slags syn du har på deg selv at du er slank?
Ja, svært viktig ☐ Ja, nokså viktig ☐ Nei, ikke særlig viktig ☐

9.7 Har det i løpet av de siste 6 mnd. hendt at:

Du selv syntes at du var for tykk?
Ja, en god del ☐ Ja, litt ☐ Nei ☐

Du var redd for å legge på deg eller bli for tykk?
Ja, veldig ☐ Nokså ☐ Ikke særlig ☐ Nei ☐

Andre sa du var for tynn, mens du selv syntes at du var for tykk?
Ja, ofte ☐ Noen få ganger ☐ Nei ☐

Du følte at du mistet kontrollen mens du spiste og klarte ikke å stoppe før du hadde spist for mye?
Ja, minst to ganger i uka ☐ 1-4 ganger i måneden ☐ Sjelden eller aldri ☐

9.8 Har du gjort noe av følgende for å kontrollere vekten de siste 12 mnd.
(Sett ett kryss for hver linje)

	Minst 2 ganger i uka	1-4 ganger i mnd.	Sjelden	Aldri
Jeg spiser mindre	☐	☐	☐	☐
Jeg faster	☐	☐	☐	☐
Jeg driver hard fysisk trening	☐	☐	☐	☐
Jeg kaster opp	☐	☐	☐	☐
Jeg bruker avføringspiller eller vanndrivende midler	☐	☐	☐	☐
Jeg tar mettende/sult-dempende piller	☐	☐	☐	☐
	1	2	3	4

Spørsmål 9.9 gjelder *bare jentene.* Gutter, hopp til pkt. 10.1.

9.9 Har du i løpet av de to siste årene slanket deg eller trent så mye at mensen har forsvunnet i 3 måneder eller mer? Ja ☐ Nei ☐ Ikke fått mensen ☐

10. SEKSUELL ADFERD OG PREVENSJON

10.1 Har du noen gang hatt samleie
Ja, med en partner ☐ Ja, med flere partnere ☐ Nei ☐

Hvis «NEI» på pkt. 10.1, hopp til pkt. 11.1

10.2 Alder første gang? *Jeg var* ☐☐ *år*

10.3 Brukte du/dere prevensjon ved siste samleie?

Nei	Kondom	P-pille/ sprøyte/ring	Nødprevensjon/ angrepillen	Annet	Vet ikke
☐	☐	☐	☐	☐	☐

10.4 Har du noen gang blitt gravid/gjort ei jente gravid?
Ja ☐ Nei ☐ Vet ikke ☐

Hvis «NEI» hopp til pkt. 11.1

10.5 Hvor gammel var du da dette (sist) skjedde?
Jeg var ☐☐ år

10.6 Ble det utført abort?
Ja ☐ Nei ☐ Vet ikke ☐

11. BRUK AV MEDISINER

11.1 Hvor ofte har du i løpet av de siste 4 ukene brukt følgende medisiner? *(Sett ett kryss for hver linje)*
Med medisiner mener vi her medisiner kjøpt på apotek. Kosttilskudd og vitaminer regnes ikke med her.

	Aldri	Daglig	Hver uke, men ikke daglig	Sjeldnere enn hver uke	Ikke brukt siste måned
Smertestillende uten resept	☐	☐	☐	☐	☐
Smertestillende på resept	☐	☐	☐	☐	☐
Allergi-medisin	☐	☐	☐	☐	☐
Astma-medisin	☐	☐	☐	☐	☐
Sovemedisin	☐	☐	☐	☐	☐
Beroligende medisin	☐	☐	☐	☐	☐
Medisin mot depresjon	☐	☐	☐	☐	☐
Annen medisin på resept	☐	☐	☐	☐	☐
	1	2	3	4	5

11.2 Skriv navnet på medisinene som du har krysset av for ovenfor, og hva grunnen var til at du tok medisinene (sykdom eller symptom):
(Kryss av for hvor lenge du har brukt medisinen)

Navn på medisinen: (ett navn pr. linje)	Grunn til bruk av medisinen	Hvor lenge har du brukt medisinen? Inntil 1 år	Ett år eller mer
		☐	☐
		☐	☐
		☐	☐

Dersom det ikke er nok plass her, kan du fortsette på eget ark som du legger ved.

12. BRUK AV HELSETJENESTER

12.1 Har du i løpet av de siste 12 mnd. selv brukt?
(Sett ett kryss for hver linje)

	Ingen ganger	1-3 ganger	4 ganger eller mer
Skolehelsetjenesten	☐	☐	☐
Helsestasjon for ungdom	☐	☐	☐
Vanlig lege (Allmennpraktiserende lege)	☐	☐	☐
PP-tjenesten	☐	☐	☐
Psykolog eller psykiater (privat eller på poliklinikk)	☐	☐	☐
Psykiatrisk ungdomsteam	☐	☐	☐
Annen spesialist (privat eller på poliklinikk)	☐	☐	☐
Legevakt (privat eller offentlig)	☐	☐	☐
Sykehusinnleggelse	☐	☐	☐
Sosialtjenesten i kommunen	☐	☐	☐
Fysioterapeut	☐	☐	☐
Alternativ behandler	☐	☐	☐

13. HUD

13.1 Har du den siste uken hatt? **13.2 Hvis «JA», når startet hudplagen?**

	Nei	Ja, litt	Ja, endel	Ja, mye	Siste 12 mnd.	Mer enn 12 mnd. siden
Kviser	☐	☐	☐	☐	☐	☐
Tørr hud	☐	☐	☐	☐	☐	☐
Kløende hud	☐	☐	☐	☐	☐	☐
Utslett	☐	☐	☐	☐	☐	☐
Andre hudplager	☐	☐	☐	☐	☐	☐
	1	2	3	4	1	2

13.3 Hvor på kroppen har du hudplager?
Ansikt ☐ Hodebunn ☐ Hender/håndledd ☐ Andre steder ☐

IN-5193-2087-1; 20.000 Bording 01.04

Ungdomshelse i Oslo, Oppland, Hedmark og Tromsø by

Dato for utfylling:
Dag ☐☐ Måned ☐☐ År ☐☐☐☐

1. EGEN HELSE

1.1 Hvordan er helsen din nå? *(Sett bare ett kryss)*
Dårlig ☐ 1 Ikke helt god ☐ 2 God ☐ 3 Svært god ☐ 4

1.2 Har du, eller har du hatt?

	Ja, nå	Ja, før	Nei
Astma	☐	☐	☐
Høysnue *(pollenallergi, allergisk reaksjon, rennende nese, svie i øynene)*	☐	☐	☐
Eksem	☐	☐	☐
Diabetes (sukkersyke)	☐	☐	☐
Dysleksi	☐	☐	☐

1.3 Har du de siste 12 mnd hatt?
(Sett ett kryss for hver linje)

	Ja	Nei
Halsbetennelse (minst 3 ganger)	☐	☐
Bronkitt eller lungebetennelse	☐	☐
Psykisk plage som det er søkt hjelp for	☐	☐

1.4 Har du i løpet av de siste 12 mnd flere ganger vært plaget med smerter i? *(Sett ett kryss for hver linje)*

	Ja	Nei
Hode *(hodepine, migrene e.l.)*	☐	☐
Nakke/skuldre	☐	☐
Armer/ben/knær	☐	☐
Mage	☐	☐
Rygg	☐	☐

Hvis du har svart «NEI» på alle spørsmålene under 1.4: Hopp til pkt. 1.6

1.5 Har disse smertene ført til at du har vært hjemme fra skolen/studiene/jobben i løpet av de siste 12 mnd?
(Sett bare ett kryss)
Nei ☐ 1 Ja, 1-2 dager ☐ 2 Ja, 3-5 dager ☐ 3 Ja 6-10 dager ☐ 4 Ja, mer enn 10 dager ☐ 5

1.6 Hva veide du sist du veide deg? *Hele kilo* ☐☐☐

1.7 Hvor høy var du sist du målte deg? *Hele cm* ☐☐☐

2. MOSJON OG FYSISK AKTIVITET

2.1 Utenom skoletid (studie-, arbeidstid): Hvor mange ganger i uka driver du idrett/mosjon slik at du blir andpusten eller svett? ☐☐ *ganger pr uke*

2.2 Omtrent hvor mange timer pr. uke bruker du på dette?

0 timer	1-2 timer	3-4 timer	5-7 timer	8-10 timer	11 timer eller mer
☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6

2.3 Hvor slitsom er denne idretts-/mosjonsaktiviteten?
(Sett bare ett kryss)

Driver ikke idrett/mosjon	Litt anstrengende	Ganske anstrengende	Meget anstrengende	Svært anstrengende
☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

2.4 Hvor ofte har du drevet med følgende treningsaktiviteter i løpet av de siste 12 mnd. i snitt? *(Sett ett kryss for hver aktivitetsgruppe)*

	Aldri	Under 1 gang pr uke	1 gang pr uke	Flere ganger pr uke
Utholdenhetsidrett *(f.eks. løp, sykling, langrenn, svømming)*	☐	☐	☐	☐
Lag-/ballidretter *(f.eks. squash håndball, fotball, ishockey)*	☐	☐	☐	☐
Estetisk idrett *(f.eks. dans, turn, aerobics)*	☐	☐	☐	☐
Styrkeidrett *(f.eks. bryting, vekttrening)*	☐	☐	☐	☐
Kampsport *(f.eks. judo, karate, taekwondo)*	☐	☐	☐	☐
Tekniske idretter *(f.eks. ridning, alpint, telemark, friidrett, snowboard, golf, rullebrett/skøyter)*	☐	☐	☐	☐
Risikoidrett *(f.eks. elvepadling, fjellklatring, paragliding)*	☐	☐	☐	☐
Annet: *Kryss av*	☐	☐	☐	☐

og skriv aktivitet her: _____

Hvis du ikke driver med idrett/mosjon slik at du blir andpusten eller svett (utenom skoletid), gå direkte til pkt. 2.6

2.5 Hvor viktig er ulike årsaker til at du trener?
(Sett ett kryss for hvert utsagn)

	Svært viktig	Ganske viktig	Ikke viktig
Synes det er gøy	☐	☐	☐
Tenker klarere	☐	☐	☐
Er sammen med venner når jeg trener	☐	☐	☐
Liker å konkurrere	☐	☐	☐
Det er sunt	☐	☐	☐
Får større muskler	☐	☐	☐
Viser fremgang	☐	☐	☐
Slanker meg	☐	☐	☐
Andre synes jeg bør	☐	☐	☐

2.6 Har du sluttet med noen organisert idrettsaktivitet etter 10. klasse? Ja ☐ Nei ☐

Hvis «JA»: hvor viktig er disse årsaker til at du har sluttet:

	Svært viktig	Ganske viktig	Ikke viktig
Vennene mine sluttet	☐	☐	☐
Det tok for mye tid	☐	☐	☐
Jeg synes ikke jeg var flink nok	☐	☐	☐
Lyst til å gjøre andre ting	☐	☐	☐
Likte ikke miljøet/treneren	☐	☐	☐
Lang reisevei	☐	☐	☐
Begynte med annen aktivitet	☐	☐	☐
Det ble for dyrt	☐	☐	☐
Måtte jobbe med skolen	☐	☐	☐

2.7 Driver du eller har du drevet med konkurranseidrett?
(Sett bare ett kryss)
Ja, nå ☐ Ja, før ☐ Nei, aldri ☐

2.8 Har du noen gang prøvd dopingmidler? *(Sett bare ett kryss)*
Nei, aldri ☐ 1 Ja, en gang ☐ 2 Ja, flere ganger ☐ 3 Ja, jeg bruker det regelmessig ☐ 4

2.9 Utenom skole/arbeidstid: Hvor mange timer pr. ukedag *(mandag til fredag)* **sitter du i gjennomsnitt foran TV, video og/eller PC (spill og internett)?** *(Sett bare ett kryss)*

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

3. PÅKJENNINGER, MESTRING OG SOSIAL STØTTE

3.1 Under finner du en liste over ulike plager. Har du opplevd noe av dette den siste uken *(til og med i dag)*?
(Sett ett kryss for hver linje)

	Ikke plaget	Litt plaget	Ganske mye	Veldig mye
Plutselig frykt uten grunn	☐	☐	☐	☐
Føler deg redd eller engstelig	☐	☐	☐	☐
Matthet eller svimmelhet	☐	☐	☐	☐
Føler deg anspent eller oppjaget	☐	☐	☐	☐
Lett for å klandre deg selv	☐	☐	☐	☐
Søvnproblemer	☐	☐	☐	☐
Nedtrykt, tungsindig (trist)	☐	☐	☐	☐
Følelse av å være unyttig, lite verd	☐	☐	☐	☐
Følelse av at alt er et slit	☐	☐	☐	☐
Følelse av håpløshet mht. fremtiden	☐	☐	☐	☐
Følelse av ensomhet	☐	☐	☐	☐
Tanker om å gjøre slutt på livet ditt	☐	☐	☐	☐
	1	2	3	4

3.2 Under finner du noen påstander.
(Sett ett kryss for hver linje)

	Helt galt	Nokså galt	Nokså riktig	Helt riktig
Jeg klarer alltid å løse vanskelige problemer hvis jeg prøver hardt nok	☐	☐	☐	☐
Hvis noen motarbeider meg, så kan jeg finne måter og veier for å få det som jeg vil	☐	☐	☐	☐
Hvis jeg har et problem og står helt fast, så finner jeg vanligvis en vei ut	☐	☐	☐	☐
Jeg føler meg trygg på at jeg ville kunne takle uventede hendelser på en effektiv måte	☐	☐	☐	☐
Jeg beholder roen når jeg møter vanskeligheter fordi jeg stoler på mine evner til å mestre/få til ting	☐	☐	☐	☐
	1	2	3	4

3.3 Har du etter 10. klasse opplevd noe av følgende?

	Nei	Ja	Hvis «JA», opplevd siste 12 mnd?
Foreldre (foresatt) har blitt arbeidsløse eller uføretrygdet	☐	☐	☐
Alvorlig sykdom eller skade hos deg selv	☐	☐	☐
Alvorlig sykdom eller skade hos noen som står deg nær	☐	☐	☐
Dødsfall hos noen som sto deg nær	☐	☐	☐
Vært utsatt for seksuelle overgrep	☐	☐	☐
Selv blitt mobbet	☐	☐	☐
Opplevd vold i hjemmet	☐	☐	☐
Selv vært utsatt for vold fra ungdom	☐	☐	☐
Selv vært utsatt for vold fra voksne	☐	☐	☐

3.4 Når du tenker på familie og venner, vil du si at:
(Sett ett kryss for hver linje)

	Helt enig	Delvis enig	Delvis uenig	Helt uenig
Jeg føler meg knyttet til familien min	☐	☐	☐	☐
Familien legger vekt på mine meninger	☐	☐	☐	☐
Jeg betyr mye for familien min	☐	☐	☐	☐
Jeg kan regne med familien min når jeg trenger hjelp	☐	☐	☐	☐
Jeg føler meg nært knyttet til vennene mine	☐	☐	☐	☐
Vennene mine legger vekt på mine meninger	☐	☐	☐	☐
Jeg kan bidra/være til støtte for vennene mine	☐	☐	☐	☐
Jeg kan regne med vennene mine når jeg trenger hjelp	☐	☐	☐	☐
	1	2	3	4

3.5 Har du etter 10. klasse opplevd noe av følgende? *(Sett ett kryss for hver linje)*

	Nei	Ja, av og til	Ja, ofte
Stort arbeidspress på skolen	☐	☐	☐
Stort press fra andre for å lykkes/ gjøre det bra på skolen	☐	☐	☐
Store vansker med å forstå læreren når hun/han underviser	☐	☐	☐

3.6 Har du, eller har du hatt kjæreste? Nei, aldri ☐ Ja, nå ☐ Ja, før ☐

Hvis du ikke går på skole, hopp til pkt. 4.1

3.7 Hvordan har du det på skolen?
(Sett ett kryss for hver linje)

	Helt enig	Delvis enig	Delvis uenig	Helt uenig
Jeg trives i klassen	☐	☐	☐	☐
Jeg har mye til felles med andre i klassen	☐	☐	☐	☐
Jeg føler meg knyttet til klassen	☐	☐	☐	☐
Lærerne mine setter pris på meg	☐	☐	☐	☐
Lærerne hjelper meg med fagene når jeg trenger det	☐	☐	☐	☐
Lærerne hjelper meg med personlige problemer hvis jeg trenger det	☐	☐	☐	☐
	1	2	3	4

4. UTDANNING OG UTDANNINGSPLANER

4.1 Går du på skole/studerer eller jobber du? *(Sett bare ett kryss)*

- Videregående skole: allmenne-, økon.-adm. fag/idrettsfag/ musikk, dans og drama ☐ 1
- Videregående skole: yrkesfag med allmenn påbyggingskurs ☐ 2
- Videregående skole: yrkesfag ☐ 3
- Høyskole/universitet ☐ 4
- Folkehøyskole ☐ 5
- Jobber *(som hovedbeskjeftigelse)* ☐ 6
- Arbeidsledig ☐ 7
- Annet: *skriv her:* _____ ☐ 8

4.2 Hva er den høyeste utdanning du har tenkt å ta?
(Sett bare ett kryss)

- Universitet eller høyskoleutdanning av høyere grad *(F.eks. master, lektor, advokat, sivilingeniør, lege)* ☐ 1
- Universitet eller høyskoleutdanning av lavere grad *(F.eks. bachelor, lærer, politi, sykepleier, ingeniør, journalist)* ☐ 2
- Videregående skole: allmenne-, økon.-adm. fag/idrettsfag/ musikk, dans og drama ☐ 3
- Videregående skole: yrkesfag ☐ 4
- Annet: *skriv her:* _____ ☐ 5
- Har ikke bestemt meg ☐ 6

5. LESING OG SKRIVING

5.1 Har fagpersonell sagt at du har eller har hatt lese-/skrivevansker? *(Sett bare ett kryss)*
Ja, store ☐ 1 Ja, middels ☐ 2 Ja, lette ☐ 3 Nei ☐ 4

5.2 Hvor god er du til å lese nå? *(Sett bare ett kryss)*
Veldig god ☐ 1 God ☐ 2 Mindre god ☐ 3 Dårlig ☐ 4

5.3 Hvor godt liker du å lese? *(Sett bare ett kryss)*
Veldig godt ☐ 1 Godt ☐ 2 Mindre godt ☐ 3 Dårlig ☐ 4

5.4 Synes du det er vanskelig å lese underteksten på utenlandske filmer? *(Sett bare ett kryss)*
Ja, ofte ☐ 1 Ja, av og til ☐ 2 Sjelden ☐ 3 Aldri ☐ 4

5.5 Har du opplevd pinlige situasjoner fordi du ikke har lest riktig eller raskt nok? *(Sett bare ett kryss)*
Ja, ofte ☐ 1 Ja, av og til ☐ 2 Sjelden ☐ 3 Aldri ☐ 4

5.6 Har du vanligvis lett for å bytte om på bokstaver eller ord når du skriver? *(Sett bare ett kryss)*
Ja, ofte ☐ 1 Ja, av og til ☐ 2 Sjelden ☐ 3 Aldri ☐ 4

5.7 Synes du rettskrivning er vanskeligere enn andre ting på skolen? Ja ☐ Nei ☐

5.8 Hvilken karakter fikk du sist i norsk skriftlig? (termin-/standpunktkarakter) ☐

6. STERKE OG SVAKE SIDER

6.1 Hva slags oppfatning har du av deg selv? *(Sett ett kryss for hver linje)*

	Svært enig	Enig	Uenig	Svært uenig
Jeg har en positiv holdning til meg selv	☐	☐	☐	☐
Jeg føler meg virkelig ubrukelig til tider	☐	☐	☐	☐
Jeg føler at jeg ikke har mye å være stolt av	☐	☐	☐	☐
Jeg føler at jeg er en verdifull person, i hvert fall på lik linje med andre	☐	☐	☐	☐
Jeg er fornøyd med kroppen min	☐	☐	☐	☐
	1	2	3	4

6.2 Svar på grunnlag av slik du har hatt det de siste 6 månedene.
(Sett ett kryss for hver linje)

	Stemmer ikke	Stemmer delvis	Stemmer helt
Jeg prøver å være hyggelig mot andre. Jeg bryr meg om hva de føler	☐	☐	☐
Jeg er rastløs. Jeg kan ikke være lenge i ro	☐	☐	☐
Jeg har ofte hodepine, vondt i magen eller kvalme	☐	☐	☐
Jeg deler gjerne med andre *(mat, spill, andre ting)*	☐	☐	☐
Jeg blir ofte sint og har kort lunte	☐	☐	☐
Jeg er ofte for meg selv. Jeg gjør som regel ting alene	☐	☐	☐
Jeg gjør som regel det jeg får beskjed om	☐	☐	☐
Jeg bekymrer meg mye	☐	☐	☐
Jeg stiller opp hvis noen er såret, lei seg eller føler seg dårlig	☐	☐	☐
Jeg er stadig urolig eller i bevegelse	☐	☐	☐
Jeg har en eller flere gode venner	☐	☐	☐
Jeg slåss mye. Jeg kan få andre til å gjøre det jeg vil	☐	☐	☐
Jeg er ofte lei meg, nedfor eller på gråten	☐	☐	☐
Jeg blir som regel likt av andre på min alder	☐	☐	☐
Jeg blir lett distrahert, jeg synes det er vanskelig å konsentrere meg	☐	☐	☐
Jeg blir nervøs i nye situasjoner. Jeg blir lett usikker	☐	☐	☐
Jeg er snill mot de som er yngre enn meg	☐	☐	☐
Jeg blir ofte beskyldt for å lyve eller jukse	☐	☐	☐
Andre unge plager eller mobber meg	☐	☐	☐
Jeg tilbyr meg ofte å hjelpe andre *(foreldre, lærere, barn, andre unge)*	☐	☐	☐
Jeg tenker meg om før jeg handler *(gjør noe)*	☐	☐	☐
Jeg tar ting som ikke er mine hjemme, på skolen eller andre steder	☐	☐	☐
Jeg kommer bedre overens med voksne enn de på min egen alder	☐	☐	☐
Jeg er redd for mye, jeg blir lett skremt	☐	☐	☐
Jeg fullfører oppgaver. Jeg er god til å konsentrere meg	☐	☐	☐

6.3 Samlet, synes du at du har vansker på en eller flere av følgende områder: med følelser, konsentrasjon, oppførsel eller med å komme overens med andre mennesker?
Nei ☐ 1 Ja, små vansker ☐ 2 Ja, betydelige vansker ☐ 3 Ja, alvorlige vansker ☐ 4

Hvis du har svart «NEI», gå direkte til pkt. 7.1

6.4 Hvor lenge har disse vanskene vært tilstede?
Mindre enn en måned ☐ 1 1-5 måneder ☐ 2 6-12 måneder ☐ 3 Mer enn ett år ☐ 4

6.5 Forstyrrer eller plager vanskene deg?
Ikke i det hele tatt ☐ 1 Bare litt ☐ 2 En god del ☐ 3 Mye ☐ 4

6.6 Virker vanskene inn på livet ditt på noen av disse områdene?

	Ikke i det hele tatt	Bare litt	En god del	Mye
Hjemme/i familien	☐	☐	☐	☐
Forhold til venner	☐	☐	☐	☐
Fungering på skole, i jobb	☐	☐	☐	☐
Fritidsaktiviteter	☐	☐	☐	☐
	1	2	3	4

6.7 Er vanskene en belastning for de rundt deg?
(familie, venner, lærere osv.)
Ikke i det hele tatt ☐ 1 Bare litt ☐ 2 En god del ☐ 3 Mye ☐ 4

7. OPPVEKST OG TILHØRIGHET

7.1 Jeg tror vår familie, sett i forhold til andre i Norge, har:
(Sett bare ett kryss)
Dårlig råd ☐ Middels råd ☐ God råd ☐ Svært god råd ☐

7.2 Er far og/eller mor i arbeid nå?

	Ja, heltid	Ja, deltid	Arbeidsløs/ trygdet	Hjemme-værende	Går på skole/ studerer	Død
Far:	☐	☐	☐	☐	☐	☐
Mor:	☐	☐	☐	☐	☐	☐

7.3 Mine foreldre er: *(Sett bare ett kryss)*
Gift/ samboere ☐ 1 Ugift ☐ 2 Skilt/ separert ☐ 3 En eller begge er døde ☐ 4 Annet ☐ 5

7.4 Hvem bor du sammen med nå? *(Sett bare ett kryss)*
(Ta ikke med søsken og halvsøsken)
Mor og far ☐ Bare mor ☐ Bare far ☐ Omtrent like mye hos mor og far ☐ Mor/far og ny samb./ektefelle ☐
Foster-foreldre ☐ Bokol-lektiv ☐ Alene på hybel/leil. ☐ Sammen med kjæreste ☐ Andre ☐

8. ADFERD

8.1 Har du gjort eller vært med på noe av dette de siste 12 mnd.?
(Sett ett kryss for hver linje)

	Aldri	1-5 ganger	6-10 ganger	Mer enn 10 ganger
Stjålet penger eller ting fra noen i familien din	☐	☐	☐	☐
Lurt deg fra å betale på kino, buss, tog e.l.	☐	☐	☐	☐
Slått eller truet med å slå noen	☐	☐	☐	☐
Skulket skole/jobb	☐	☐	☐	☐
Sniffet	☐	☐	☐	☐
Bannet til lærer/overordnet på jobb	☐	☐	☐	☐
Bare til deg som går på skolen: Blitt innkalt til rektor for noe galt du har gjort	☐	☐	☐	☐
Bare til deg som bor hos en eller begge foreldre: Vært hjemmefra en hel natt uten at foreldrene visste hvor du var, eller du sa at du var et annet sted enn du var i virkeligheten	☐	☐	☐	☐

8.2 Røyker du, eller har du røykt? *(Sett bare ett kryss)*
Nei, aldri ☐ 1 Ja, men jeg har sluttet ☐ 2 Ja, av og til ☐ 3 Ja, hver dag ☐ 4

8.3 Bruker du eller har du brukt snus, skrå e.l.? *(Sett bare ett kryss)*
Nei, aldri ☐ 1 Ja, men jeg har sluttet ☐ 2 Ja, av og til ☐ 3 Ja, hver dag ☐ 4

Hvis du har svart **«NEI, ALDRI»** på pkt. 8.2 **og** 8.3: hopp til pkt. 8.5

8.4 Hvor gammel var du da du begynte å:
Røyke? ☐☐ år Snuse? ☐☐ år

8.5 Omtrent hvor ofte har du i løpet av det siste året drukket alkohol?
(Sett bare ett kryss) (Lettøl og alkoholfritt øl regnes ikke med)
2-7 ganger i uka ☐ 1 ganger i uka ☐ 1-3 ganger i måneden ☐ Noen få ganger i året ☐ Aldri ☐

8.6 Har du noen gang drukket så mye alkohol at du har vært beruset (full)? *(Sett bare ett kryss)*
Nei, aldri ☐ 1-4 ganger ☐ 5-10 ganger ☐ 11-25 ganger ☐ 26-50 ganger ☐ Over 50 ganger ☐