



## **DET PSYKOLOGISKE FAKULTET**



### ***How to successfully promote health among 13 year old boys and girls***

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*profesjonsstudiet i psykologi*

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### Abstract

Sedentary lifestyles are an increasing problem in today's society. As health behaviors established in adolescence often are persistent into adulthood it is of crucial importance to gain knowledge about the factors that influence positive health. The purpose of this study was to examine how predisposition factors, motivational factors and behavior factors were related to the experience of initiative in order to successfully promote positive health development for 13 year old boys and girls. The study used data from Norwegian 13- year olds (n = 1195) participating in the 2005/2006 Health Behavior in School-aged Children study. Two-way ANOVA's, frequency analysis, correlation analysis and multiple regression analysis were performed. There were gender differences related to body image, achievement motivation and amount of physical activity. The experience of initiative for boys and girls was predicted by achievement motivation, health motivation, social motivation and amount of physical activity. Body image did not predict initiative for either boys or girls, but socio economical status did predict initiative feelings for girls.

**Keywords:** Adolescence; Positive health; Body image; Motivation; Initiative

## 1.0 Introduction

The present empirical work applies a health promotion approach to investigate the relationship between initiative, its' predisposition factors (socio economical status and body image), motivation factors (achievement motivation, health motivation and social motivation) and behavior factors (physical activity). Particular attention is given to the possible prediction of initiative for boys and girls and gender difference related to the variables in question.

### *1.1 Background*

Social, structural and cultural change alter people's living conditions and influence the health status in the population (Lahelma, 1997). This is recognizable by looking at the last century where there has been a shift from concern for contagion to focus on risk factors due to changing lifestyles (Peterson, 1996). Increased dietary intake and sedentary living may be responsible (Coleman, Hendry, & Kloep, 2007) for the fact that the prevalence of overweight in the US has increased by 100% among adults and 80% among adolescents during the last two decades (Prevention, 1997). This phenomenon is also present among Norwegian adolescents who have increased their BMI during the last ten years (Wichstrøm, Grøholt, & Rossow, 2007). This negative trend in sedentary lifestyles are seen in several countries in the Western world (Juliussen, 2007), and cause various "life style" diseases, such as type II diabetes, coronary problems, and muscle and skeletal problems (Biddle & Mutrie, 2001; Dobbins, 2009).

### *1.2 The importance of an active lifestyle*

The magnitude of the lifestyle consequences are present world wide and the World Health Organization estimates that 1.9 million deaths a year are attributable to physical inactivity (Dobbins, 2009). By choosing a sedentary lifestyle individuals fail to provide themselves with the health benefits resulting from physical activity. These health benefits are assumed to be; reduced musculoskeletal problems (Anderssen & Strømme, 2001), increased defense against strain and depression (Ferron, 1999; Coleman et al., 2007), decreased prevalence of risk behaviors like smoking, drinking, marijuana use, and poor dieting (Pate, Heath, Dowda, & Trost, 1996; Ferron, 1999), excess of energy and increased work capacity (Anderssen & Strømme, 2001), protection against heart- and coronary diseases, high blood pressure, overweight, and type II diabetes (Anderssen & Strømme, 2001; Tao et al., 2007), improvement of cognitive functions and well being (Ommundsen, 2000). Promotion of an active lifestyle is in other words important to reduce the risk of premature morbidity and mortality, in addition to increased life quality and well being.

It is important to remember that health is not only equivalent with the absence of disease. Health also represents the existence of a complete physical, mental and social well-being (WHO) and is a prerequisite for individuals to succeed as citizens, family members, in work life and as consumers (Regjeringen, 2008). The improvement of health in a given population increases the citizens total contribution to the society causing increased economical growth and increased welfare (Regjeringen, 2008). Good health is not only important for the individual, but also for the groups-, the society- and the country that the individuals are a part of. It is therefore of a society's great

importance to prevent health risk behaviours and promote good health behaviours so that as many as possible will develop into healthy contributors to the collective.

As many health behaviours are consolidated in adolescence and assumed to persist into adulthood (Hardman, 2006; Pate et al., 1996), adolescence is a pivotal period of development with respect to health and fitness (Williams, Holmbeck, & Greenley, 2002). This does not only concern positive health behaviours, like exercise and healthy dieting, but also health risk behaviours like smoking, drinking, criminal behaviour and drug use. Promotion of positive health during adolescence has therefore become a global priority important to prevent risk behaviours, obesity and chronic diseases later in life (Chen, Haase, & Fox, 2007) and increase well being and life satisfaction. But what does this actually mean?

### *1.3 Promotion of health*

Positive development is considered to be *“important prerequisites for being able to initiate and maintain relations, actualize one’s abilities, participate in and understand one’s surroundings, and to communicate effectively”* (Dwivedi & Harper, 2004). And needs to happen in an arena that stimulates to positive development, for example the different activities that adolescents spend time in (Larson & Verma, 1999). Considering that adolescents have higher motivation and cognitive engagement in leisure activities than in other parts of their lives (Larson, 2000), leisure activities may be especially suited for building competencies. These competencies may further be associated with academic success, mental health, positive social relationships, identity development (Mahoney, Larson, & Eccles, 2005) and initiative.

#### *1.4 Initiative*

Initiative is important for positive development and is considered as a core requirement for creativity, leadership, altruism and civic engagement (Larson, 2000). Initiative is developed by participation in activities that are interesting, stimulating and exciting (Larson, 2000), for example in leisure activities. The idea is that interest drives the individual to learn, discover and grow and therefore develop (Hunter & Csikszentmihalyi, 2002) by means of stimulation and focused sensations (Mikulas & Vodanovich, 1993). Active leisure provides challenges, require skills and produce enjoyment (Csikszentmihalyi, 1997). Even though research show that US teenagers feel motivated and absorbed about 44% of the time they are involved in sports and game (Csikszentmihalyi, 1997), they spend four times more of their spare time watching TV (Csikszentmihalyi, 1997). TV watching is a passive activity and does not provide individuals with the opportunity to meet challenges, to solve problem or build competencies in the same matter as active leisure (Csikszentmihalyi, 1997). As boredom is linked to feelings of low arousal and motivation (Mikulas & Vodanovich, 1993), it may lead to disengagement impeding psychological growth over the long term (Hunter & Csikszentmihalyi, 2002). One of the purposes of this study is therefore to predict the experiences of initiative in order to find out how health must be promoted to successfully reach boys and girls in their adolescents. The goal is to make them interested in health behaviors like physical activity, rather than being spending time in inactive, anti stimulating, boring activities like TV watching. This is however no easy task.

### *1.5 Gender differences*

There is no doubt that the behaviors that contribute significantly to an individual's choice of lifestyle are in plural. At the same time there are many obstacles when attempting to start, maintain, or assume involvement in health behaviors (Biddle & Mutrie, 2001). Studying the correlates or determinants of physical activity is therefore an important prerequisite for designing relevant policies, and effective prevention and intervention programs for promoting health. In order to successfully altering a persons' lifestyle one needs individual related information, such as specific interests and goals, e.g. understanding of which factors influence the change of health behavior, and maintenance of the behavior. Furthermore, one need to identify the motives that underlie the intent to become physically active, and the dynamics of the maintenance process for keeping the active lifestyle. This is particularly important considering the fact that 50% that start exercising on their own, drop out within three months after initiation (Gill & Overdorf, 1994). The correlates that affect positive health development are expected to be influenced by several factors, for example age and gender (Markland & Hardy, 1993). Boys and girls seem to differ in body image (Paxton et al., 1991; Storpvoll, Strandbu, & Wichstrøm, 2005), motivation (Wold, 1989; Wold & Kannas, 1993) and amount of physical activity (Ferron, 1999; Inchley, Currie, Todd, Akhtar, & Currie, 2005; Tao et al., 2007). These differences may be important to consider in the process of developing health promotion programs that successfully persuade adolescents to engage in health behaviors that stimulate to positive health development. A purpose of this study is therefore to examine the gender differences related to variables known to be related to the experience of initiative. These variables

will be clustered into three groups called predisposition factors, motivation factors and behavior factors.

### *1.6 Definitions*

The variables of the present study are presented below. Definitions that embrace the important elements of relevance to the concepts at hand are selected.

#### *1.6.1 Health*

WHO defines health as '*a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity*' (WHO). Good positive health represents physical and emotional well-being with a high capacity for enjoying life and challenges, and possessing adequate coping strategies in the face of difficulties (Biddle & Mutrie, 2001). Negative health is characterized by disease, morbidity and possibly premature death (Shephard, Stephens, & Bouchard, 1994).

#### *1.6.2 Initiative*

Larson (2000) defines initiative as "*the devotion of cumulative effort over time to achieve a goal*" (Larson, 2000).

### *1.6.3 Socio economical status*

Socio-economic status (SES) is a composite measure that incorporates work status (occupation) economic status (income) and social status (education).

### *1.6.4 Body image*

Body image can be defined as “*the picture of our own body which we form in our own mind*” (Schilder, 1935). Body dissatisfaction is the discrepancy between an individual’s perceived body size and perceived ideal body size (Meland, Haugland, & Breidablik, 2007).

### *1.6.5 Motivation*

Motivation is a construct explaining why we do what we do. Exercise motivation, therefore, represents the different motives people have to be physically active. These motives may change during the timeline of physical activity, meaning that the motives for initiating physical exercise may differ from the motives for maintenance of physical exercise (Wankel & Kreisel, 1985).

### *1.6.6 Physical activity*

Caspersen, Powell and Christensen (1985) define physical activity in terms movement of the body produced by the skeletal muscles which result in energy expenditure. This may vary from low to high, and has a positive correlation with physical fitness (Caspersen, Powell, & Christensen, 1985).

## 2.0 Theoretical framework

The theoretical framework used in this study combines elements from Larson's (2000) theory about initiative development, Self-Determination Theory (Deci & Ryan, 2002), and Flow theory (Csikszentmihalyi, 1997), in order to illustrate how initiative experiences may be predicted by predisposition factors (socio economical status and body image), motivation factors (achievement motivation, health motivation and social motivation) and behavior factors (physical activity).

### *2.1 Motivation theories*

The motives that people have for choosing to participate in physical activity, while others prefer to be physically inactive are complex. Even the physically active may have different reasons to carry out their activities. Motives may also change over time, and the motives individuals cite for beginning an exercise program are not necessarily the same motives they cite for staying involved (Wankel & Kreisel, 1985). The quality of the motivation may be important for the continuation of a certain activity. For example will an individual who chooses to initiate in physical activity, be more prone to attain an active lifestyle than a person who is coerced into becoming physically active (Williams et al., 2002). The type of motivation may be of great importance for the initiating of a maintaining active lifestyle.

#### *2.1.1 Self Determination theory*

Self determination theory is developed by Deci, Ryan and coworkers, and has among other areas been applied the domain of physical activity (Hagger & Chatzisarantis,

2007). It is a motivation theory that differentiates between types of motivation (Deci & Ryan, 2008), emphasizing that the quality of the motivation is more important than the total amount of motivation (Deci & Ryan, 2008).

The idea is that humans will be motivated and display well-being in activities to the extent that they experience psychological need satisfaction when performing the activity (Deci & Ryan, 2002). These needs play a necessary part in optimal development, and neglecting the needs may have negative consequences (Deci & Ryan, 2002). A physical activity context can in other words either stimulate and enable adolescents' positive health potential or weaken and hinder the development of this potential (Deci & Ryan, 2002).

The extent to which the basic needs are met provides a motivational state which can range on a continuum from absence of motivation, to intrinsic motivation (Kilpatrick, Hebert, & Jacobsen, 2002). The quality of the motivation characterizes the degree of internalization of the behaviour (Biddle & Wang, 2003). In addition to absence of motivation, or amotivation, one can differ between controlled motivation and autonomous motivation which energize and direct behaviour (Deci & Ryan, 2008). Controlled motivation represents externally rewarded behaviours where the individual feels pressured to think, feel and behave in certain ways (Deci & Ryan, 2008). Autonomous motivation, on the other hand, represents intrinsic and extrinsic motivation where the individual has identified with an activity's value and experiences volition and self-endorsement of their actions (Deci & Ryan, 2008).

The reason adolescents have for participating in physical activity may affect the continuation and health benefits of the physical activity. Being forced to be part of a

football team against own choice, for example by parents, does not satisfy the feeling of choice and personal investment and could have negative effect on development. Being tempted by external rewards can however be effective in creating autonomy (Ryan & Deci, 2000). Adolescents who participate in football because they want to become a professional football player are extrinsically motivated, as are those who participate because their parents reward them if they participate. Even though both cases represent examples of external rewards, the former also represents feeling of choice and personal investment (Ryan & Deci, 2000) and can therefore represent autonomous motivation. If the activity is freely engaged in, produces interest, and provides novelty and optimal challenge (Deci & Ryan, 2002) the activity is said to be intrinsically motivated, and will always be autonomous. This is the most desirable level of motivation (Kilpatrick et al., 2002) because it satisfies the basic needs for autonomy, competence and relatedness (Deci & Ryan, 2008).

### *2.1.2 The needs for autonomy, competence and relatedness*

Autonomy, competence, and relatedness are innate psychological needs that are essential for survival, growth, and integrity (Deci & Ryan, 2002).

*Competence* refers to the need to learn and be curious to better adapt to challenges in a changing context (Deci & Ryan, 2002). Without this need people would not be curious about the world or feel satisfaction from learning for its own sake (Ryan & Deci, 2000). It is competence that keeps people searching for new challenges in order to master new obstacles to feel mastery over ones capacity to act on the environment (Véronneau, Koestner, & Abela, 2005). Physical activity gives youth several challenges

and opportunities to learn new skills. Not only does it potentially foster development of one's physical talents, but also the exploration of social and cognitive qualities. Physical activity enables the individual to compete against themselves and against others, both physically and mentally. It is physically challenging because it demands movement and coordination of the body, at the same time as cognitive skills need to be used for upcoming problem solving.

*Autonomy* refers to self-organization and self regulation, and is reflected in the experience of integrity, volition and vitality (Ryan & Deci, 2000). It involves the desire to feel as the source of action and choice and represents the need for self-determined behavior (Ryan & Deci, 2000). Physical activity gives youth an arena to learn to be organized and structured and to follow the set of rules that are important for the given activity. As long as following these rules is the choice of the individual the feeling of autonomy is not threatened, but if initiating or maintaining the physical activity are forced upon the individual the physical activity may not satisfy the need for autonomy. The result may be that the individual does not benefit from the positive advantages that an environment with physical activity is supposed to give.

*Relatedness* represent the need for belongingness and connection with others (Allen, 2006). The need for relatedness can be satisfied by being a member of a social context, such as a sports club, or simply by being physically active with peers. For many participants this provides social meaning to their sport involvement (Allen, 2006). Positive social attachments provide a secure base and foundation from which individual can attempt challenges and this may be crucial for optimal growth and development (Ryan & Powelson, 1991). Physical activity can also be an arena for development of social skills, both because one has to relate to other individuals, and because one has to

function as a member of a larger group. Another theory that emphasizes motivation, skill development, concentration and amusement while performing an activity is Flow theory postulated by Csikzentmihalyi.

#### *2.1.4 Flow Theory*

Csikzentmihalyi (1988) examined several activities that were classified as very amusing and driven by motivation and concluded that the main reason why such activities were enjoyable, was the experience of an intense rewarding state of deep concentration or flow (Hills, 2000). The experience of flow is characterized by fascination, enjoyment and excitement, which is in line with the presence of intrinsic motivation (Hunter & Csikszentmihalyi, 2002). Flow-producing activities are often active activities that have clear goals, clear rules, immediate feedback, and a set of external demands that focus attention and make demands on the individuals' skills (Csikszentmihalyi, 1997). Active activities therefore create better environments for satisfaction of the need for competence and autonomy than the passive activities are prone to do.

For flow experience to occur one's skills cannot be overmatched nor underutilized to meet a given challenge (Shernoff, Csikszentmihalyi, Schneider, & Shernoff, 2003). Flow theory's postulate of optimal challenge is fully consistent with SDT's specification of the competence need as basis for intrinsic motivation (Ryan & Deci, 2000). This feeling of competence and intrinsic motivation may further result in the experience of initiative. Csikzentmihalyi's flow concept may relate to Larson's initiative phenomenon and to Deci & Ryan's concept of intrinsic motivation. The primary differing aspect between the Self-Determination Theory and Flow theory is that

the latter does not have a formal concept of autonomy, but instead base the notion of intrinsic motivation on optimal challenge alone (Ryan & Deci, 2000). Csikszentmihalyi states that the most important thing is to enjoying an activity for its own sake, knowing that what matters is not the result, but the acquired control over one's attention (Csikszentmihalyi, 1997). Even though Csikszentmihalyi does not use the concept of autonomy in Flow theory, it is implied that activities that produce flow involve both self-organization and self-regulation. Self-organization is involved because the flow-activities are freely chosen by interest, hence, may produce the feeling of self-initiation. Self regulation is involved because each of the flow-producing activities requires an initial investment of attention before it begins to be enjoyable, in addition to demanding concentration and absorption while performing the activity.

Csikszentmihalyi (1997) found that physical health is better when a person focuses on a goal, because lack of direction, effort, and others to interact with, will result in loss of motivation and concentration (Csikszentmihalyi, 1997). This may be related to competence and relatedness as postulated in self determination theory.

### 3.0 Previous research

Because the influences that affect human behaviors are complex and diverse, no single model or theory provides a complete understanding of what determines an active or sedentary lifestyle. The experience of initiative seems to depend on several factors. These will be handled in three groups called predisposition factors, motivational factors and behavioral factors.

#### *3.1. Predisposition factors*

Predisposition factors consist of socio economical status and body image as these variables are suggested to be related to choice of health behaviors and the experience of initiative.

The inactive are more likely to be older, females, less well-educated, and have lower incomes (Bauman & Owen, 1999). Children with highly educated parents are more physically active than children with less educated parents (Søgaard, 2000), they are also more likely to participate in activities during their leisure time (Mahoney et al., 2005). Quinn (1997) reported that 83% of 8<sup>th</sup> grade students of high socio economical status were involved in an activity outside of school, compared to only 60% of the students of low economical status (Mahoney et al., 2005). Both the frequency of participation in sports and strength of intention to do sports seem to be closely related to the social economical status of the family (Godin & Shepherd, 1985).

The increasing prevalence of overweight and obesity in adolescents worldwide suggest that children are becoming less active and do not meet the recommendations for amount of physical activity (Deforche, De Bourdeaudhuij, & Tanghe, 2006). There are

several indicators that BMI are related to the amount of physical activity, where the amount of physical activity are lower with those of high and low BMI than for those with a moderate BMI (Kahn et al., 2008). Considering the fact that BMI and body image are related (Paxton et al., 1991) it is logical that body image distortion has increased with increased body weight during the last years (Storvoll et al., 2005).

Several studies show that physically active adolescents have a better body image than not physically inactive adolescents (Ferron, 1999). This is assumed to be caused by enhanced body attitudes and physical self-perceptions due to performance of physical activity (Burgess, 2006). A study on German adolescents ranging from 12 till 21 years, showed that the body image among physically active in larger parts were tied to physical self efficacy, while the inactive adolescents tied their body image to having a successful and lean body (Ommundsen, 2000). The physically active seem to value the competence factor of the physical activity as they define their body image in terms of mastering. The physically inactive do on the other hand define their body image solely in terms of appearance.

Overweight and obese children have a less positive attitude towards physical activity in comparison with their normal-weight counterparts (Deforche et al., 2006). Deforche et al found that the obese rated “pleasure” as a less important reason to be active than the normal weight adolescents. “Losing weight” and “looking better” was however a bigger motivator for the obese adolescents than for the normal weight adolescents (Deforche et al., 2006). This differing in motivational aspects may affect the feeling of initiative and dissatisfied body image has been associated with less autonomy (Markland & Ingledew, 2007). To perform an activity due to pleasure is intrinsically motivated and may also involve the feeling of flow. To do an activity to reach a goal is

however characterized by extrinsic motivation, which may not satisfy the needs for competence and autonomy, and thereby may not result in positive development. External motives can also differ in amount of experienced initiative. To do physical activity due to externally imposed pressures to be slim will result in less experience of autonomy than performing physical activity due to personal value on being slimmer (Markland & Ingledew, 2007).

Even though both boys and girls who are overweight desire to be thinner (Ricciardelli & McGabe, 2001), girls are more likely than boys to be dissatisfied with their body image (Ricciardelli & McGabe, 2001; Storvoll et al., 2005). This gender differences in body dissatisfaction are assumed to emerge between 13 and 15 years of age, where boys tend to increase their body satisfaction and girls tend to decrease their body satisfaction (Meland et al., 2007). This may be due to pubertal changes, where girls increase their body fat and overall weight (Field et al., 1999), and boys increase their muscle mass (Storvoll et al., 2005).

The type of body dissatisfaction is also different among genders. Girls tend to have the desire to be thinner, whereas boys often want to gain muscles (Cohane & Pope, 2001; Markland & Ingledew, 2007). This is probably caused by different socio-cultural expectations for males and females, which body ideals are often portrayed in the media. The presented female body ideal is thin, tall and toned (Storvoll et al., 2005; Wiseman, Gray, Mosimann, & Ahrens, 1992), while the male body ideal are muscular and have low body fat (Storvoll et al., 2005; Morrison, Morrison, Hopkins, & Rowan, 2004). The motives for performing physical activity seem to matter in whether body image affects the experience of initiative. The more males wished to increase in size, the lower the

relative autonomy, and the more females wanted to lose weight, the lower their relative autonomy (Markland & Ingledew, 2007).

### *3.2 Motivation factors*

Motivation is the individual's intention to initiate a behavior that stimulates to initiative. Research in sport settings indicate that motivational climate is related to a variety of meaningful variables, including intrinsic motivation and enjoyment (Smith, Cumming, & Smoll, 2008).

Gill & Williams (2008) concluded that children have a number of motives for participating in sports. These motives include skill development, demonstration of competence, challenge, excitement and fun (Gill & Williams, 2008). Other important motives to participate in physical activity are to improve health and feel a sense of achievement (Biddle & Mutrie, 2001). Several of these motives can be tied to the basic needs of competence, autonomy and relatedness as postulated in self determination theory.

There is different classification of motives. Thelma & Silvennoinen found five main dimensions of motivation among Finnish pupils that they called recreation, sociability, competition and health (Thelma & Silvennoinen, in Wold & Kannas, 1993). Another study identified the factors competition, social benefits and fitness as related to sports program participation (Sirard, Pfeiffer, & Pate, 2006). A study in Italy with more than 2.500 participants in youth sports showed that enjoyment was reported as a reason for participation by 49.2% of the sample. This was followed by physical (health/fitness) motives (32%), social reasons (8.9%), competition (4.2%), skill motives (2.9%), and

social visibility or status (2.8%) (Buonamano, Cei, & Mussino, 1995 ). Research on Norwegian pupils found health related reasons for doing physical activity as most important, followed by social reasons and achievement related reasons for doing physical activity (Wold & Kannas, 1993). The following study will use the same three factors as Wold & Kannas (1993).

There are several studies that indicate gender differences related to motivation to participate in physical activity. Even though both boys and girls report social- and health motives as equally important for participating in physical activity, boys seem to value competitive aspects more than women (Sirard et al., 2006; Wold & Kannas, 1993). This phenomenon may have emerged due to societal expectations of proper behavior for men and women. Men are supposed to be competitive, and women are expected to be yielding and concerned about (Koivula, 1999). This is recognizable by looking at the stereotype of women as more submissive and less aggressive and dominant than males (Williams & Best, 1990). This may also affect choice of physical activity, where boys more often choose to engage in competitive team sports, whereas girls tend to be involved in individual sports (Koivula, 1999).

### *3.3 Behavior factors*

Physical activity is known to enhance adolescents' social, physical and psychological growth, by creating environments where they can develop competence and autonomy (Larson, 2000). Hansen and colleagues found that sports activities are positively associated with higher rates of self-knowledge, emotional regulation and physical skills experiences, in comparison to other activities (Hansen, Larson & Dworkin, 2003).

Larson, Hansen & Moneta (2006) also found that adolescents participating in sports reported significantly more experiences related to initiative, emotional regulation and teamwork experiences. This is related to organized activities, and whether the effects also are present in physical activity per se are unknown. Another issue to question is the frequency and intensity needed to attain positive health effects.

Precisely how much energy is required to offset the risk of disease is currently being debated among researchers, but no exact prescription has yet been provided (Biddle & Mutrie, 2001). The Norwegian government recommends that children spend an hour of their day in physical activity and that adults are physically active 30 minutes every day. The intensity is supposed to be moderate, much like rapid walking, and the total amount can be divided into smaller intervals (Anderssen & Strømme, 2001).

The amount of time that adolescents spend being physically active have decreased over the past decades (Heath, Pratt, Warren, & Kann, 1994), and the decrease are more serious among American girls (7.4%) compared to American boys (2.7%) (Sallis, Alcaraz, McKenzie, & Hovell, 1999). 70% of Norwegian children are expected to be physically active more than two times a week (Søgaard, 2000), but the amount of time spent on physical activity decrease with age (Ferron et al, 1999) the critical period ranging from 10 till 16 years (Strauss, 2001; Kahn et al., 2008). In a review article by Argyle (1996) it is reported that while 90% of the youth between 13-14 years participate in sports activities once a week, only 67% of the boys and 49% of the girls participate in weekly sporting activities six years later (Kirkcaldy, 2002). There is no expected sex difference related to amount of physical activity among the 13 year olds, but boys are significantly more physically active than girls after the age of 13 (Strauss, 2001). There is also gender difference related to type intensity in which the physical activity are

performed, where girls tend to report less amounts of vigorous physical activity than boys (Inchley et al., 2005; Ferron, 1999; Tao et al., 2007). The attained result when asking about the amount of physical activity may therefore be dependent upon choice of question formulation related to intensity of the physical activity.

#### 4.0 Research questions

Based on empirical findings and theoretical assumptions, this thesis was aimed at examining the relationship between background variables, motivation, physical activity and initiative.

The research questions are stated as follows.

1. Do boys and girls differ in levels of predisposition factors, motivation factors or behavior factors?
2. How do boys' and girls' socioeconomic status, body image, motivation and physical activity correlate with initiative?
3. Do predisposition factors, motivational factors and behavioral factors predict initiative?

## 5. Method

The data used in this study was based on Norwegian data from a cross national WHO survey; Health Behavior on School-aged Children (HBSC). The questionnaire is developed by an international research network, with 43 countries currently participating in the survey. The aim of the HBSC survey is to broaden the understanding of 11-16 year old adolescents' health, in order to inform and influence health policies from a health promotion point of view (HBSC). The survey view health as a resource for everyday living and includes questions about social, physical, and emotional well-being (HBSC). A translated version of the standard questionnaire is used by all participating countries and contains a core set of questions which examine demographics and social background, individual and social resources, health behaviours, and health outcomes (HBSC). The HEMIL-centre, Centre for Research on Health Promotion in Bergen, is responsible for the international data bank.

### *5.1 Participants*

The data analyzed in this study is part of a larger database collected in 2005/2006. The entire sample consisted of 7664 students in 6<sup>th</sup> grade from elementary school, 8<sup>th</sup> and 10<sup>th</sup> grade from middle school and freshmen from high school. The sampling procedure was in accordance with the internationally recommended procedure and resulted in a nationally representative sample of 515 schools from different regions of Norway. The sample (n = 1195) consisted of 51.6% boys (n = 617) and 48.4% girls (578), with a mean age of 13.49 years. They attend 8<sup>th</sup> grade and represent 79 school classes from different schools in Norway. Data based on responses from 13 year-olds were used in

this study, as they responded to questions relevant for the given research area of this article.

### *5.2 Procedure and measures*

The students were selected by systematic clustered sampling, where the primary sampling unit was a school class. All students in the selected classes were invited to participate in the study. The questionnaires were administered by teachers following a standard procedure in quiet classroom conditions. The teachers read short instruction letter out loud to describe the procedure for the students. A standard procedure was followed to ensure students anonymity and equal experimental conditions.

#### *5.2.1 Predisposition factors*

The group name ‘predisposition factors’ was based on the assumption that socio economical status and body image are prerequisites that may be related to whether the individual chooses to engage in initiative stimulating activities.

Socio economical status was measured by means of the Family Affluence Scale II (FAS II). FAS II is developed by researchers in the HBSC-network and relates to common indices of material deprivation and home affluence, linked to a material view of health inequality. The scale is composed of four items (coding in square brackets):

- a. Does your family own a car, van, or truck? (1) No [0], (2) Yes, one [1], (2) Yes, two or more [2].
- b. Do you have your own bedroom for yourself? (1) No [0], (2) Yes [1].

c. During the past 12 months how many times did you travel away on holiday with the family? (1) Not at all [0], (2) Once [1], (3) Twice [2], (4) More than twice [3]

d. How many computers do your family own? (1) None [0], (2) One [1], (3) Two [2], (4) More than two [3].

FAS is the sum score of the four items, with a the total score ranging from zero to nine. FAS low (score = 0,1,2) indicates low affluence, FAS medium (score = 3,4,5) indicates middle affluence, and FAS high (score = 6,7,8,9) indicates high FAS (Boyce, Torsheim, Currie & Zambon, 2006).

The self-perception of body - weight status, or body image, is measured by the question: Do you think your body is...? (1) Much too thin [1], (2) A bit too thin [2], (3) About the right size [3], (4) A bit too fat [4], (5) Much too fat [5]. As the coding in the square brackets show, a reported value of three means that the students report their weight being about the right size. Lower value than three means reporting being too thin, while higher value than three means reporting feeling too fat.

### *5.2.2 Motivation factors*

Motivation was measured with a revised version of the motivation scale in physical activity, which was used in the HBSC study in 1985-86 (Wold, 1989). The scale in the 2005/2006 HBSC-study consisted of a list of 14 reasons that young people give for liking physical activity: 1) To have fun, 2) To be good at sport, 3) To win, 4) To make new friends, 5) To improve my health, 6) To see my friends, 7) To get in good shape, 8) To look good, 9) Enjoy feeling of using body, 10) To please my parents, 11) To be cool,

12) To control my weight, 13) It is exciting, 14) To become like an athlete. The respondent ticked how important each reason was on a scale from (1) Very important [3], (2) Fairly important [2], to (3) Not important [1]. The values were recoded in order (recoding in square brackets) to make higher values represent more motivation. Based on earlier research and the result from a factor analysis performed in the study in 1985, the items were divided into three different types of motivation; health motives, achievement motives and social motives (Wold, 1989). The division of the revised items into three set of motives was confirmed by use of a factor analysis.

### *5.2.3 Behavior factors*

Behaviour was used because it represents the actual performance of an activity, which in this study was physical activity. Physical activity was defined as any activity that makes the participant get short of breath or sweat. Overall physical activity in children and adolescents consist of two different time components; activity undertaken during school hours and in leisure time. There are also different measures of intensity related to physical activity, for example moderate to vigorous physical activity (MVPA) and vigorous physical activity (VPA). MVPA provides a picture of total activity, with a focus on the physical aspect of physical activity. In contrast, VPA explicitly encompasses a dimension of physical activity as a recreational pursuit or hobby.

In this study physical activity was measured by means of frequency of vigorous activity. This variable was used because it represents the amount of physical activity performed outside of school hours, and hence may best represent the chosen amount of physical activity. The item measuring physical activity was formulated as follows:

“Outside school hours: How many TIMES a week do you usually do sports or are active to the extent that you get short of breath or sweat?” The response categories were: (1) Every day [4], (2) 4-6 times a week [3], (3) 2-3 times a week [2], (4) Once a week [1], (5) Once a month [0], (6) Less than once a month [0], and (7) Never [0]. Recoding of the physical activity value (in square brackets) was done so that the ones being physically active less than once a week were collected in one group. The values were also turned, so that higher score meant more physical activity.

#### 5.2.4 Initiative

A modified version of the Youth Experience Survey (YES 2.0) was used to assess participant’s level of initiative when participating in physical activity. The complete YES-scale has been applied to measure positive and negative developmental experiences in various domains of adolescents’ everyday life (Hansen & Larson, 2007). The initiative scale in the original YES-instrument consists of four sub-scales: Goal-setting, effort, problem solving, and time management. The YES-scale in this study thus consisted of six items following a short introductory text: “During this school year: How often have you had the following experiences during physical activity?” Three of the questions regards effort experiences; “*I put all my energy into the physical activity I do in my spare time*”, “*I test and push my limits through physical activity in my spare time*”, and “*I focus my attention when I do physical activity in my spare time*”). One question regard goal setting; “*I learn to find ways to achieve my goals when I do physical activity*”. One question regard time management; “*I organize my day in order to do physical activity in my spare time*”. The last question taps into both problem solving and time management aspects; “*It is my own decision to take part in physical*

*activity in my spare time*". The response categories were on a four-point scale (coding in square brackets): (1) Very often [3], (2) Pretty often [2], (3) Sometimes [1], (4) Not at all [0]. A new variable was computed for the total score on the initiative-scale. The higher the score, the more initiative the participants report to experience.

### *5.3 Data analysis*

To address the first purpose of this study ANOVA analysis and frequency analysis were conducted to examine the gender differences present in the study variables. To study the second purpose of this study Pearson correlation analysis was employed to examine whether boys' and girls' socio economical status, body image, motivation and physical activity are correlated with the experience of initiative for boys and girls. For the third purpose of this study, multiple regression analysis was conducted separately for each gender to examine whether the predisposition factors, motivation factors and behavior factors predicted the experience of initiative.

## 6.0 Results

### *6.1 Preparation analysis*

A principal component analysis (varimax rotation) and inspection of the scree plot showed that the motivation variables represented three factors, which together explained 49.9 % of the variance in the variable (presented in Table 1). The three factors were health motivation ( $\alpha = .67$ ), achievement motivation ( $\alpha = .76$ ), and social motivation ( $\alpha = .63$ ). 'To improve my health', 'To get in good shape' and 'Enjoy feeling of using body' loaded on the health motivation factor. The variables 'To look good', 'To look good', 'To win', 'To be good at sport', 'To become like an athlete', 'To control my weight' and 'To please my parents' loaded on the achievement motivation factor. The variables 'To see my friends', 'To make new friends', 'To have fun', and 'It's exciting' loaded on the social motivation factor. Even though the item 'To please my parents' had higher loading on the social motivation factor, it was included into the achievement motivation scale due to theoretical considerations.

*Table 1.*  
Factor analysis of motivation items

Variables	Achievement motivation	Social motivation	Health motivation
To be cool	.77		
To look good	.72		
To win	.67		
To be good at sport	.66		
To become like an athlete	.64		
To control my weight	.43		
To please my parents	.41	.53	
To see my friends		.74	
To make new friends		.67	
To have fun		.58	
It's exciting		.57	
To get in good shape			.83
To improve my health			.76
Enjoy feeling of using body			.62

*6.2 Is there gender differences related to predisposition factors, motivational factors, or behavioral factors?*

The descriptive statistics are presented in Table 2 and Table 3 below, and are extended in more detail in sections, 6.2.1 to 6.2.4. The following section present a series of one-way, between groups ANOVA's (see Table 2) which were performed to investigate gender differences related to the variables in question. Since several of the variables are

categorical, frequency analysis (see Table 3) were conducted to get a better picture of the variance of scores.

*Table 2.*  
Distribution of predisposition factors, motivation factors, and behaviour factors for boys and girls.

	All		Boys		Girls		<i>F</i> <sup>a</sup>
	<i>n</i>	Mean (SD)	<i>n</i>	Mean (SD)	<i>n</i>	Mean (SD)	
Family affluence scale II	1187	<b>6.86</b> <b>1.58</b>	614	<b>6.89</b> <b>1.56</b>	573	<b>6.82</b> <b>1.6</b>	.44
Body Image	1173	<b>3.24</b> <b>.74</b>	606	<b>3.09</b> <b>.67</b>	567	<b>3.4</b> <b>.78</b>	53.71***
Achievement motivation	1185	<b>1.77</b> <b>.49</b>	612	<b>1.81</b> <b>.51</b>	573	<b>1.72</b> <b>.47</b>	9.46**
Health motivation	1195	<b>2.59</b> <b>.45</b>	617	<b>2.61</b> <b>.45</b>	578	<b>2.57</b> <b>.45</b>	3.32
Social motivation	1195	<b>2.64</b> <b>.38</b>	617	<b>2.64</b> <b>.38</b>	578	<b>2.63</b> <b>.38</b>	.41
Physical activity	1195	<b>3.31</b> <b>1.10</b>	617	<b>3.50</b> <b>1.05</b>	578	<b>3.12</b> <b>1.13</b>	36.13**

Note. \*\*p < .01.\*p < .05

### 6.2.1 Predisposition factors and gender difference

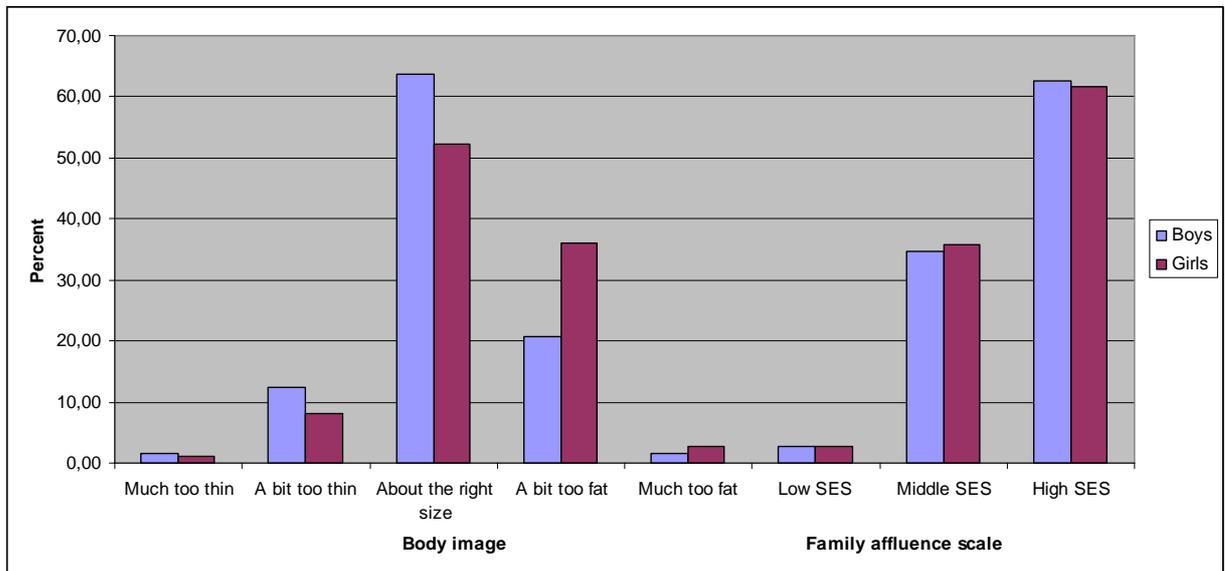
The group called predisposition factors contains measures of socio economical status and body image (see Table 2).

Socio economical status was measured by means of FASII, which consist of the sum of four items related to material deprivation and family affluence, ranging from one (low SES) to nine (high SES). The sample's average FASII was 6.86 ( $SD = 1.58$ ). There was no gender difference related to FASII ( $F(1,1187) = .44, n.s$ ), as boys reported an average FASII of 6.89 ( $SD = 1.56$ ), while the girls reported an average FASII of 6.82 ( $SD = 1.60$ ). The difference in socio economical status seemed to follow the same pattern for boys and girls (see Figure 1).

Body image is a variable measuring the respondent's perception of their weight. The average score of the sample was 3.24 ( $SD = .74$ ), indicating a general tendency to find their weight to be 'about the right' or 'a bit too fat'. The average body image for boys was 3.09 ( $SD = .67$ ), and for girls 3.4 ( $SD = .78$ ). The ANOVA analysis found that there was gender difference related to body image  $F(1,1173) = 53.71, p < .01$ . The frequency analysis (see Figure 1) show that while 64% of the boys reported their body image to be 'about the right size', only 52% of the girls reported the same results. On the other hand did 40% of the girls, compared to 21% of the boys report their body to be 'a bit too fat'. Less girls (8%) than boys (12%) reported their body to be 'a bit too thin'.

*Figure 1.*

Frequency analysis of background variables for boys and girls



### 6.2.2 Motivation factors and gender difference

The items measuring motivation was, by factor analysis, divided into three different types of motivation. One factor was called health motivation, one achievement motivation, and the last factor was social motivation (see Table 2).

Achievement motivation was the motivation factor that the respondents reported being the least important reason for liking physical activity ( $M = 1.77$ ,  $SD = .74$ ). Boys ( $M = 1.81$ ,  $SD = .51$ ) reported achievement motivation as more important,  $F(1,1185) = 9.46$ ,  $p < .01$ , than girls ( $M = 1.72$ ,  $SD = .47$ ). The frequency analysis (see Figure 2) suggested that the items 'to win', 'to be good at sports' and 'to become like an athlete' were especially more important for boys than for girls. 19% of the boys, compared to 8% of the girls reported that winning was a very important reason for being physically active. Doing physical activity to be good at sports was also rated as very important by

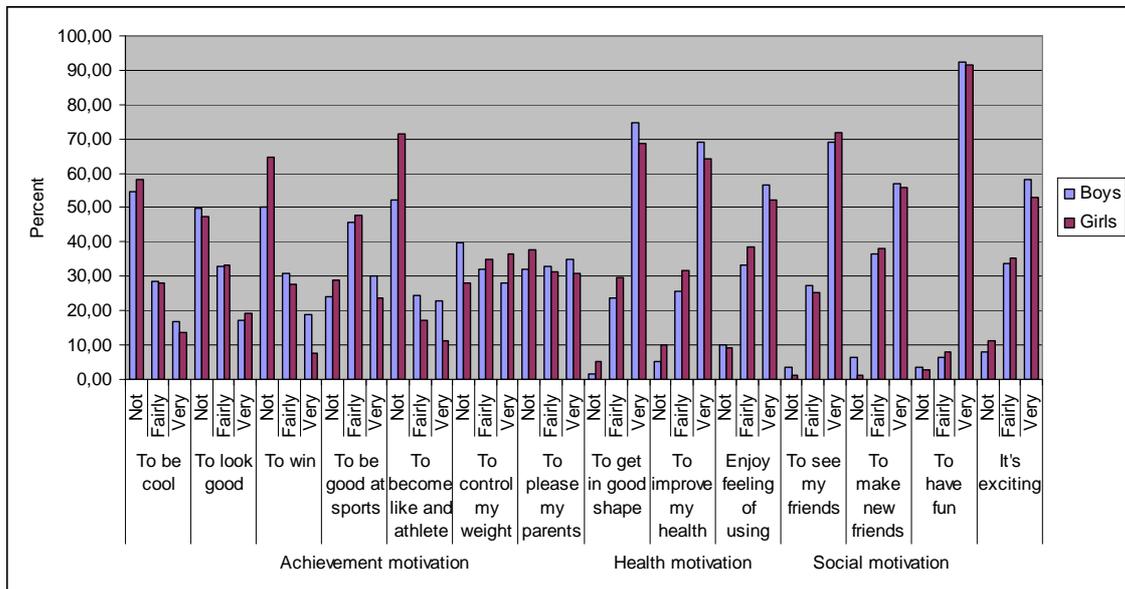
more boys (30%) than girls (24%). 23% of the boys and only 11% of the girls rated 'becoming like an athlete' as very important for doing physical activity.

Health motivation was rated the second most important factor ( $M = 2.59$ ,  $SD = .45$ ) explaining why the respondents liked physical activity. Health motivation was equally important ( $F(1,1195) = 3.32$ ,  $n.s$ ) for boys ( $M = 2.61$ ,  $SD = .45$ ) and girls ( $M = 2.57$ ,  $SD = .45$ ). The frequency analysis (see Figure 2) showed that 'to get in good shape' was the health motive most respondents rated as 'very important' for doing sports. 75% of the boys and 69% of the girls rated this as 'very important', while only 1% of the boys and 5% of the girls rated this as 'not important'. 'To improve my health' was the second most important reason for doing sports, which 69% of the boys and 64% of the girls rated as 'very important' while only 5% of the boys and 10% of the girls rated this as 'not important'.

The social motivation factor was the most important factor explaining why the respondents did physical activity ( $M = 2.64$ ,  $SD = .38$ ). Boys ( $M = 2.64$ ,  $SD = .38$ ) reported social motivation to be equally important as girls ( $M = 2.63$ ,  $SD = .38$ ), ( $F(1,1195) = 0.41$ ,  $n.s$ ). The frequency analysis (see Figure 2) showed that 'to have fun' and 'to see my friends' were the items rated as 'very important' by the most respondents. 92% of the boys and 92% of the girls rated 'to have fun' as 'very important', while only 4% of the boys and 3% of the girls reported that 'to have fun' was not important. The same tendency was present in the motive 'to see my friends', where 69% of the boys and 72% of the girls reported this as very important, while only 4% of the boys and 1% of the girls found this reason as not important for being physically active.

*Figure 2.*

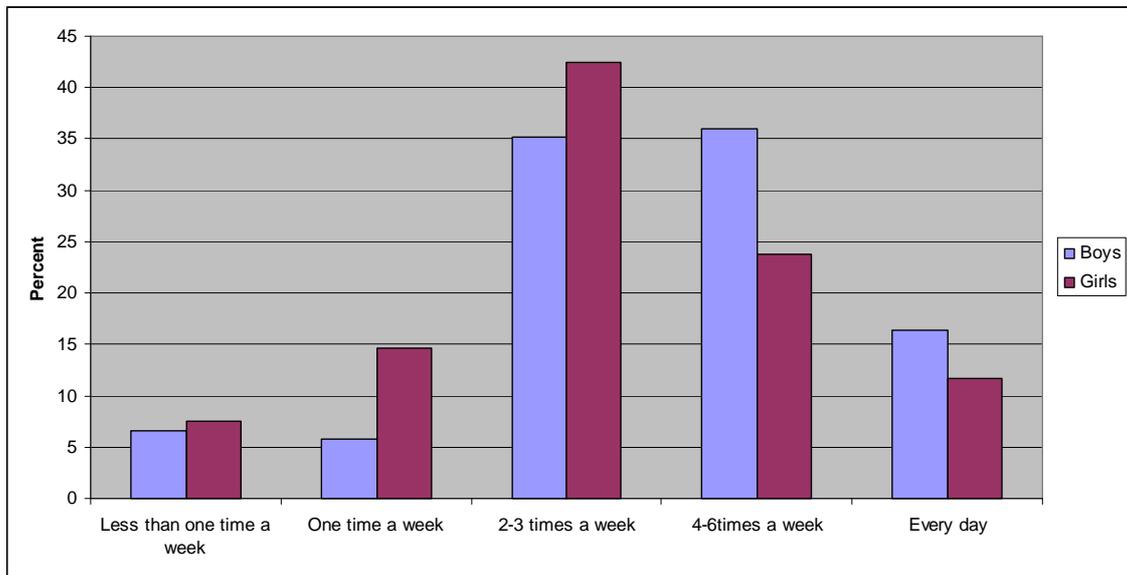
Frequency analysis of motivation factors for boys and girls.



### 6.2.3 Behaviour factors and gender difference

Outside of school hours, the average reported physical activity value was 3.31 ( $SD = 1.10$ ), to the extent that they get sweat or short of breath. The frequency analysis (see Figure 3) revealed that 16% of the boys, compared to 12% of the girls reported being physically active outside of school every day. 36% of the boys, compared to 24% of the girls reported being physically active 4-6 times a week, and 35% of the boys compared to 42% of the girls reported being physically active 2-3 times a week. Boys ( $M = 3.50$ ,  $SD = 1.05$ ) report being vigorously physically active more often ( $F(1,1195) = 36.13$ ,  $p < .001$ ) than girls ( $M = 3.12$ ,  $SD = 1.13$ ). The amount of respondents being active less than one time a week was about the same for boys (7%) and girls (8%).

Figure 3.  
Frequency analysis of behaviour factors for boys and girls.



6.3 Are boys’ and girls’ socio economical status, body image, motivation and physical activity correlated with initiative?

Correlation analysis was employed to examine the relation that boys’ and girls’ socio economical status, body image, motivation and physical activity may have to initiative.

Table 3.  
Correlations that predisposition factors, motivation factors and behaviour factors have with initiative for boys and girls.

	Boys	Girls
	Initiativ	
Family Affluence Scale II	.04	.21**
Body Image	-.04	.02
Achievement motivation	.29**	.23**
Health motivation	.45**	.37**
Social motivation	.33**	.29**
Physical Activity	.45**	.46**

Note. \*\*p < .01. \*p < .05

### 6.3.1 Are boys' and girls' predisposition factors correlated with initiative?

Pearson correlation analysis showed that FASII was positively correlated (see Table 3) with initiative for girls ( $r = .21, p < .01$ ), but not for boys ( $r = .04, n.s$ ). High socio economical status for girls is related to more experience of initiative. Socio economical status was not related to initiative for boys.

Body image did neither correlate (see Table 3) with initiative for boys ( $r = -.04, p > .05$ ) nor for girls ( $r = .02, p > .05$ ).

### 6.3.2 Are boys' and girls' motivational factors correlated with initiative?

The correlation analysis showed that initiative was significantly correlated with all three types of motivation for both boys and girls.

Achievement motivation (see Table 3) was the motivation factor that correlated the weakest with initiative for both genders (boys:  $r = 0.29, p < .01$ ; girls: ( $r = 0.23, p < .01$ ). The correlation was however significant and showed that higher achievement motivation was related to more initiative feelings.

Health motivation (see Table 3) was shown to have the strongest correlation with initiative for both boys ( $r = 0.45, p < .01$ ) and girls ( $r = 0.37, p < .01$ ). This correlation was positive, which indicated that more health motivation was related to increased experience of initiative.

Social motivation (see Table 3) was shown to have the second strongest correlation with initiative for both boys ( $r = 0.33, p < .01$ ) and girls ( $r = 0.29, p < .01$ ). The more important the social motives were for the respondents, the more reported initiative.

### *6.3.3 Are boys' and girls' behavioural factors correlated with initiative?*

Physical activity and initiative correlated (see Table 3) for both boys ( $r = .45, p < .01$ ) and girls ( $r = .46, p < .01$ ). The correlation was positive, which indicate that higher frequency of physical activity, are related to increased experience of initiative.

### *6.4 Do predisposition factors, motivation factors and behaviour factors predict initiative?*

To examine the second purpose of this study, multiple regression analysis was employed to determine whether predisposition factors, motivational factors and behavioral factors predict the experience of initiative for boys and girls. All blocks were plotted separately, where predisposition factors were followed by motivational factors and behavioral factors. The predisposition factors consisted of a variable measuring socio economical status called 'FASII' and a called 'body image'. The motivational factors consisted of three variables called 'achievement motivation', 'health motivation' and 'social motivation'. The behavioral factors consisted of amount of 'physical activity'. The regression analysis was performed separately for boys and girls (see Table 4).

#### *6.4.1 Boys*

The results of the regression analysis for boys ( $n = 568$ ) showed that the (i) predisposition factors 'socio economical status' and 'body image' did not did give a significant contribution to the explained variance in initiative. By entering the (ii)

motivation factors ‘achievement motivation’, ‘health motivation’ and ‘social motivation’ there was a 23% increase ( $p < .001$ ) in explained variance. ‘Achievement motivation’;  $\beta = 0.14, p < .01$ , ‘health motivation’;  $\beta = .35, p < .001$  and ‘social motivation’;  $\beta = .10, p < .05$ , and were the significant predictors. By adding the (iii) behavioral factor ‘physical activity’ explained variance increased by 13% ( $p < .001$ ) hence explaining 37% of the variance in initiative ( $p < .001$ ). The significant predictors in the final regression model were ‘achievement motivation’;  $\beta = .11, p < .01$ , ‘health motivation’;  $\beta = .30, p < .001$  ‘social motivation’;  $\beta = .09, p < .05$ , and ‘physical activity’;  $\beta = .36, p < .001$ . Thus, the results of the regression analysis suggest that none of the predisposition factors predict initiative for boys. However the motivational factors ‘achievement motivation’, ‘health motivation’, ‘social motivation’ and the behavioral factor ‘physical activity’ predict the experience of initiative for boys.

#### 6.4.2 Girls

The results of regression analysis for girls ( $n = 528$ ) suggested that predisposition factors ‘FASII’ and ‘body image’ explained 4% of the variance ( $p < .001$ ) of initiative. ‘FASII’ was the only significant predictor;  $\beta = 0.18, p < .001$ . By entering the (ii) motivational factors ‘achievement motivation’, ‘health motivation’ and ‘social motivation’ there was a 18% increase in explained variance ( $p < .001$ ), with altogether 21% accounted for ( $p < .001$ ). ‘FASII’;  $\beta = .18, p < .001$ , ‘achievement motivation’;  $\beta = .11, p < .05$ , ‘health motivation’;  $\beta = .30, p < .001$  and ‘social motivation’;  $\beta = .14, p < .01$  were the significant predictors. By adding the (iii) behavioral factor consisting of ‘physical activity’ into the model, the explained variance increased by 12% ( $p < .001$ ),

and altogether 34% of the variance in initiative was accounted for ( $p < .001$ ). The significant predictors in the final regression model were 'FASII';  $\beta = .11, p < .01$ , 'achievement motivation';  $\beta = .09, p < .05$ , 'health motivation';  $\beta = .24, p < .001$ , 'social motivation';  $\beta = .11, p < .01$  and 'physical activity';  $\beta = .37, p < .001$ . Thus, the results of the regression analysis suggest that the predisposition factor 'socio economical status', the motivational factors 'achievement motivation', 'health motivation', 'social motivation' and the behavioral factor 'physical activity' predict the experience of initiative for girls.

Table 4.

Predicting initiative by means of predisposition factors, motivation factors and behavior factors for boys and girls.

	B	SEB	β	R <sup>2</sup>	ΔR <sup>2</sup>
<b>Boys (n = 568)</b>					
<b>Step 1. Predispositional factors</b>				.01	.01
Family Affluence Scale II	.13	.11	.05		
Body Image	-.27	.25	-.05		
<b>Step 2. Motivational factors</b>				.24***	.23***
Family Affluence Scale II	.1	.1	.04		
Body Image	-.23	.22	-.04		
Achievement motivation	1.02	.22	.14**		
Health motivation	3.02	.36	.35***		
Social motivation	1.04	.45	.1*		
<b>Step 3. Behavioral factors</b>				.36***	.13***
Family Affluence Scale II	.04	.09	.02		
Body Image	-.13	.20	-.02		
Achievement motivation	.81	.27	.11**		
Health motivation	2.56	.34	.30***		
Social motivation	.95	.41	.09*		
Amount of physical activity	1.37	0.13	.36***		
<b>Girls (n = 528)</b>					
<b>Step 1. Predispositional factors</b>				.04***	
Family Affluence Scale II	.47	.10	.18***		
Body Image	.15	.21	.03		
<b>Step 2. Motivational factors</b>				.21***	.18***
Family Affluence Scale II	.43	.09	.18***		
Body Image	-.07	.19	-.02		
Achievement motivation	.85	.34	.11*		
Health motivation	2.53	.36	.30***		
Social motivation	1.39	.44	.14**		
<b>Step 3. Behavioral factors</b>				.34***	.12***
Family Affluence Scale II	.27	.09	.11**		
Body Image	.07	.18	.02		
Achievement motivation	.77	.32	.09*		
Health motivation	2.06	.33	.24***		
Social motivation	1.05	.40	.11**		
Amount of physical activity	1.29	0.13	.37***		

Note. \*\*\*p < .001, \*\*p < .01, \*p < .05

## 7.0 Discussion

The present empirical project addressed the experience of initiative and its relation to motivation and amount of physical activity among 13 year old boys and girls. The first purpose of the study was to examine whether genders differed in levels of predisposition factors, motivational factors or behavior factors assumed to be related to initiative. The second purpose of this study was to examine whether boys' and girls' socio economical status, body image, motivation and physical activity correlated with initiative. The third purpose was to examine if predisposition factors, motivation factors and behavioral factors predicted the experience of initiative. The overall results support the theoretical assumptions and previous research findings of gender differences and the relationship between background variables, motivation, physical activity, and positive health development. The following paragraphs will discuss the findings in more detail.

### *7.1 Summary of the results*

1. There seems to exist gender difference in relation to body image, achievement motivation and amount of physical activity.
2. Boys' and girls' socio economical status, motivation and amount of physical activity are correlated with initiative.
3. Motivational factors and behavior factors predict the experience of initiative for boys and girls. Predisposition factors only predicted the experience of initiative for girls.

## *7.2 Are there gender difference related to predisposition factors, motivation factors and behavior factors?*

The first purpose of this study was to examine whether there existed any gender difference related to predisposition factors, motivation factors or behavior factors.

### *7.2.1 Gender difference in predisposition factors*

There was as expected no gender difference related to socio economical status. Body image was measured by asking the respondents to rate their body on a continuum from 'much too thin' to 'much too fat'. Those reporting their body to be 'a bit too fat' or 'much too fat' were assumed to be dissatisfied with their body. In accordance with previous research (Storvoll et al., 2005; Markland & Ingledeu, 2007; Paxton et al., 1991; Mackey & La Greca, 2008) this study found gender difference related to body image. 40% of the girls reported being 'a bit too fat', while only 21% of the boys reported the same. Both genders had an average BMI which was within the normal range, and should therefore have a body image portraying 'about the right size' to correspond to the normal range BMI. The gender difference in body image can in other words not be explained by difference in BMI, due to the fact that no gender difference related to BMI was found in this sample. The respondents are around 13 years of age, and gender difference may be explained by differences in pubertal timing. Adolescents are daily exposed to large amounts of images that idealize thin, muscular, lean individuals that do not match adolescent bodies in growth (Evans, Roy, Geiger, Werner, & Burnett, 2008). While maturing girls tend to increase in weight and proportion of fat, maturing boys gain muscle mass (Meland et al., 2007). Boys will in other words develop in a way that approaches their ideal body shape, while girls develop in a way

that alienates them from their ideal body shape. As physical activity are known to be related to improvement in body image (Ferron et al, 1999) and different view of body image (Ommundsen, 2000), physical activity or motives to perform physical activity may have impact on the gender difference found in relation to body image.

### *7.2.2 Gender difference in motivation factors*

Both genders reported health motivation and social motivation to be more important than achievement motivation as reasons to be physically active. Even though there was no gender difference in reported importance of health motivation or social motivation, boys seemed to be more motivated by the competitive aspects of physical activity than girls. Similar results have been found in previous research (Wold & Kannas, 1993; Wold, 1989). As achievement motivation refers to a person's efforts to achieve excellence, perform better than others, and take pride in exercising talent (Murray, 1938), this gender difference may be caused by the fact that boys are expected to be more competitive than girls (Koivula, 1999). This assumption is supported when looking at the achievement motivation items. 'To win' and 'to become like an athlete' are the items where the discrepancies look the largest in reported importance for performing physical activity. 19% of the boys and only 8% of the girls reported that winning was an important reason for being physically active, while 63% of the girls and 50% of the boys reported winning to be of no importance. The same tendency is present in the item 'to become like an athlete', where 23% of the boys and 11% of the girls reported this to be very important and 52% of the boys and 71% of the girls reported this to be of no importance. Even though there are gender differences related to the more competitive motives it must be underlined that the majority of both genders find

the competitive motives to be of no importance. Girls do however find it less important than boys. A factor responsible for the gender difference in competitiveness may actually be choice of activity. As boys more often are involved in team sports, while girls prefer individual sports it may be a naturally occurring phenomenon that boys value competitive motives higher than girls. It becomes a part of the sport and the fun of the game. By controlling for type of sports one might find that there are greater individual differences than gender differences related to competitiveness. Earlier research has shown that androgynous and cross gender typed women rate competition higher than the gender typed and undifferentiated women (Koivula, 1999). These women did however rate competition as less important than gender typed and androgynous men (Koivula, 1999).

The items considered less competitive within the achievement motivation factor do not seem to have the same discrepancy between genders. For example do 17% of the boys and 19% of the girls rate 'to look good' to be very important, while 50% of the boys and 47% of the girls rate this as not important. What is however noticed in terms of gender discrepancy is that 28% of the boys and 37% of the girls report 'to control my weight' as very important, whereas 40% of the boys and 28% of the girls report this to be of no importance. This finding may be important when seen in combination with the gender difference found in body image. Girls are more prone to be dissatisfied with their weight and to be physically active in order to control their weight. To stimulate to positive development it may be of importance to promote a healthy focus on body in order to change focus from appearance to focus on physical self efficacy. The latter may also nurture environments and attitudes that are more successful in satisfying the need for competence and autonomy.

Overall do the results support earlier research indicating that body related motives are stronger for girls than for boys (Koivula, 1999) and that the competitive aspect are stronger for boys than for girls (Sirard et. al., 2006; Wold & Kannas, 1993). Genders may on other words have different goals related to physical activity and this is important to take into consideration when promoting physical activity to adolescents.

### *7.2.3 Gender difference in physical activity.*

Physical activity was in the present empirical work defined as the number of times physical activity was performed in vigorous intensity outside of school hours. Such activities are more prone to be characterized by voluntary participation therefore autonomy; skill development therefore competence; and socialization therefore relatedness. ANOVA results of the present data showed that boys reported being physically active more often than girls. While 52% of the boys reported being physically active more than 4 times a week, only 36% of the girls reported the same amount of physical activity. The majority of girls (42%) seemed to report being physically active 2-3 times a week. This study does, contrary to earlier research on 13 year olds (Strauss, 2001) find gender differences related to amount of physical activity.

The existing gender difference may be caused by choice of intensity related to physical activity. Previous research indicates that girls more often participate in (Ferron, 1999) and prefer physical activity performed in low to moderate intensity (Tao et al., 2007), whilst boys may often practice in high intensity. How the question about amount of physical activity is formulated may therefore be of crucial importance when considering gender differences.

Even though there was gender differences related to amount of physical activity both genders in this study reported being physically active outside of school hours several times a week. These findings correspond to earlier research, which suggest that 70% of Norwegian adolescents are active more than two times a week (Søgaard, 2000). Taken into consideration that they may also be active during school hours, most of the respondents seem to approach the recommended amount of physical activity of 60 minutes every day (Anderssen & Strømme, 2001). This may be positively related to physical health benefits such as reducing muscle and skeletal problems (Anderssen & Strømme, 2001), decreasing stress and amount of problem behaviors as smoking, use of marihuana and drinking (Ferron, 1999), increasing energy levels and decreasing the risk of overweight (Anderssen & Strømme, 2001). In addition they have more frequent opportunities to learn important life skills and attain valuable competencies and feelings of coping (Biddle & Mutrie, 2001). This may in turn stimulate to increased experience of initiative, and thereby be beneficial for positive development.

### *7.3 Are boys' and girls' socio economical status, body image, motivation and amount of physical activity correlated with initiative?*

The second purpose of this study was to examine whether the predisposition factors, motivation factors and behavior factors were correlated to the experience of initiative, and whether the strength of the correlations differed among the two genders.

#### *7.3.1 Predisposition factors and initiative*

Socio economical status seems to correlate with initiative for girls, but not for boys. The results of this study indicate that better economical status is related to more reported

experience of initiative among girls. Considering that socio economical status is related to amount of physical activity (Conner, 2005; Mahoney et al., 2005), and that physical activity is known to increase experience of initiative (e.g. Larson, 2000; Larson, Hansen & Moneta, 2006), it may be logical that socio economical status is related to initiative. The correlation of socio economical status and initiative may have been strengthened by the fact that girls from lower socio economical status report less physical activity (Inchley et al., 2005). Nonetheless is a valuable finding that girls from lower affluence may participate less in initiative stimulating activities and may report less experience of initiative. The results indicate that it may be of great importance to assure that this at-risk group has the opportunity to be members of an environment that fosters positive development.

Body image does not seem to correlate with the experience of initiative for boys nor for girls. Earlier research has found body image and performing physical activity to lose weight to be correlated with more controlled and less autonomous motivation (Markland & Ingledew, 2007). This study does not support these findings, as no relationship between body image and initiative seems to be present. This may however be caused by age differences. The respondents in this study are 13 years old, and may not have reached the critical period in adolescence where their body changes the most. Even though a large group of girls reported their body to be too fat, body image does not seem to be related to the feeling of initiative for either gender.

### *7.3.2 Motivation factors and initiative*

Achievement motivation, health motivation and social motivation are correlated with the experience of initiative. The study suggest a dose-responder relationship, where increased motivation result in increased initiative feelings.

Achievement motivation emphasizes a person's orientation to strive for success, persist in the face of failure, and experience pride in accomplishments (Gill, 2000). The achievement theories state that people are involved in activities to reach certain goals in order to experience mastery of skills. This need to reach goals and to develop new skills can be related to the concept of competence as stated in the self determination theory. Whether the motivation will have positive impact on the initiative feeling are decided by the internalization of the motives. In other words is it not just the amount of motivation that are important for the experience of initiative, but also the quality of the motivation (Deci & Ryan, 2008). Even though a certain goal might be externally rewarding, like pleasing parents, the adolescents may also accept the importance of this goal and therefore feel ownership of the behavior. This may further lead to identification with the value of the activity and acceptance of the responsibility for regulation the behavior (Deci & Ryan, 2007). This may lead to satisfaction of the need for autonomy and thereby experience of initiative.

Health motivation is correlated with initiative for both girls and boys. These results support the health belief model which state that perceptions of illness threat and evaluation of behaviors related to counteract this threat is important for choice of behavior (Conner & Norman, 2005). When the perceived benefits toward physical activity outweigh perceived barriers, a person will have a positive evaluation of engaging in physical activity (Deforche et. al, 2006). Health motivation was the type of

motivation that correlated most strongly with initiative for both genders. This indicates that adolescents in this study value the health benefits of physical activity, and that these are considered important for performance of physical activity. The health motivation variable consists of the items 'to get in good shape', 'to improve my health' and 'enjoy feeling of using body'. The fact that very few respondents (1-10%) reported health motives to be unimportant for performing physical activity, may further strengthen the suggestion that health benefits are highly valued for adolescents. It also suggests that adolescents have knowledge about the health benefits of physical activity.

Social motivation was the motivation factor that had the second strongest correlation with initiative for both genders. This relation suggests that relatedness may be important for the experience of initiative as postulated by self determination theory. The items measuring social motivation were; 'to see my friends', 'to make new friends', 'to have fun' and 'it's exciting'. While the two first items are stereotype measures of relatedness, the two last items are more related to intrinsic motivation and feeling of flow. To do something because it is fun or because it is exciting might mean that the activity are performed for its own sake, which is one of the prerequisites for an activity to be intrinsically motivating or flow producing.

### *7.3.3 Physical activity and initiative*

Physical activity did correlate with the experience of initiative, where more physical activity was related to more initiative experiences. This is in accordance with previous research which found that there exist a dose-effect relationship between time spent doing a given leisure time activity and amount of experienced initiative (Hansen & Larson, 2007; Bauman & Owen, 1999). Whether there is a lower threshold necessary to

gain a certain effect of the physical activity is uncertain. The same issue accounts for whether physical activity has a maximum effect on initiative, or if after a certain amount of physical activity the effect shift towards the negative. Precisely how much energy is required to offset the risk of disease is unknown. The positive effects have been seen ranging from approximately 700-2000 plus kilocalories of effort per week (Fletcher, Balandy, Froelicher, Hartley, & Pollack, 1996). The variation may be caused by the fact that people are different, as amount of burned calories are dependent upon amount of body weight, intensity and frequency of the physical activity (Helsedirektoratet, 2009). The effects of the physical activity are also dependent on the individuals' actual fitness level. While an inactive individual may achieve significant health benefits by going from a sedentary state to a minimal level of physical activity, a moderately active individual must persist to physical activity involving higher intensities to achieve additional health benefits (Williams, 1997). Whether the amount of physical activity assumed to be necessary to offset the risk of disease also stimulate to positive health development are yet to be discovered. To examine such a matter one must be able to find the factors that predict the aspects of positive development.

#### *7.4 Do predisposition factors, motivation factors and behavior factors predict initiative?*

The third purpose of this study was to examine whether predisposition factors, motivation factors and behavior factors could predict the experience of initiative. Predicting initiative was done by performing a multiple regression analysis with all the variables thought to influence the experience of initiative clustered into different blocks. The choice of which factors to include was based on the theoretical assumptions derived

from research based on Self Determination theory. This research suggest that socio economical status is related to the experience of initiative (Mahoney et al., 2005), as are body image (Markland & Ingledew, 2007). Motivation is also suggested to predict amount of initiative (Ryan & Deci, 2000; Deci & Ryan, 2008; Williams et al., 2002), as are amount of physical activity (Wilson, Mack, & Grattan, 2008; Larson, 2000; Hansen, Larson & Dworkin, 2003); Larson et al., 2006).

The first block added in the regression was background variables consisting of socio economical status and body image. Previous research indicate that socio economical status may influence the experience of initiative, due to the fact that those with higher socio economical status more often participate in activities which stimulate to the experience of initiative (Ferron, 1999; Inchley et al., 2005; Mahoney et al., 2005). Another predisposition factor suggested to predict initiative, in addition to be related to physical activity, is body image (Ferron, 1999). Markland & Ingledew (2007) showed that dissatisfaction with body image can have negative impact on the feeling of autonomy. This is especially probable if the respondents are physically active in order to lose weight. Also, overweight adolescents portray a more negative attitude towards physical activity than adolescents with normal weight (Deforche et al., 2006). This negative attitude may weaken the enjoyment level and thereby decrease the intrinsic motivation.

The results of this study suggested that predisposition factors predict initiative for girls, but not for boys. Even though earlier research indicates that body image is related to the feeling of initiative, this study does not find results indicating that body image predicts initiative. Even though a large group of girls report their body to be 'too fat' and several reported being physically active in order to control weight, this does not

seem to affect the feeling of initiative among adolescents in this sample. Earlier research on body image and self determination theory are mainly researched with adults as respondents. These adults are more prone to do physical activity in health centers where the majority of people exercise due to appearance motives. In addition are health centers actually been suggested to worsen the body image of its members, especially among those that performed cardio exercise to lose weight (Prichard & Tiggeman, 2008). It may be that adolescents are more likely to be physically active in team sports or organized settings where there is a broader focus on physical activity. Instead of solely focus on appearance there might be focus on having fun, socializing, develop skills and improving health.

Even though body image did not predict initiative for either gender, the results suggest that socio economical status predict 4% of the variance of initiative experience for girls. The higher economical status the girls are of, the higher are the experience of initiative. There where no gender difference related to socio economical status, so this gender difference in prediction of initiative can not be caused by difference in socio economical status per se. The finding that girls of lower socio economical are less likely to participate in physical activity than girls of higher socio economical status is a known phenomenon (Inchely et al., 2005). Considering that girls of higher socio economical status seem to be less frequently active than boys of lower socio economical status (Incheley et al., 2005), it can be assumed that this tendency is weaker among boys. When participation in physical activity is less frequency it is logical that there is less experienced initiative. One misses the opportunity to be part of an environment that facilitates positive growth and to experience mastery and development of skills. Why these girls are less physically active than their male counterparts are on the other hand

unknown. Maybe it is easier for boys to use physical activity as a way of hanging out with their friends? Or maybe the opportunities to be physically active are better arranged for boys than for girls? Or maybe boys are more interested in physical activities than girls? What ever the reason girls from lower socio economical status have for living a more sedentary lifestyle, it is important to examine how to promote an active lifestyle to this at risk group. The idea is to increase the possibility to be members of an environment that is stimulating and interesting in order to make the individual reach their full potential and facilitate to positive development. The Norwegian government emphasizes the importance of equal opportunities and stimulation, by stating the following in their public health policy: *“It is important to secure that adolescents can develop in contexts that are stimulating, in order to build a sense of responsibility for their own life, and to develop individual skills and resources. Furthermore, equal rights and access to developmental opportunities, regardless of family background and geographical belonging, are stated as prerequisites to realize healthy development for all”* (Regjeringen, 2002; St.meld.nr.16, 2002-2003; St.meld. nr.39, 2001-2002).

Three types of motivation were added as a second block in the regression analysis. This block predicted 24% of the variance for boys and 18% of the variance of initiative for girls. The strongest predictor for both boys and girls, after the second block was added, was the health motivation factor. Social motivation and achievement motivation were also significant predictors for both gender, however socio economical status was only a predictor for the girls. According to the theoretical foundation of initiative, which suggest that autonomy and competence are prerequisites for intrinsic motivation (Deci & Ryan, 2002; Ryan & Deci, 2000), and thereby initiative, it would be

logical to assume that achievement motivation would be the best predictor of initiative. The postulation of achievement related motives may indicate that the adolescents are more focused on goal achievement. Taken into consideration that the initiative variable in this study also contains several questions directly relating to effort experiences and goal setting, it is questionable why achievement motivation did not predict initiative. An explanation may be that this study does not measure the quality of the motives. If the basic needs of the adolescents are satisfied to a greater extent through social motives and health motives it is logical that these types of motives result in more initiative. Health motivation did predict initiative, and the health benefit theory may help to understand why adolescents experience initiative, by pointing to reasons why adolescents are physically active. Social motivation also seems to predict initiative, by means of being important for physical activity. This strengthens the notion that relatedness may be important for the experience of initiative (Ryan & Deci, 2000). It also supports the flow theory (Csikszentmihalyi, 1997) which states that to experience the feeling of flow does not merely require sustained attention and focus, but also enjoyment of the activity at hand. The fact that health motives and social motives are important for adolescents' choice to initiate activities where they experience initiative must be taken into account when promoting physical activity and fostering positive health development.

The third block added to the regression analysis was amount of physical activity, which was a good predictor of initiative for both genders, hence increasing the explained variance with 13% for boys and 12% for girls. Previous research demonstrates that organized activities do provide superior opportunities to experience initiative, but does this also mean that physical activity per se provide the same

opportunities? Physical activity is characterized by many of the same elements that are considered important for initiative development, such as exerting effort, working towards a goal, mastering challenge, and achieving of results (Skagseth, 2008). In the same matter, physical activity may involve elements that are crucial for experiencing flow, feeling fascination towards the activity, absorption in the activity, and feeling of excitement while performing the activity (Hunter & Csikszentmihalyi, 2002).

Satisfaction of the needs for autonomy, competence, and relatedness in physical activity will foster intrinsic motivation, and provide a safe environment that facilitates positive development (Ryan & Deci, 2000). Self-determination theory postulates that competence and autonomy are the most important for intrinsic motivation (Ryan & Deci, 2000). Based on this assumption, Larson mentions autonomy as a prerequisite for the experience of initiative (Larson, 2000). The need for competence is the strongest predictor of initiative research, but Schistad & Bergstøl (2007) actually found autonomy to be a weaker predictor of initiative than relatedness was. It is not unexpected that competence is the strongest predictor of initiative, considering the emphasis on competition and results that may be present in environments for physical activity. Since the study focused on physical activity apart from the one carried out during school hours, it may be assumed that at least parts of this physical activity may be freely chosen by the participants. By choosing to perform a certain activity the participants must have a degree of interest in doing the activity. Interest requires action, and those who experience a great deal of interest in their lives would also be likely to believe that they are the volitional force behind their action (Hunter & Csikszentmihalyi, 2002) and thereby agents of their own development. This would likely result in continued feelings of initiative feelings.

Achievement motivation, health motivation and amount of physical activity were predictors of initiative for boys, whereas socio economical status also predicted initiative for girls. Altogether the final model explained 37% of the initiative for boys and 34% of the initiative for girls.

### *7.5 Promotion of positive health development*

To promote positive health one need to know how to get the adolescents interested in the health behaviors assumed to have positive health benefits. Another important obstacle is to maintain these health benefits over a longer period of time, most preferably into adulthood to prevent the prevalence of lifestyle diseases that seem to increase among the Western population. Even though the promotion of initiation of physical activity might have successful outcomes, the fact that there is a large drop-out rate in physical activity must be taken into consideration. It is therefore of crucial importance to create physical activity environments that satisfy the individuals basic needs so that the activity may be performed with intrinsic motivation that result in the feeling of initiative, or with the feeling of flow. The important aspect is to keep the adolescent interested in the given activity.

Research on motivation and initiative give important guidelines to what initiate interest among adolescents and which needs that have to be satisfies in order to maintain this interest. So, how to make someone initiate physical activity, and how to make them maintain the performance of physical activity?

This study shows that adolescents' motives for doing physical activity include achievement motivation, health motivation and social motivation. Among other goals,

both boys and girls chose to be physically active to get in better shape, to win, to lose weight, and to have fun while being with friends.

When promoting the initiating of physical activity it may be important to rely on the health benefit model and give adolescents information about the health benefits they may attain by developing good habits related to physical activity. Also the social aspect of the physical activity needs to be promoted and activities need to be organized in a matter that creates belongingness and attachment to the social context. The need for relatedness can also be used in promotion of physical activity, for example by using pictures of peers being physically active and having fun together. As achievement motivation also predicted the experience of initiative in this study, it may be important to also promote different goals that may be attained by performing physical activity. A physical activity environment should however not overemphasize peer comparisons related to performance, as this could result in a competitive focus rather than focus on socializing and having fun. An alternative way of challenging the adolescents' skills would be to focus on competition against one self, and try to give feedback that foster these individual competence perceptions. Competence is an important need that need to be satisfied in order to be intrinsically motivated, and an environment that do not give adolescents challenges to match their skills may not keep the individual excited and interested in the given activity. This feeling of excitement, or flow should also be promoted and talked about, as this is the reason why many people maintain a given activity. Feeling of choice and autonomy are also important factors that keep adolescents in physical activity. They need to feel that they are the owner of the choice to become and maintain physical activity. This feeling of choice can be strengthened by not relying too much on external rewards. As flow theory and self determination theory

clearly states, a given activity must be freely chosen and performed for its own sake to be intrinsically motivated or produce the feeling of flow. External rewards may decrease the feeling of excitement when performing the activity, as focus may shift to the reward instead of the performance itself.

The last issue to consider is to prevent that physical activity turns into a boring activity. By transforming physical activity into a boring activity, adolescents will not feel aroused or motivated, and all the intrapersonal reasons for performing the activities are missing. The activity becomes a chore, and will not result in the development of positive health that was hoped for.

### *7.6 Strengths and limitations*

The following sections will consider the strengths and weaknesses of the current study.

First of all, this thesis adds to previous work in the field of health psychology by investigating the nature of underlying elements in the relationship between initiative and its predisposition factors, motivation factors and behaviour factors.

Secondly, this study's internal consistency is high considering the use of survey instruments that are widely used and acknowledged in a range of countries across the world. Reliability is also assumed to be high considering that the study uses a large sample of randomly selected participants' representative of Norwegian adolescents.

Thirdly, the findings in this study may have implications for the promotion of health among adolescents. Specific scientific knowledge about the factors that affect positive development may help to understand what needs to be the focus in order to reach the adolescents and make them participate in health stimulating activities.

There are however methodological issues regarding the survey method, and the instruments used to measure socio economical status, body image, motivation, physical activity and initiative. As the survey uses closed questions the participants are forced to choose one of the alternatives dictated in the survey. This excludes other opinions that the respondent may have. On the other hand the survey obtains answers to the chosen specific questions and can compare this among the respondents.

Furthermore, this study does not separate between organized and organized activities. Even though this was deliberate in order to measure whether physical activity per se stimulate to positive development, one does not know how many of the respondents are part of organized activities and whether these report more initiative than respondents being physically active, but not organized.

A several of the variables are correlated collinearity issues has to be considered. This may result in imprecise estimates of the regression analysis. As remedies the variables were clustered into three different factors.

The initiative measure is a relatively new measurement, and the validity of the instrument should be considered. It may be that the instrument measures personality characteristics instead of experiences.

A further limitation is that this study does not measure the quality of the motivation or the satisfaction of basic needs. Future research should include this in order to find support for the theoretical assumptions to a greater extend.

### *7.6 Conclusion*

Initiative is an important requisite for positive development in adolescence. It is known to be experienced and developed in settings with physical activity. As physical activity also has several other health benefits it is convenient to use this as an arena for positive health development. In order to persuade adolescents to alienate themselves from a sedentary lifestyle it is of great importance to make them interested in physical activity. To transform adolescents into physically active individuals one has to know the predisposition factors in order to understand where to start making changes. One has to know the motives they cite for choosing to become physically active in order to attract them towards physical activity and make them interested in physical activity.

Both boys and girls seem to have several motives for being physical active. It is therefore of importance to arrange activities that foster a rich environment. Especially important is it to make sure that physical activity is an enjoyable activity that the adolescents can experience together with their peers. It is also important to inform adolescents about the health benefits that they attain by being physically active, and maybe use small tests to show that these health benefits actually are attained.

To reach out to the most adolescents, practical interventions would be easiest to arrange in large proportions, more like physical activity at school, but without the pressure to achieve. The community could focus on adult supervised arrangements where several adolescents meet at scheduled times to do some kind of sports. To foster autonomy it might be a point that the activity in question are chosen by the adolescents themselves. By having such an arrangement adolescents have a place to hang out with their friends, in an environment that stimulates to competence, autonomy, relatedness

and positive development. It may keep the adolescents interested and occupied, instead of bored and on hunt for exciting and potentially at risk adventures.

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