

**ADOLESCENTS' HEALTH BEHAVIOUR AND
FUTURE ORIENTATION**

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ABSTRACT

The present study investigated the associations between adolescents' health behaviour and future orientation; also self-identity's relationship with health behaviour was examined. In addition, the research examined whether parents' socio-economic status is related to adolescents' health behaviour, future orientation and self identity. A total of 707 9th graders completed questionnaires measuring goal contents (Little, 1983: Personal Projects Inventory; PPA; Salmela-Aro, 1997, 2001), health behaviour (Rimpelä, 2003: Questionnaire for School Health) and self identity (Nurmi, 2004b). The results showed that alcohol use was most clearly associated with adolescents' future orientation. Those adolescents who used alcohol were more likely to mention goals relating to family, peers, property and self, and less likely to mention goals relating to free time. Those adolescents who smoked were more likely to mention goals relating to peers and self, and less likely to mention goals relating to free time. Those adolescents who used drugs were less likely to mention goals relating to studying and health. Those adolescents who exercised were more likely to mention goals relating to work, health, peers and free time. Adolescents' goals usually relate to future occupation and education (Nurmi, 1991, 1992), but while behaviour was health damaging, adolescents were less likely to mention such goals. No association between parents' socio-economic status and adolescents' health behaviour or self identity was found. Fathers' socio-economic status was associated with goals relating to health in girls, and mothers' socio-economic status was associated with goals relating to free time in boys.

Keywords: Adolescence; health behaviour; problem behaviour; future orientation; goals; values; self-identity

TIIVISTELMÄ

Tämän tutkimuksen tarkoituksena oli tutkia nuorten terveystapojen ja tulevaisuuteen suuntautumisen yhteyksiä, sekä minä-identiteetin yhteyttä terveystapojen käyttämiseen. Lisäksi tutkimuksessa tarkasteltiin, onko vanhempien sosio-ekonomisella taustalla yhteydessä nuorten terveystapojen käyttämiseen ja tulevaisuuteen suuntautumiseen. Tutkimushenkilöinä oli 707 yhdeksäsluokkalaista nuorta, jotka vastasivat kyselyyn koskien tavoitesisältöjä (Little, 1983: Personal Projects Inventory; PPA; Salmela-Aro, 1997, 2001), terveystapojen käyttämistä (Rimpelä, 2003: Nuorten terveystapatutkimus) ja minä-identiteettiä (Nurmi, 2004b). Tulokset osoittivat, että alkoholin käytöllä oli merkittävin yhteys nuorten tulevaisuuteen suuntautumiseen. Alkoholia käyttävät nuoret mainitsivat todennäköistä enemmän perheeseen, ihmissuhteisiin, materiaan ja itseen liittyviä tavoitteita, ja todennäköistä vähemmän vapaa-aikaan liittyviä tavoitteita. Tupakoivat nuoret mainitsivat todennäköistä enemmän ihmissuhteisiin ja itseen liittyviä tavoitteita, ja todennäköistä vähemmän vapaa-aikaan liittyviä tavoitteita. Huumeita käyttäneet nuoret mainitsivat todennäköistä vähemmän opiskeluun ja terveyteen liittyviä tavoitteita. Liikunnalliset nuoret mainitsivat todennäköistä enemmän työhön, terveyteen, ihmissuhteisiin ja vapaa-aikaan liittyviä tavoitteita. Tavallisesti nuorten tavoitteet liittyvät koulutukseen ja tulevaisuuden ammattiin (Nurmi, 1991, 1992), mutta kun käyttäytyminen oli terveyttä vaarantavaa, nuoret mainitsivat tällaisia tavoitteita todennäköistä vähemmän. Vanhempien sosio-ekonomisen taustan ei havaittu olevan merkittävästi yhteydessä nuorten terveystapojen käyttämiseen tai minä-identiteettiin. Isän sosioekonominen tausta oli yhteydessä tyttöjen terveyteen liittyviin tavoitteisiin ja äidin sosioekonominen tausta oli yhteydessä poikien vapaa-aikaan liittyviin tavoitteisiin.

Avainsanat: Nuoruus; terveystapojen käyttäytyminen; ongelma-käyttäytyminen; tulevaisuuteen suuntautuminen; tavoitteet; arvot; minä-identiteetti

1. INTRODUCTION

There are a lot of studies on adolescents' health behaviour and future orientation, but their connection has been examined mostly in the area of education (Koivusilta, Rimpelä, Rimpelä & Vikat, 2001; Koivusilta, Rimpelä & Vikat, 2003; Samdal, Nutbeam, Wold & Kannas, 1998). The relationships between health behaviour and personal variables, such as self-esteem and value of health, have been examined as well (Rivas Torres & Fernández, 1995). Future orientation, however, does not focus only to education and occupation. It entails much more. The purpose of this research is to examine the relationship between adolescents' future-orientation and health behaviours.

According to Koivusilta et al. (1998) lifestyle profiles differ already at the age of 16. In search of identity adolescents try different behaviours, but at some point behaviour changes into a stable pattern of individuals' lifestyle. Young people also increasingly begin to practice adult habits, such as alcohol use or smoking.

Adolescence is also the time when significant decisions concerning life are made (Stattin & Kerr, 2001). Thinking about the future and oneself in the future has a bigger role in adolescence than in the other developmental periods of life (Tremplala & Malmberg, 2002). Long-term goals and expectations are in relation to individual's lifestyle (Nurmi, 2004a). There are many young people whose lifestyle includes health-damaging behaviours, such as smoking and drinking. Therefore, it is important to understand how adolescents' health behaviour is connected to their future orientation.

1.1 Health and health behaviour

Health is connected to the persons' lifestyle and values (Pulkkinen, 1993). According to Pulkkinen (1990) people differ in the adoption of healthy lifestyles, even when living in very similar circumstances. Nupponen (1993) defined health behaviour as conscious activity aimed to improve own or others' health. Health-related behaviour

affects one's health, even if the person has not intended it. Glendinning, Hendry and Schucksmith (1995) defined unhealthy behaviour as smoking, alcohol use and positive attitudes to drugs. By contrast, exercise is a variable enhancing health.

Health behavioural problems often start during adolescence. They may continue also in later adulthood, for example as an alcohol abuse. Problematic alcohol and drug use in adolescence can be linked to criminality in adulthood (Kandel, Simcha-Fagan, & Davies, 1986; Stacy & Newcomb, 1995), and to a higher probability of alcohol and drug dependence (White, Bates & Labowie, 1998).

Adolescence is an important period for later health-related behaviours. Donovan, Jessor and Costa (1991) described adolescents' health-related behaviours as either maintaining or damaging persons' mental, physical or social health. Health maintaining behaviour is usually supported by the society's conventional culture. It correlates positively with conventional behaviour: the healthier the behaviour is the more support a person gets from society (Donovan et al., 1991).

On the other hand, health-endangering behaviour is associated with problem behaviour, which has been shown to correlate negatively with healthy lifestyle (Jessor & Jessor, 1977; Pulkkinen 1993). Substance use is related to health problems (Pulkkinen 1990; White, Hansell & Vali, 1993). Problem behaviour has also been defined from a social perspective: conventional society has official and unofficial norms and values, such as laws and regulations, as well as attitudes towards unwanted behaviour. Society aspires to control, if one does not follow these norms (Donovan et al., 1991). Individual and contextual factors influence the formation of either conventional behaviour or unconventional problem behaviour (Jessor & Jessor, 1977; Pulkkinen, 1993).

Smoking is seen as characteristic of health-damaging behaviour (Glendinning et al., 1995). In many studies (Donovan et al., 1991; Koivusilta et al., 2003; Pulkkinen, 1986) smoking is seen as a sign of a broader lifestyle and attitude. Devaluing education is characteristic of this kind of lifestyle (Koivusilta et al., 2003). According to Koivusilta et al. (2003) the attitude is more rebellious and against conventional society. According to Health Behaviour in School-aged Children survey's (HBSC) international data, Finnish adolescents smoke more frequently than young people in other countries (Kannas, 2004). However, Rimpelä, Lintonen, Pere, Rainio and Rimpelä (2003) and Kannas (2004) argued that the growing use of

cigarette products and intoxicating substances has stopped in the beginning of the 21st century and began to drop among adolescents.

Adolescents' alcohol use is usually heavy. According to Baer (1993) and Hein & Edin (2004) young peoples' goal is to get intoxicated. Other studies have shown that increased drunkenness was related to earlier biological maturation and increased disposable allowance among 14-year-old Finns (Lintonen, Rimpelä & Vikat, 2000). Girls use alcohol more often than boys (Kannas, 2004). In Finland, about a half of 16-year-old adolescents used alcohol monthly in 2003 (Kannas, 2004). However, the number of 12-to 16- years-old Finnish boys and 12-to 14- years-old girls who do not use alcohol at all has increased during the 21st century (Kannas, 2004). Rahkonen, Ahlström and Karvonen (1993) have found a linear association between health and drinking; the heavier the consumption of alcohol was among young people in Finland, the less likely they perceived their health as being good or excellent. However, no association was found between serious health problems and drinking. Koivusilta and Rimpelä (2000) suggested that adolescents' alcohol consumption, when the goal is to get 'high', is often associated with other problems. They suggested that adolescents' knowledge of alcohol may be dissented, because with adults alcohol use is associated with pleasure. It can also be used as an excuse to behave more socially liberate. When comparing alcohol and smoking, alcohol use is suggested to be more related to leisure time and having fun (Koivusilta et al., 2003). In contrast, smoking is seen as a part of a broader lifestyle (Koivusilta et al., 2003).

Hännikäinen-Uutela (2004) described drug use as a disability. It hinders the development, socialization and functioning in society. In 1999, 60% of 16-year-old girls knew at least one person, who had tried drugs (Valtioneuvoston periaatepäätös TERVEYS 2015). Same percentage was about 45-50% among 16- and 18-year-old boys. Today adolescents use drugs more often than before (Kouluterveydenhuolto, 2002). However, according to Kannas (2004) most of the time adolescents' drug use is experimental and limited to less than ten times. Besides the disadvantages and society dropouts, also other groups use drugs. For example, drugs can be found as a part of partying cultures (Kouluterveydenhuolto, 2002), where drug use has referred to be recreational (Salasuo, 2004). Users have also been divided as experience seekers or as survivors (Hännikäinen-Uutela, 2004). Social context is found to be the main factor behind drug use (Jones & Heaven, 1998). Problems in socialization in childhood and adolescence expose people to addictions (Hännikäinen-Uutela, 2004).

Sport participation does not have a straightforward connection to health enhancing lifestyle (Glendinning et al., 1995; Nupponen, 1994). For example, people who exercise regularly eat more healthily than those who do not exercise, however, their alcohol use is not lower than average (Nupponen, 1994). Adolescents who do not exercise frequently are found to be lonelier, shyer and more hopeless, than those who exercise frequently (Page & Tucker, 1994). On the other hand, Page and Tucker (1994) found also those adolescents who exercise daily to suffer from these features. Certain factors differentiate people in sport participation. More educated people and men in general exercise more than women and people with lower education (Vuolle, Telama & Laakso 1986). Men's exercise is also often more strenuous than women's. In childhood and adolescence exercise will become a part of self-image, if during this time sport participation involves enough positive and meaningful experiences (Nupponen, 1994).

1.2 Future orientation

According to Tommsdorff (1986, pp.122) future orientation is a “complex cognitive-motivational phenomenon”. It helps to manage with developmental tasks by giving framework how to structure representations and evaluate life situations. Nurmi (1991) described future orientation through three basic processes: motivation, planning and evaluation. Many different things influence the development of individual's goals and plans. Interests, values and beliefs direct the future orientation (Lanz & Rosnati, 2002). Personality, skills and cognitive factors influence the future orientation internally (Erikson, 1994; Havighurst, 1982; Nurmi, 1993). Also external context, such as historical time, culture, social and physical environment influence the thinking about the future (Nurmi, Poole & Kalakoski, 1994; Nurmi, 2004a). It could be that also health behaviour is associated with adolescents' future orientation. This study focuses on this topic.

1.2.1 Motivation in future orientation

Motivation is an essential part of future orientation. It points to the content of individual's interests: what person wants from life (Nurmi, 1991). The motives, goals

and interests are usually oriented towards the future. Nurmi (1991) described motivational system as a complex hierarchy. Motives can differ in their generality, specificity and abstractness. More general interests divide to smaller sub goals. Trommsdorff (1986) examined motivation in association with affects. The basic dimension is optimism or pessimism, i.e. approach or avoidance. Drug-using delinquents' attitude towards the future has been found to be pessimistic in general (Trommsdorff & Lamm, 1980).

In modern motivation theory research has primarily concentrated on the motivational themes, not to its connection to other psychological topics (Lanz & Rosnati, 2002; Salmela-Aro & Nurmi, 2002). Modern motivation psychology highlights the importance of future orientation in psychological well-being (Salmela-Aro & Nurmi, 2002). Previous studies have shown that personal goals are connected to one's psychological well-being (Emmons & King, 1988; Little, 1989; Ryan et al., 1999; Salmela-Aro, 1996; Salmela-Aro & Nurmi, 2002; Wallenius, 1996). Personal goals that help in solving life tasks, problems and challenges lead to a better well-being than the one's that do not focus on solving such a task. Psychological well-being is particularly enhanced by personal projects that are task-oriented, social and connected to one's self (Salmela-Aro, 1996). By contrast, goals focused only on oneself have been found to show negative influence on well-being (Salmela-Aro & Nurmi, 2002). On the other hand, good or poor well-being can influence on what kind of goals a young person sets for himself/herself (Salmela-Aro & Nurmi, 2002).

1.2.2 Cognitive aspects in future orientation

Cognitive aspects of future orientation involve different schemas and cognitive processes. While planning, individual's sense of himself/herself develops and understanding of the surrounding world grows (Tremppala et al., 2002). Self-schema is a personal idea of one's present and future-self (Trommsdorff, 1986). Anticipated lifetime development entails schema of self and environment in the present and future (Trommsdorff, 1986). Knowledge and personal meanings direct the processes. After goals are set motives and values in mind, one needs to plan how to realize them (Nurmi, 1991). Representation of goals and future context is based on anticipatory knowledge (Nurmi, 2004a; Trommsdorff, 1986). Long-term plans cannot be tested in

practice, so they must be processed mentally. Structure of plans differs between individuals, and within individual's different plans (Nurmi, 1991). Young people structure their plans in more complex ways and become more internal in their attributions than in the previous stages of their development (Confalonieri, 2002). Individuals' plans may differ according to their extension, differentiation, and how precise they are. Adolescents continuously evaluate their own hopes and dreams, and how they are fulfilled (Trommsdorff, 1986). This can give positive or negative information about the future goals and plans. Success can be seen as depending on oneself or external reasons, as being person's stable feature or a matter of chance, and if it can be controlled or not (e.g. Heider, 1944). One can choose to alter the plans or carry on as before.

1.2.3 Social Context in Future Orientation

Context and situational conditions affect on the anticipated life-span development (Nurmi, 1991). Different areas of development, such as cognitive and social skills are learned in interaction with social environment. This influences on the quality and direction of person's future orientation, and gives it stability (Trommsdorff, 1986). There are many even contradicting values in our culture today (Koivusilta & Rimpelä, 2000; Trommsdorff, 1986). It can be hard to find values, which are right for oneself. This task can create insecurity. Trommsdorff (1986) pointed out how in the face of fast developing social demands in Western societies, it is important to have a positive and efficient future orientation.

People differ in gender, social class, ethnicity and educational level. These factors have implications on individuals' future orientation. It has been shown, for example, that children from lower socio-economic class tend to stay there also in their adulthood (Willis, 1984). Previous studies have also shown that the social contexts in childhood and parents' socio-economic status have an effect on individuals' later well-being and health (Pietilä & Järvelin, 1995; Rahkonen, Lahelma & Huuhka, 1997). Research of Huurre, Aro and Rahkonen (2003) indicated that adolescents from manual class origin, as they referred it, had unhealthier behaviours (concerning physical activity and smoking) than adolescents from a non-manual background. The

association between parents' socio-economic status, adolescents' health behaviour and future orientation is an object of interest in the present study.

1.2.4 Content of future orientation in adolescence

Important developmental tasks for young people are identity and gender role formation (Havinghurst, 1948). Anticipated future development evolves in interaction with identity (Trommsdorff, 1983). Career choice, autonomy from parents and intimate relationships are also age-specific tasks (Koivusilta & Rimpelä, 2000; Nurmi, in press). Society, parents, peers and teachers set these expectations. Some of them are institutional; others come from the values and norms of the culture (Nurmi, 2004a). Decisions in adolescence have long reaching consequences. For example, education restricts the possible careers and usually affects on the later socioeconomic status (Willis, 1984).

Adolescents' plans do not extent too far into the future. Their content is usually thought to come true by the end of second and in the beginning of third decade of life (Nurmi, 1991). According to Nurmi (1991) hopes and goals are most often about future occupation and education. Family/marriage, leisure activities and property-related issues are almost as common. In Nurmi (1989, 1993) research girls mentioned education and family/marriage related goals more frequently than boys. Boys mentioned property-related goals more often (Cross & Markus, 1991; Nurmi et al., 1993; Solantaus, 1987; Strough, Berg & Sansone, 1996). Why it is that young people report less future plans relating to family life than future plans concerning future education and occupation? According to Kalakoski and Nurmi (1998) one explanation is that transitions to family life are further from adolescents' current lives compared to the transitions to educational tracks and occupations. Therefore, it is less important for a young person to plan things involving family life.

1.3 Antecedents of health behaviour

1.3.1 Connections to personality characteristics

Health behaviour has been found to be associated with different personality characteristics (Donovan et.al., 1991; Glendinning et.al., 1995; Pulkkinen, 1983). According to Donovan et al. (1991, pp.60) the relationship between personality and behaviour is “consistent and systematic”. Personality dimension conventionality-unconventionality has been found to be in connection with adolescents’ health behaviour (Glendinning et al., 1995). Donovan et.al. (1991), Glendinning et al. (1995) and Pulkkinen (1983) found adolescents whose behaviour is health damaging to be peer oriented. They do not have as good relationships with their families and school. In Pulkkinen’s (1983) research independence from parents, weak tolerance and a lack of control were also associated with health damaging behaviour, particularly with smoking.

Donovan et.al. (1991), Glendinning et.al. (1995) and Pulkkinen (1983) found that certain characteristics and values are connected to health maintaining behaviour. Positive attitude towards family and school, spending less time with peers than unhealthily behaving youth, religiosity and responsibility toward society were associated with healthy behaviour. In the present study one of our interest is whether valuing different things, such as friends and family, is connected to adolescents’ health behaviour and future goals.

Also future orientation varies with personality (Glendinning et al., 1995; Pulkkinen, 1983). Part of healthily behaving youth has a positive future orientation and high self-esteem (Pulkkinen, 1983). According to the same research their plans are well constructed and more realistic, and they are usually satisfied with their choices. Self-efficacy and socially supported life goals seem to be protective factors (Lecci, 2002). Adolescent with positive future orientation are less likely to use alcohol or drugs (Robbins & Bryan, 2004).

Negative future orientation is connected to different health-damaging behaviours. It has been found that adolescent smoking and alcohol use has a negative relation to the number of positive expected selves, referring to individual’s expectations, hopes and fears for the future (Aloise-Young, Hennigan & Leong, 2001). Adolescents who smoke a lot are afraid and dissatisfied with their future (Pulkkinen, 1983). Drug users have low self-esteem (Rees & Wilborn, 1983), and

their self-images are negative in educational, social, family and personal dimensions. Delinquents' future orientation includes more private concerns (Trommsdorff & Lamm, 1980). Adolescents who show behavioural problems report often feelings of helplessness and hopelessness (Koivusilta & Rimpelä, 2000).

1.3.2 Identity

Identity is an important antecedent of health damaging behaviours. Aloise-Young et al. (1996) showed that seeing smokers more positively than yourself is not a big motivator to start smoking, but adolescents who have similar images of themselves as of smokers are more likely to start using cigarettes. According to Aloise-Young et al. (1996) these adolescents aim to be self-consistent. They adapt their behaviour to their self-images. Self-image affects to which direction one's behaviour changes (Aloise-Young et al., 1996). It might be a common nominator behind health behaviour and future orientation. Identity is also one topic of our research: to what extent adolescents' self identity is associated with health behaviour.

1.3.4 Gender differences

Gender acts as a changing factor in some areas of research. In Finland content of future orientation does not differ as much between male and females as in some other cultures (Nurmi, 1991). More differences are reported in the area of health. Among women, health behaviour-features correlate less with health than is the case with men (Pulkkinen, 1993). Successes in school, being pro-social and good adjustment to the schoolwork were all associated with men's good health (Pulkkinen, 1993). Girls show more worrying, symptoms and negative affectivity. Boys have been found to perceive themselves healthier than girls. Although adolescents seldom mention health as their worry, many are related to healthy behaviour, for example appearance (Spruijt-Metz & Spruijt, 1997). In some cases health behaviour is affected by different factors with males and females. Social characteristics for instance did not predict female drinking in Pulkkinen's (1983) research as it did for males. In the present study one of our

interests is whether gender mediates the possible associations between future orientation and health behaviour.

1.4 Problem behaviour

Jessor and Jessor (1977) have defined problem behaviour as behaviour, which is against the norms of the society. It is an object of control. Health damaging behaviour, for example excessive alcohol use, is often labeled as problem behaviour (Donovan et al., 1991, Jessor & Jessor, 1977). There have been many studies of the underlying factors for such behaviour (Donovan et al., 1991; Hännikäinen-Uutela 2004; Jessor, 1986; Pulkkinen, 1983; Rees & Wilborn, 1983). Equally, it would be interesting to investigate if and in what way problem behaviour is associated with adolescents' future orientation.

Problem behavior is seen as dysfunctional and negative, but it might also be instrumental and goal-oriented (Jessor, 1984). Allied to this, for instance alcohol and drug use can be adolescent's attempt to become a group member or socially approved by the opposite sex (Hurrelman & Lösel, 1990; Pulkkinen, 1993). It can be means of showing independence by confronting conventional values of parents and society (Silbereisen & Noack, 1986). Alcohol and drugs can be used to reduce inhibitions (Lecci et al., 2002). While trying to be adults, adolescents behave in health damaging ways (Friedman, 1989). Smoking and drinking may be symbols of adult status for young people (Franzkowiak, 1987). Adopting the adult behaviours serves a developmental function in relieving pressure of normative age-specific tasks (Jessor, 1984; Silbereisen & Noack, 1986). Substance use can also be seen as coping-strategy (Jessor, 1984; Koivusilta & Rimpelä, 2000). It can help to handle negative emotions and anxiety.

1.5 Research questions

The following research questions are investigated in the present study:

1. To what extent adolescents' future orientation is associated with their health behaviour?

2. To what extent adolescents' self identity is associated with their health behaviour?
3. Are there gender differences in future orientation and self identity in respect to health behaviour?
4. To what extent parents' socio-economic status is associated with adolescents' health behaviour and future orientation?

2. METHOD

2.1 Participants and procedure

This research was a part of Finnish School Transitions (FST)-research. The data was collected from 9th grade primary school students from city of Kuopio in 2003. The participants were 707 (367 boys and 332 girls, 8 respondents did not report their gender) 15-year-old adolescents. In total 9 schools participated in the research, and the response rates varied between 44-100%. Adolescents were asked to fill in the questionnaire for 9th graders in school classroom during ordinary school hours. After answering a 6-page questionnaire, participants returned them in closed envelopes to ensure confidentiality.

2.2 Measuring instruments

Health behaviour. Health behaviour was measured with questions concerning smoking, alcohol use, drug use and current exercise (Rimpelä, 2003: Questionnaire for School Health). The variables were recoded into smaller response categories in accordance with the distribution and the concept of the categories. This will be explained next.

Smoking. Smoking was assessed with one question addressing current smoking habits; “Which from the following options describes best your current smoking?” Participants were asked to respond on a 5-point scale ranging from 1 = *I smoke once a day or more often*, 2 = *I smoke once a week or more often, but not daily*, 3 = *I smoke less than once a week*, 4 = *I have quit smoking*, to 5 = *I have never smoked*. Smoking was recoded into four categories, and the scale was rotated. The categories “*I smoke less than once a week*” and “*I smoke once a week or more, but not daily*” were collapsed and the others kept in their original form. Also 2-point category was made for further analysis. The categories were 0 = *Do not smoke* and 1 = *Smoking*.

Use of alcohol. Frequency of alcohol consumption was measured by a question “How often do you use alcohol?” Participants responded on a scale ranging from 1 = *Once a week or more often*, 2 = *Few times a month*, 3 = *About once a month*, 4 = *Less*, to 5 = *I do not use alcohol*. The categories “*I use alcohol a couple of times a month*” and “*I use alcohol once a week or more often*” were collapsed and the others kept in their original form. The scale was rotated. Also 2-point category was made for further analysis. The categories were 0 = *Do not use alcohol*, 1 = *Uses alcohol*.

Use of drugs. Drug use habits were assessed by a question “Have you ever tried or used drugs or medicine to get intoxicated (for example hash, ecstasy, heroin, cocaine, amphetamine, LSD, tanner, glue)?” Response scale ranged from 1 = *Never*, 2 = *Once*, 3 = *2-4 times*, to 4 = *Five times or more*. A new two category variable was created: 0= has not used drugs and 1= has used drugs. See Table 1 for health damaging behaviour.

Table 1. Adolescents’ Health Damaging Behaviour

Health damaging behaviour		N (missing)	Mean	SD	Min-Max	%*
Girls	Smoking	318 (14)	.44	.50	0-1**	41.9
	Alcohol use	322 (10)	.66	.48	0-1**	63.6
	Drug use	332 (0)	.12	.32	0-1**	11.7
Boys	Smoking	356 (11)	.36	.48	0-1**	35.1
	Alcohol use	357 (10)	.57	.50	0-1**	55.0
	Drug use	367 (0)	.09	.29	0-1**	9.0
Total	Smoking	678 (29)	.40	.50	0-1**	38.2
	Alcohol use	684 (23)	.61	.49	0-1**	58.8
	Drug use	707 (0)	.11	.31	0-1**	11.0

*Percentiles of those, who had used the substance, ** 0 = Not using substance, 1 = Using substance

Current exercise. Current exercise was measured by a question “How often do you practice sports or exercise during your free-time at least FOR AN HALF AN HOUR?” Answers about current exercise habits were measured by a 7-point scale ranging from 1 = *Many times a day*, 2 = *About once a day*, 3 = *4-6 times a week*, 4 = *2-3 times a week*, 5 = *Once a week*, 6 = *Less*, to 7 = *Not at all*. The variable was summarized and rotated into four categories 0= do not exercise, 1= once a week or less, 2= 2-6 times a week, and 3= about once a day or more. See Table 2.

Table 2. Adolescents' Current Exercise

	Current exercise									
	Do not exercise		Once a week or less		2-6 times a week		About once a day or more		Total*	
	n	%	N	%	N	%	N	%	N (missing)	% (missing)
Girls	6	1.8	89	26.8	145	43.7	82	24.7	322 (10)	97.0 (3.0)
Boys	6	1.6	50	13.6	170	46.3	129	35.1	355 (12)	96.7 (3.3)
Total	12	1.8	139	20.5	315	46.5	211	31.2	677 (22)	96.9 (3.1)

* N =707, 8 respondents did not report their gender.

Future orientation. Future orientation was measured with an open question. The respondents were asked to write their personal goals they had for their future. There were four numbered lines allowed for the goals, which can be linked to all the areas of life (Little, 1983: Personal Projects Inventory, PPA; Salmela-Aro & Nurmi, 1997, 2001). The goals mentioned by the participants were coded first into 30 detached categories on the basis of their content (Cantor, Norem & Niendenthal, 1987; Little, 1983; Salmela-Aro & Nurmi, 1997). These were combined then into 8 categories: 1. studying (e.g. “*I would like to get a good grade*”), 2. work (e.g. “*To be successful in work*”), 3. family (e.g. “*To start a family*”), 4. peers (e.g. “*Dating*”), 5. free time (e.g. “*Travelling*”), 6. self (e.g. “*Personal growth and development*”), 7. property related issues (e.g. “*Getting own apartment*”), and 8. health (e.g. “*Physical condition*”). Few original classifications were excluded by being irrelevant to present study.

Self identity. Self identity was measured by asking 16 questions concerning the things adolescents value themselves (Nurmi, 2004b). The subjects were first presented with the following instruction: “Adolescents *often think about themselves and what they are like. Different things can be important depending on how one sees oneself. What kinds of things are important to you?*” The adolescents estimated their self identity on a 7-point Likert scale from 1= no importance to 7= very important. Factor analysis (oblimin-rotation) was applied for all the 16 items to examine the dimensions of self identity. Five self identity dimensions were identified. Out of the 16 items 14 showed a factor loading above 0.30. The item with lowest loading was eliminated. After this the total variance explained was 62.20%. The factor loadings for these factors are shown in Table 3. The five-factor solution fitted well with the theory

(Nurmi, 2004). The Pearson product moment correlations between these factors ranged from + 0.13 to – 0.42. Based on this factor analysis the final self identity summary scores were calculated as the means of items on a specific factor. These summary variables were labeled as 1.education (items 117, 120, 125, 128 and 129), 2.appearance (items 122 and 130), 3.religion and spirituality (items 118 and 126), 4.peers and free time (items 115, 116, 123 and 124), and 5.family (items 119 and 127). Cronbach's alphas were: .80, .93, .79, .72 and .86, respectively.

Parent's socioeconomic status. Parents' socioeconomic status was measured with two open questions: “*What is your mother's profession?*” and “*What is your father's profession?*” The original classification (Socioeconomic Status Classification, 1989) was combined into 8 categories on the basis of their content: 1. Entrepreneur, 2. Upper white collar, 3.Lower white collar, 4. Blue collar, 5. Students, 6. Pensioners, 7. Long-term unemployed and 8. Other.

The number of subjects varied in different analyses depending on the presence of missing data in other variables.

Table 3. Factor Loading Scores for Items of Self Identity Questionnaire

<u>Item</u>	<u>Values</u>				
	1.Education	2.Appearance	3.Religion and spirituality	4.Peers and free time	5.Family
128. To what occupation I graduate	0.83	0.04	- 0.03	0.10	0.07
120. Future occupation	0.73	- 0.04	- 0.02	0.10	0.02
125. School and studying	0.51	0.12	0.09	- 0.24	- 0.41
117. School attendance	0.48	0.06	0.06	- 0.20	- 0.38
129. My values	0.30	0.20	0.14	0.16	- 0.07
130. The way I look	- 0.05	0.97	0.00	0.04	0.05
122. My appearance	- 0.02	0.93	0.00	- 0.01	0.02
118. Religion	- 0.04	- 0.03	0.84	- 0.01	- 0.00
126. Spirituality	- 0.04	0.02	0.84	- 0.02	0.02
116. Peers	0.01	0.04	- 0.02	0.79	- 0.14
124. Friends	0.01	0.06	- 0.00	0.76	- 0.21
123. Free time	0.10	0.21	- 0.01	0.40	- 0.05
115. Hobbies	0.25	- 0.05	0.11	0.32	0.03
119. My family	- 0.05	- 0.01	0.01	0.17	- 0.84
127. Home and parents	- 0.02	- 0.03	0.03	0.16	- 0.78

3. RESULTS

The results showed that adolescents mentioned most frequently goals relating to studying. Other goals were mentioned in following order: work, free time, family, health, peers, property related issues and self (Table 4).

Table 4. Adolescents' Future Orientation: The goal contents adolescents mentioned

Future orientation	N	Mean	SD	Min-Max	%*
1. Studying	707	.93	.71	0-2	70.9
2. Work	707	.35	.48	0-1	35.4
3. Family	707	.23	.42	0-1	22.8
4. Peers	707	.28	.45	0-1	27.9
5. Free time	707	.30	.46	0-1	30.3
6. Self	707	.25	.44	0-1	25.5
7. Property related issues	707	.27	.45	0-1	27.4
8. Health	707	.29	.45	0-1	28.7

* Percentiles of those who had mentioned a goal or goals in question.

One third of adolescents reported smoking regularly (38.2%). The percentage rate of adolescents, who smoked daily, was 15.7%. Over half of adolescents used alcohol (58.8%). The percentage rate of adolescents, who used alcohol more than once a month, was 17.0%. About one out of ten had experienced drugs (11.0%). 74.8% of adolescents exercised more than twice a week. Only about 1.7% reported not exercising at all.

3.1 Future orientation and health behaviour

Our first aim was to examine whether future orientation and health behaviour would be associated, and whether gender moderates the possible associations. Cross tabulations and chi-square tests were applied to examine whether health behaviour is

associated with goal contents (future orientation), and whether these associations differed between genders.

Goals relating to studying. Those adolescents, who had used drugs, mentioned goals relating to studying less likely than those, who had not used drugs ($\chi^2 (2) = 9.44, p < .01$). Girls were more likely to mention goals relating to studying than boys ($\chi^2 (2) = 11.23, p < .01$).

Goals relating to work. Those adolescents, who used alcohol less than once a month, were more likely to mention goals relating to work ($\chi^2 (3) = 9.82, p < .05$). Those adolescents, who did not exercise, were less likely to mention goals relating to work ($\chi^2 (3) = 9.41, p < .05$).

Goals relating to family. Those adolescents, who used alcohol mentioned goals relating to family more likely than those, who had not used alcohol ($\chi^2 (1) = 4.82, p < .05$). This association was found only in boys ($\chi^2 (1) = 3.95, p < .05$). Girls were more likely to mention goals relating to family than boys ($\chi^2 (1) = 5.50, p < .05$).

Goals relating to peers. Those adolescents, who smoked less than once a day, mentioned goals relating to peers more likely than those, who did not smoke ($\chi^2 (3) = 8.57, p < .05$). This association was found only in boys ($\chi^2 (1) = 4.47, p < .05$). Furthermore, those adolescents, who used alcohol more than once a month, were more likely to mention goals relating to peers ($\chi^2 (3) = 9.33, p < .05$). Those boys, who had not used drugs mentioned goals relating to peers more likely than those, who used drugs ($\chi^2 (1) = 4.61, p < .05$). Those boys, who exercised 2-6 times a week mentioned goals relating to peers more likely than those, who exercised once a week or less ($\chi^2 (3) = 9.76, p < .05$). Girls mentioned goals relating to peers more likely than boys ($\chi^2 (1) = 22.91, p < .001$).

Goals relating to free time. Those adolescents, who smoked mentioned goals relating to free time less likely than those, who did not smoke ($\chi^2 (1) = 4.42, p < .05$). This association was found only in girls ($\chi^2 (1) = 5.28, p < .05$). Those adolescents, who exercised about once a day or more, were more likely to mention goals relating to free time ($\chi^2 (3) = 11.63, p < .01$). This association was found only in girls ($\chi^2 (3)$

= 14.84, $p < .01$). Furthermore, those girls, who had not used alcohol mentioned goals relating to free time more likely than those, who used alcohol ($\chi^2 (1) = 7.15$, $p < .01$). Differences between girls and boys, in mentioning goals relating to free time, was not found.

Goals relating to self. Those adolescents, who smoked mentioned goals relating to self more likely than those, who did not smoke ($\chi^2 (1) = 5.69$, $p < .05$). Those adolescents, who used alcohol, mentioned goals relating to self more likely than those, who had not used alcohol ($\chi^2 (1) = 6.02$, $p < .05$). But when examining alcohol use on a four item scale, the difference appeared only between those who had not used alcohol and those who used alcohol about once a month ($\chi^2 (3) = 8.75$, $p < .05$). Girls mentioned goals relating to self more likely than boys ($\chi^2 (1) = 26.12$, $p < .001$).

Goals relating to property. Those adolescents, who used alcohol mentioned goals relating to property more likely than those, who had not used alcohol ($\chi^2 (1) = 4.01$, $p < .05$). This association was found only in girls ($\chi^2 (1) = 4.84$, $p < .05$). But, when examining alcohol use on a four-item scale, the difference appeared only between those, who had not used alcohol and those who used alcohol about once a month ($\chi^2 (3) = 9.13$, $p < .05$). Boys mentioned goals relating to property more likely than girls ($\chi^2 (1) = 9.42$, $p < .01$).

Goals relating to health. Those adolescents, who had used drugs mentioned goals relating to health less likely than those, who had not use drugs ($\chi^2 (1) = 6.22$, $p < .05$). This association was found only in boys ($\chi^2 (1) = 6.47$, $p < .05$). Those adolescents, who exercised once a week or less, were less likely to mention goals relating to health ($\chi^2 (3) = 8.61$, $p < .05$). This association was found only in boys ($\chi^2 (3) = 9.62$, $p < .05$). Differences between girls and boys were not found.

Cross tabulations and chi-square tests were also applied to examine whether girls and boys differed in their health behaviours. The results showed that those adolescents, who smoked were more likely to be girls than boys ($\chi^2 (1) = 3.92$, $p < .05$). Those adolescents, who used alcohol a couple times a month or more, were more likely to be girls than boys. On the other hand, those who did not drink at all, were

more likely to be boys than girls ($\chi^2 (3) = 8.22, p < .05$). A difference between girls' and boys' drug use was not found. Those adolescents, who exercise once a day or more, were more likely to boys than girls ($\chi^2 (3) = 21.84, p < .001$).

3.2 Self identity and health behaviour

Our next aim was to examine the relationship between adolescents' self identity variables (education, appearance, religion and spirituality, peers and free time, and family), health behaviours and gender. A two-way analysis of variance was applied to examine this. Backward elimination ($p < .05$) was used to find the best model. Only one interaction was found. The results are reported according to self identity variables.

Education. In relation to education-related identity variable no alcohol use x gender interaction was found. No main effects were found. No drug use x gender interaction was found. There were main effects for gender and drug use. Those, who had used drugs ($M = 5.18, SD = 1.17$) valued education less than those, who had not used drugs ($M = 5.62, SD = 0.84$), ($F (1, 687) = 16.23, p < .001$). No smoking x gender interaction was found. There were main effects for smoking and gender. Those, who did smoke ($M = 5.45, SD = 0.87$) valued education less than those who did not smoke ($M = 5.67, SD = 0.85$), ($F (1, 486) = 10.94, p < .001$). No exercise x gender interaction was found. There were main effects for exercise and gender. Those, who did not exercise ($M = 4.71, SD = 1.18$) valued education less than those who exercised 2-6 times a week ($M = 5.68, SD = 0.84$), ($F (3, 699) = 6.21, p < .001$). Girls valued education more than boys ($F (1, 687) = 4.16, p < .05$).

Table 5. Adolescents' Self Identity: What adolescents value?

		Self identity			
		N	Min-Max	Mean	SD
Girls	1. Education	329	1-7	5.64	.86
	2. Appearance	329	1-7	5.25	1.30
	3. Religion and spirituality	328	0.5-7	3.52	1.70
	4. Peers and free time	330	1-7	6.18	0.82
	5. Family	329	1-7	6.37	1.10
Boys	1. Education	361	2-7	5.52	1.90
	2. Appearance	360	1-7	4.81	1.42
	3. Religion and spirituality	361	0.5-7	3.36	1.65
	4. Peers and free time	361	2.25-7	5.97	0.93
	5. Family	360	1-7	6.03	1.14
Total	1. Education	695	1-7	5.55	0.92
	2. Appearance	694	1-7	5.02	1.39
	3. Religion and spirituality	694	0.5-7	3.43	1.68
	4. Peers and free time	696	1-7	6.05	0.92
	5. Family	694	1-7	6.17	1.16

Appearance. In relation to appearance-related identity variable no alcohol use x gender interaction was found. There were main effects for gender and alcohol use. Those, who used alcohol (M= 5.16, SD= 1.34) valued appearance more than those who had not used alcohol (M= 4.81, SD= 1.41), (F (1, 669) = 8.28, p <.01). No exercise x gender interaction was found. There was a main effect for gender. Girls valued appearance more than boys (F (1, 669) = 17.38, p <.01).

Religion and spirituality. In relation to religion and spirituality-related identity variable no alcohol use x gender interaction was found. There was a main effect for alcohol use. Those, who used alcohol (M= 3.23, SD= 1.62) valued religion and spirituality less than those who had not used alcohol (M= 3.72, SD= 1.72), (F (1, 675) = 14.07, p <.001). No smoking x gender interaction was found. There was a main effect for smoking. Adolescents who smoked (M= 3.16, SD= 1.58) valued religion and spirituality less than those, who did not smoke (M= 3.59, SD= 1.70), (F (1, 670) = 10.71, p <.001).

Peers and free time. In relation to peers and free time-related identity variable drug use x gender interaction was found (F (3, 687) = 4.31, p < .01), see Figure 1.

When adolescents had not used drugs ($M= 6.08$, $SD= 0.86$), girls mentioned values relating to peers and free time more than boys ($F(1) = 11.43$, $p < .001$). However, among those who had used drugs, there was no difference between girls and boys. No exercise x gender interaction was found. There were main effects for exercise and gender. Those who did not exercise ($M= 4.32$, $SD= 0.94$) valued peers and free time less than those, who exercised once a week or less ($M= 5.85$, $SD= 0.87$), who exercised 2-6 times a week ($M= 6.14$, $SD= 0.82$) and who exercised about once a day or more ($M= 6.22$, $SD= 0.81$), ($F(3, 669) = 25.93$, $p < .001$). Girls valued peers and free time more than boys ($F(1, 689) = 9.77$, $p < .01$).

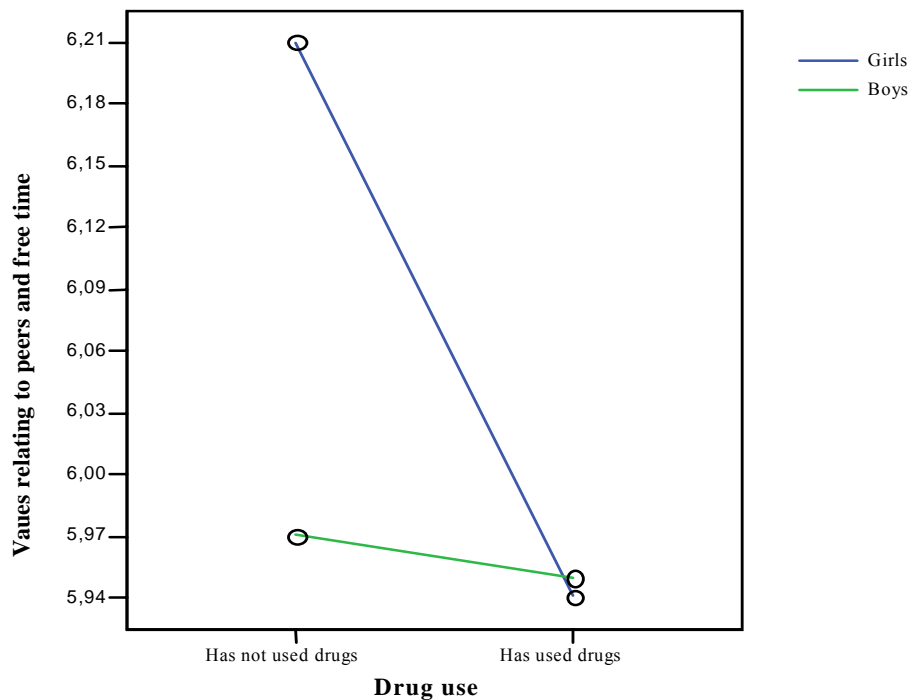


Figure 1. Interaction between drug use and values relating to peers and free time

Family. In relation to family-related identity variable no drug use x gender interaction was found. There were main effects for gender and drug use. Those adolescents, who had used drugs ($M= 5.83$, $SD= 1.48$) valued family less than those, who had not used drugs ($M= 6.23$, $SD= 1.08$), ($F(1, 686) = 9.04$, $p < .01$). No gender x exercise interaction was found. There were main effects for gender and exercise.

Those adolescents, who did not exercise ($M= 4.72$, $SD= 1.62$) valued family less than those, who exercised once a week or less ($M= 6.28$, $SD= 1.07$), who exercised 2-6 times a week ($M= 6.24$, $SD= 1.06$) and who exercised about once a day or more ($M= 6.15$, $SD= 1.18$), ($F(3, 668) = 8.52$, $p < .001$). Girls valued family more than boys ($F(1, 668) = 14.96$, $p < .001$).

3.3 Parents' socio-economic status

Finally, a hierarchical log linear modeling was applied to analyze the relationship of parents' socio-economic status with future orientation and gender, and with health behaviour and gender. Backward elimination ($p = < .05$) was used to find the best model. Likelihood ratio chi-square and Pearson chi-square were used to test the goodness-of-fit of the model. Cross tabulations and chi-square tests were applied to illustrate the final model.

When examining parents' socio-economic status and adolescents' future orientation only a few associations were found. Those girls, whose father belonged to lower white collars mentioned goals relating to health more likely than those girls, whose father belonged to upper white collars ($\chi^2(7) = 14.08$, $p < .05$). Those boys, whose mother belonged to upper white collars mentioned goals relating to free time more likely than those boys, whose mother belonged to blue collars ($\chi^2(7) = 15.02$, $p < .05$). No significant associations were found between parents' socio-economic status and health behaviour or between parents' socio-economic status and adolescents' self identity.

4. DISCUSSION

The main aim of the present study was to investigate how adolescents' future orientation and health behaviours were linked to each other, and whether gender moderates the possible associations. Our research indicated, first, that adolescents' future orientation was related to health behaviours, although the patterning of results varied both by behaviour and gender. The associations, varied by gender, have not been reported before.

The results of the present study showed that alcohol use is most clearly associated with adolescents' future orientation. When adolescents used alcohol their future orientation contained less likely goals that usually relate to their developmental period, such as studying. Unfortunately, already while being under aged, there is a high access to health damaging products such as alcohol and tobacco in Finland.

The results showed that alcohol use was associated with a greater likelihood of mentioning goals relating to family and peers in boys, goals relating to property in girls, and goals relating to self in both genders. In girls, alcohol use was associated with a smaller likelihood of mentioning goals relating to free time. Adolescents who used alcohol less than once a month were more likely to mention goals relating to work. Mentioning more goals relating to peers, if having a habit of alcohol use, supported previous findings that alcohol use has been associated with social life and leisure time (Koivusilta et al., 2003). Association between family goals and alcohol use is interesting in relation to findings that adolescents' health damaging behaviour has been associated with not very good relationship with parents (Donovan et al., 1991; Glendinning et al., 1995; Pulkkinen, 1983). The fact that alcohol use was associated with a greater likelihood of mentioning family relating goals in boys could be explained with a difficult relationship with parents. This could direct boys to wish for a better relationship with their parents or with their own family in the future, and to set goals accordingly. Another possible explanation, for the latter result, might relate to earlier maturation of adolescents, who often use alcohol (Lintonen et al., 2000). This would imply that those boys are likely to be planning their future family earlier than other adolescents.

Girls who used alcohol were more likely to mention property related goals, although boys mentioned goals relating to property more frequently in general. In contrast, girls who used alcohol mentioned goals relating to free time less likely. Alcohol use was also associated with valuing appearance more. The result that adolescents who used alcohol did not appreciate religion and spirituality is in accordance with the notion that health damaging behaviour is associated with unconventional behaviour (Jessor & Jessor, 1977). Girls used alcohol more than boys.

Smoking was associated with a greater likelihood of mentioning goals relating to peers only in boys. Among girls, smoking was associated with a smaller likelihood of mentioning goals relating to free time. In both genders, smoking was associated with a greater likelihood of mentioning goals relating to self. According to Donovan et al. (1991), Glendinning et al. (1995) and Pulkkinen (1983) health-damaging behaviour was associated with peer orientation. Our study is in agreement with these findings. Smoking, alcohol and drug use were associated with a greater likelihood of mentioning goals relating to peers. However, when adolescents were using drugs or smoking associations were significant only in boys. Earlier studies on adolescents' future orientation showed that smoking and alcohol use were associated with a smaller number of positive expected selves (Aloise-Young et al., 2001). Result in the present study showed that smoking and alcohol use were associated with a greater number of goals relating to self in both genders, which is found to have a negative influence on well-being (Salmela-Aro & Nurmi, 2002). Analysis showed that those adolescents, who smoked were less likely to value education, and religion and spirituality, than those who did not smoke. Girls smoked more than boys.

In the present study drug use was associated with a smaller likelihood of mentioning goals relating to studying in both genders and goals relating to health in boys. Earlier studies on adolescents have found that during educational transitions young people seem to have a lot of thoughts relating to their future education and occupation in mind (Kalakoski and Nurmi, 1993), but according to our study adolescents mentioned these goals less likely, when they were using drugs. According to Nutbeam et al. (1989) adolescents, who had health compromising behaviours appreciated continued education less than their peers. Our study is in agreement with these findings. Analysis showed that those adolescents, who used drugs, were less likely to value education and family, than those who did not use drugs.

When adolescents did not exercise or exercised only a little, they were less likely to mention goals relating to work and health. Association with goals relating to health was found only in boys. Adolescents who did not exercise were also less likely to value family and education. Last-mentioned could give support to the findings that more educated people exercise more than less educated (Vuolle, 1986). These results are also in accordance with values, which are associated with unconventional behaviour (Donovan et al., 1991; Glendinning et al., 1995; Pulkkinen, 1983). However, infrequently exercising adolescents did not report as being social in contrast to unconventional adolescents (Donovan et al., 1991). In the present research exercising was associated with goals relating to peers in boys and with goals relating to free time in girls. These results fit well with the finding that, adolescents who exercise regularly are more sociable than those who do not exercise (Page & Tucker, 1994). Those adolescents, who exercised once a day or more, were more likely to be boys than girls. The goals and values associated with different frequencies of exercising were not straightforwardly related to health enhancing lifestyle (Glendinning et al., 1995; Nupponen, 1994). Furthermore, infrequently exercising adolescent had features similar to unconventional behaviour, but connection was not clear.

Our study is in agreement with other studies in that girls mention goals relating to studying (Nurmi, 1989) and family more likely than boys. Conversely, boys mention goals relating to property (Cross & Markus, 1991; Nurmi et al., 1993; Solantaus, 1987; Strough, Berg & Sansone, 1996) and free time. Girls were more likely to mention goals relating peers and self as well.

In the present study parents' socio-economic status was not significantly associated with adolescents' self identity or health behaviour. The result concerning the association between health behaviour and socio-economic status did not support the previous findings that adolescents from lower socio-economic class of origin behave unhealthily (Huurre et al., 2003). The difference might be explained with the fact that, in the present study parents' socio-economic status was divided into several categories in contrast to Huurre et al. (2003) research, where there were only two categories. The results showed that, when father belonged to lower white collars girls mentioned goals relating to health more likely than girls, whose father belonged to upper white collars. Those boys, whose mother belonged to upper white collars,

mentioned goals relating to free time more likely than those boys, whose mother belonged to blue collars.

Our study included a few limitations that were to be considered before drawing conclusions. First, the results presented here are based on cross-sectional data and on a single sample from city of Kuopio, and may thus have limited generalizability. Secondly, the cross-sectional analysis does not permit elucidation of the causal relationships between adolescent future orientation and health behaviours. Third, there is a possibility of response bias. It has been reported that, those who behave unconventionally are less likely to answer to questionnaires (e.g. Lahaut, Jansen & van de Mheen, 2002). This would mean that, the results of the present study would be more conservative than in the larger population. On the other hand, previous findings have indicated that adolescents' self-report measures of substance use are reliable (Brener, 1995). Relying on only one source does not raise confidence in the validity of the results, as would several different sources (e.g., parent or peer interviews), but the fact that questionnaire papers were returned in closed envelopes does raise the validity of the responses.

Although there has been substantial research examining adolescents' future orientation and health behaviour, relatively little attention has been directed to examine their relationship. The present study brings a new perspective by examining how different goal contents, reported by adolescents, vary according to different health behaviours.

The present results would appear to have utility for practice as well. The results could help in finding ways to motivate adolescents to engage in healthier lifestyle. For example, when working with boys who use alcohol, it might be useful to know that, they are likely to be interested in family, or that they might value appearance. Results can also help in understanding adolescents' health behaviour and its connections to other areas of life.

In the future, a valuable extension to this body of research would be to examine the association of health behaviour and the quality of adolescents' future orientation: specificity, structure and positivism versus negativism. Furthermore, a long-term follow-up research might be valuable in examining if and when adolescents future plans are actualized, and how the health behaviour varies with different individuals, as they grow older.

Overall, the research on how adolescents' health behaviour and future orientation are associated might be summarized as follows. It has been shown that, health behaviour is related to and varies with adolescents' future orientation. Adolescents' goals usually relate to future occupation and education (Nurmi, 1991, 1992), but while behaviour is health damaging, adolescents are less likely to mention such goals. Because health behaviour and future orientation are connected and have a big influence on life, it is important to support adolescents in these areas of life.

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