From the Department of Neurobiology, Care Sciences and Society
Karolinska Institutet, Stockholm, Sweden

SELF-REPORTED HEALTH AND SOCIAL ALIENATION IN SWEDISH ADOLESCENTS

A cross-sectional study among high-school students in Stockholm

Jalal Safipour

Karolinska Institutet

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ABSTRACT

Background: Adolescents' health-damaging behaviors and social alienation of young people are recognized as public-health problems. One of the hypotheses that is emerging and evolving in the sociology, physiology, and health fields is that individuals with a great feeling of alienation are at risk of mental health problems and present negative health-risk behaviors. The number of adolescents who experience health problems, in particular mental health problems, in Sweden is increasing. The health of adolescents is one of the main concerns for public health researchers, but there is a paucity of evidence concerning health-related social alienation in Sweden.

Objectives: This thesis aims to investigate the relationship between the feeling of social alienation and self-reported health. The first sub-study aims to provide an appropriate social alienation scale for use in the Swedish context and among adolescents. The second and third sub-studies aim to explore social alienation and the self-reported health status of Stockholm's high-school students by examining the role of age, sex, and immigration background. The fourth sub-study investigates the relationship between self-reported health and the feeling of social alienation. The final sub-study investigates the relationship between the feeling of alienation and mental health by examining the role of socio-economic factors.

Materials: The thesis is built around five articles through the analysis of data gathered with the Nottingham health profile (NHP) and the Jessor and Jessor social alienation scale. The data were collected from eight high schools in Stockholm, and the number of participants was 446 (age = 15–19; SD = 1.01; mean = 17).

Results: The Jessor and Jessor alienation scale translated to Swedish and several validity methods such as translation and back-translation and face, content, and construct validity were used. A stability and inter-consistency test was also performed to examine the reliability of the scale. The overall result of the above-mentioned tests indicated that the Swedish version of the alienation scale is an adequate and valid questionnaire to use among adolescents (sub-study I). Age was found to be associated with the feeling of alienation and mental health, and students aged 17 demonstrated fewer mental-health problems and a lower feeling of alienation (sub-studies II and V). Sex was shown to be one of the main significant variables in regard to self-reported health and contributes to a larger number of self-reported problems; also, female students reported more health problems than male students (sub-studies III and V). These differences were much larger amongst immigrant students. Native Swedish females reported significantly more health problems about two aspects of health (energy level and emotional reaction) than native Swedish males, whereas the female students from an immigrant background reported significantly higher self-reported problems on other dimensions as well (isolation, physical mobility, and pain).

The immigration background was found to be a significant variable in self-reported health and feeling of alienation (sub-studies II, III, & V). Students with an immigrant background reported significantly more self-reported problems with sleep, pain, emotional reaction, and energy level (sub-study III). They also have larger health problems, in particular mental health problems (sub-study V). Students from non-Swedish parents (in particular from a Middle-Eastern origin)

reported significantly more health problems in comparison with native Swedish students (sub-study V). Students with an immigrant background also significantly reported a stronger feeling of social alienation than Swedish natives, and the level of feeling of alienation was much higher among the first generation of immigrants (sub-study II). Neighborhood characteristics, such as home area and home type, were also found to be a significant variable on self-reported mental health. No significant differences about feeling of alienation and self-reported health were observed with respect to parents' educational level (sub-studies II &V). Finally, alienation was found as a mediating variable between self-reported mental health and self-reported physical health (sub-studies IV & V). The more severe mental health problems are associated with a higher feeling of alienation, and the feeling of alienation is associated with self-reported physical health problems (sub-studies IV & V).

Conclusion: The results described in this thesis highlight that, in general, female students report more health problems than male students, and the contrast is larger among the students with an immigrant background. The finding shows that the feeling of alienation and self-reported health problems are higher among students with immigrant background, regardless of the country of origin, and self-reported health problems are higher among students from the Middle East. The results also indicate a strong association between the feeling of alienation and having more self-reported mental health problems; this suggests the mediating role of the feeling of alienation between mental health and physical health.

Keyword: adolescents, alienation, first-generation immigrant, immigrant, isolation, meaninglessness, mental health, physical health, self-reported health, second-generation immigrant, scale, social alienation, Stockholm, student, Sweden, teenagers, youth.

LIST OF PUBLICATIONS

I. SAFIPOUR, J. TESSMA, M. HIGGINBOTTOM, G. EMAMI, A.
Measuring social alienation in adolescence: Translation and validation of the Jessor and Jessor Social Alienation Scale
Scandinavian Journal of Psychology, 2010, 51(6), 517-524

II. SAFIPOUR, J. SCHOPFLOCHER, D. HIGGINBOTTOM, G. EMAMI, A.
Feelings of social alienation: A comparison of immigrant and non-immigrant Swedish youth
International Journal of Sociology and social policy, 2011, 31, 456-468

III. SAFIPOUR, J. HIGGINBOTTOM, G. TESSMA, M. EMAMI, A.
Migration status and self-reported health among high-school students in Stockholm: a cross-sectional study
Submitted

IV. SAFIPOUR, J. SCHOPFLOCHER, D. HIGGINBOTTOM, G. EMAMI, A.
The mediating role of alienation in self-reported health among Swedish Adolescents
Journal of Vulnerable Groups & Inclusion, 2011, 2, 5805

V. SAFIPOUR, J. HIGGINBOTTOM, G. TESSMA, M. EMAMI, A.
Socio-economic factors and mental health of Swedish adolescents- A cross-sectional study among Stockholm high-school students aged 15-19
Manuscript

CONTENTS

LIST OF ABBREVIATIONS

AIC	Akaike Information Criterion
Amos	Analysis of a Moment Structures Software
DF	Degree of Freedom
G*power	General Power analysis program
KMO	Kaiser Meyer Olkin
MX	Matrix algebra interpreter
NHP	Nottingham Health Profile
OR	Odds Ratio
RMR	Root Mean Square
RMSEA	Root Mean Square Error of Approximation
SD	Standard Deviation
SEM	Structural Equation Modeling
SES	Socio-Economic Status
SSS	Subjective Social Status
UNESCO	United Nations Educational, Scientific and Cultural Organization
WHO	World Health Organization

PREFACE

My background is in social science in the field of social research. I started my research training as an undergraduate student with two research projects about social deviation and suicide. While I was interviewing a sample of prisoners and a sample of population in a hospital who experienced failed suicide attempts, I realized that, perhaps, these participants experienced a form of marginalization from society and tentatively hypothesized that this was the reason for their anti-social behaviors. Subsequently, I decided to continue my research in the area of social alienation as a master's student. In 2003, I met Dr. Azita Emami while she was visiting Iranian universities in Tehran. I wanted to conduct my PhD with a focus on social alienation; after some discussions, we reached the shared idea of conducting a research project on health and its relation with the feeling of social alienation amongst youth. After almost a year, I moved to Sweden as a co-worker student. I registered as a PhD student in 2005 at Karolinska Institute in Stockholm. Afterward, Dr. Gina Higginbottom was appointed as my co-supervisor. Her research program is in the field of Ethnicity and Health. To enter this field, I participated in one focus-group discussion with Swedish students, and then, I started to work on the main study, including five sub-studies.

My PhD project, titled "self-reported health and social alienation in Swedish adolescents-A cross-sectional study among high-school students in Stockholm", focused on self-reported health and social alienation with respect to immigration background. This thesis includes five sub-studies: sub-study I introduces the Swedish version of a social-alienation scale; sub-studies II and III explore the social alienation and self-reported health of a target population which is high-school students in Stockholm; and sub-studies IV and V explore the relationship between the feeling of social alienation and self-reported health by considering the role of socio-economic factors.

1 INTRUDOCTION

The original theological meaning of the word alienation was separation, separation from God (Churchich 1990; Smith and Bohm 2007). This term was later redefined by sociologists and philosophers and became separation from society and separation from means and goals in daily life. Social alienation was also defined as a disconnection of the person from him/herself, identity, nature, and others (Killeen 1998; Hascher and Hagenauer 2010). Social alienation was also described as the opposite pole of the sense of connectedness rather than the absence of connection and sense of belonging (Killeen 1998). An alienated person has fewer social connections with others, feels more vulnerable to changes in life, has few friends, and feels less control over the surrounding society and the social structure (Seeman 1975; Israel 1994; Affinnih 1997; Redden 2002; Lacourse, Villeneuve et al. 2003; Smith and Bohm 2007). Living in a multicultural society with rapid social changes and immigration leads to constant changes in norms and redefinition of values. These rapid changes can affect human life, especially when considering the role of other factors which require changes in life style, such as new forms of social networking as a result of globalization and advanced technology. If the previously established norms lose their meaning and function by rapid social changes, the likelihood of a stronger feeling of alienation increases (Killeen 1998; Palosuo 2000; Archibald 2009). Social alienation is also known as a factor which likely increases the risk of negative and damaging health behaviors (Nutbeam, Smith et al. 1993; Killeen 1998; Crinson and Yuill 2008; Ross and Mirowsky 2009). A study among adolescents revealed that there is a link between the feeling of alienation, psycho-emotional maladjustment, and violence (A.O'donnell, Schwab-Stone et al. 2006). Because there are only few studies about health-related social alienation, and there is a lack of research in this particular area in the Swedish context, the overall aim of the thesis was to explore possible relationships between self-reported health and the feeling of social alienation in adolescents in Sweden.

2 BACKGROUND

2.1 CONCEPT OF ALIENATION

The concept of alienation originates from theology and was subsequently integrated into a philosophical theory by Hegel, who utilized the concept from a theological and religious perspective (Lewis 1962; Williamson and Cullingford 1997). Thereafter, philosophers, sociologists, and psychologists continued the work of developing the social-alienation theory, including the search for a unified definition of the concept of alienation. However, because the feeling of alienation is strictly contextual and is based on the circumstances that surround an individual situation, sociologists and philosophers have not yet reached a common definition of the concept of social alienation or a consensus regarding the construct of alienation (Seeman 1991; Yuill 2011). In Marx's view, alienation is a sociological and philological process (Williamson and Cullingford 1997) rooted in capitalism and the division of labor. These two phenomena, along with religion, lead to objectification and alienation, which give rise to isolation, powerlessness, meaninglessness, self-estrangement, dissatisfaction, and stress (Churchich 1990; Williamson and Cullingford 1997; Ferguson and Lavalette 2004; Smith and Bohm 2007). By building upon the seminal work of Marx, Durkheim, who was influenced by the industrial revolution and changes in social norms and life style, defined the concept of anomie. Durkheim argued that, with rapid social, economic, and organizational changes in society, previously established norms lose their power to steer people's behaviors, and this leads to feelings of normlessness and meaninglessness (Durkheim 1951; Durkheim 1984; Sarfraz 1997; Kalekin-Fishman 2006). The sense of alienation (anomie) leads the person to depression and suicide (Durkheim 1951). By building on Durkheim's work, Merton (1938) defined anomie as a detachment or disconnection between goals and social structure. The result of this disconnection is anomie and alienation (Merton 1938; Smith and Bohm 2007).

Max Weber viewed alienation from a different point of view. He argued that, because of modern life (after the industrial revelation), with a focus on rationalization and bureaucratization, social structures and norms take full control of the lives of modern men, placing them in an "iron cage". The iron cage causes feelings of powerlessness, meaninglessness, and isolation (Mitzman 1969). Theoretical work on the concept of alienation and the nature of social alienation was preceded by the work of sociologists and physiologists such as Fromm (1962) and Marcuse (1965). They also attempted to identify a theoretical relationship between capitalism, a wealthy society, and freedom, defining social alienation in terms of having false needs, meaninglessness, estrangement, powerlessness, and social isolation (Williamson and Cullingford 1997; Brookfield 2002).

The most influential scientist to seek to develop and unify theoretical and empirical approaches to alienation is Seeman. Seeman (1975), by utilizing previous theoretical work in this area, distinguished six facets of alienation: powerlessness, cultural estrangement, meaninglessness self-estrangement, isolation, and normlessness (Seeman 1975). Powerlessness refers to the

feeling of a low sense of control over the situation and events. Cultural estrangement is the rejection of a person on the basis of society's values. Meaninglessness refers to feeling incomprehensibility and a lack of understanding of personal and social events (Seeman 1975). Self-estrangement denotes a lack of engagement and involvement with tasks, surroundings, and activities. Isolation signifies the feeling of being excluded by society and groups, the feeling of being abandoned (Seeman 1975). Normlessness relates to a lack of desire to abide by social norms, values, or commonly held standards (Seeman 1975; Oerlemans and Jenkins 1998; Yuill 2011).

2.2 CONCEPT OF HEALTH

Health is a concept that is perceived differently by each individual and is a very subjective phenomenon. Good health and bad health are also described differently by different people (Maty, Leung et al. 2011; Miyamoto and Ryff 2011). Some people feel sick without showing any physical symptoms, and some feel healthy even when they deal with serious illness. This concept and experience of health and illness and the way people perceive their health and well-being mostly belong within a cultural setting. Health-care scientists describe that self-reported health and illness can be different depending on individuals, because persons within a specific cultural setting perceive, express, and explain health and illness in specific ways that may differ from other cultures (Emami, Benner et al. 2001; Abdulrahim and Ajrouch 2010; Maty, Leung et al. 2011; Miyamoto and Ryff 2011).

The International Declaration of the Health Rights clarified the concept of health as follows: "Health depends on availability to all people of basic essentials: food, safe water, housing, education, productive employment, protection from pollution, and prevention of social alienation" (JHSPH 1992). According to the definition of WHO (1958), health is more than the absence of diseases, and one of the main targets of this organization is to prevent health risk factors such as behavioural and environmental variables.

2.3 LITERATURE REVIEW ON HEALTH AND SOCIAL ALIENATION

The social alienation concept is widely used in human science and mainly in sociological and psychological research (Seeman 1991; Affinnih 1997; Williamson and Cullingford 1997; Ketterer, Rose et al. 2011). However, this concept is used in research from different points of view. Social alienation has been viewed as describing the lack of common identity and sense of belonging (Newman, 2001) and has been seen as a possible result of the acculturation process for immigrant population (Miller 2009), discrimination, and bullying (Ferguson and Lavalette 2004; Olweus 2011).

One of the hypotheses that are under review in the health field is that people who are not alienated or marginalized from the wider society are healthier (Seeman 1983; Beale 2008; Crinson and Yuill 2008; Edgar 2011; Ketterer, Rose et al. 2011). In health research, some of the aspects of negative health are linked to the feeling of social alienation (Rowling and Gehring

1998; Hall-Lande, Eisenberg et al. 2007; Ketterer, Rose et al. 2011). In this regards health research showed that health outcomes are also correlated with social environment, people's interactions with others, and the surrounding society (McCubbin 2001; Ross and Mirowsky 2009; Braveman, Egerter et al. 2011). Social alienation is found as a mediator factor between violence and psycho-emotional problems (A.O'donnell, Schwab-Stone et al. 2006). The study also revealed that a low level of social cohesion as a result of a sense of alienation can affect the health of the person, and alienation can affect physical and mental health (Crinson and Yuill 2008). An alienated person has a sense of being isolated or unlike others, tries to be more social, and acts to be like others; this attempt creates stressful situations and increases the risk of mental problems (Kalekin-Fishman 2006). A person with a feeling of alienation is also at risk of depression and anxiety, because of the sense of hopelessness, low self-esteem for being socially active, fear of failing, sense of despair, and lack of social skills (A.O'donnell, Schwab-Stone et al. 2006; Miller, Birman et al. 2009; Shrivatava and Mukhopadhyay 2009). The feeling of alienation in terms of the lack of sense of belonging and sense of separation is also known as a risk factor for mental illness, poor eating habits, smoking, suicide, and alcohol use (Johnson and Tomren 1999; Jamner and Stokols 2000; Miller, Birman et al. 2009; Shrivatava and Mukhopadhyay 2009). The feeling of alienation is also consistently correlated with deviant behavior, aggression, violence, poor health, and psychological distress (Jamner and Stokols 2000; A.O'donnell, Schwab-Stone et al. 2006; Hall-Lande, Eisenberg et al. 2007; Ross and Mirowsky 2009).

A comparative study in Moscow and Helsinki about health, life style, and social alienation revealed that the feeling of alienation is associated with health-related habits, mainly among men. The results indicated that, those who did not feel alienated tended to behave in a healthier way (Palosuo 2000). Research has shown fairly consistently that social alienation and loneliness are related to negative health outcomes and that social support of various types and from various sources is associated with positive health outcomes (Tomaka and Palacios 2006). One study also shows that the feeling of powerlessness (as one dimension of social alienation) increases the risk of unhealthy behavior in terms of not using protection against HIV (Sanders-Phillips 2002). Another study revealed that poor preventive care, lower level of knowledge about disease among patients, and low level of child care are also significantly associated with the sense of alienation (Jamner and Stokols 2000). Some studies also showed that the feeling of depression and alienation is higher among young girls than among boys (Killeen 1998; Newman and Newman 2001; Emslie, Fuhrer et al. 2002; Oppedal and Roysamb 2004; Roberts 2005; Hall-Lande, Eisenberg et al. 2007; Ådnanes 2007)

2.4 ADOLESCENT ALIENATION AND ITS RELATION TO HEALTH

The adolescent phase includes psychological and physical development and behavioral changes. This transition period from childhood to adulthood is known as a psycho-social transition (Smetana, Campione-Barr et al. 2006; O'Connor, Hawkins et al. 2011). In this period of life, the person seeks to identify him/herself with peers, and he/she seeks peer relationships (Mizelle

and Irvin 2000; Hall-Lande, Eisenberg et al. 2007; O'Connor, Hawkins et al. 2011). Youth health damaging behaviors and social alienation of young people is emerging as part of the public-health problems (Farrow 1991; Rowling and Gehring 1998; McCubbin 2001; Rayce, Holstein et al. 2008). Adolescents have a low sense of belonging to the values of their society when they are growing (Farrow 1991). Adolescent social alienation has been correlated with externalized behaviors such as drug use, truancy, delinquency, and suicide (Claes 2003; A.O'donnell, Schwab-Stone et al. 2006). The feeling of alienation among adolescents can lead to behaviors such as sexual promiscuity, violence, vandalism, absenteeism, deviant behavior, and alcoholism (Oerlemans and Jenkins 1998; Boyd and Mackey 2000; Matoo, Varma et al. 2001; Brown, Higgins et al. 2003; Slater, Henry et al. 2004). The feeling of alienation can also lead to mental health problems such as depression, anxiety, stress, and low self-esteem among adolescents (Farrow 1991; A.O'donnell, Schwab-Stone et al. 2006; Hall-Lande, Eisenberg et al. 2007; Hascher and Hagenauer 2010). The inability to achieve school goals and the lack of strategy to cope with changes among adolescents are other risk factors for alienation, feeling of powerlessness, hopelessness, and in the end, depression (Shrivatava and Mukhopadhyay 2009; Hascher and Hagenauer 2010; O'Connor, Hawkins et al. 2011). These issues can also make parent-child relationships very difficult and complicated (Jamner and Stokols 2000; Smetana, Campione-Barr et al. 2006). Some of these youth, because of the rejection from their parents or the wider society, are at risk of deviation behaviors (Farrow 1991). The rejection of the social norms and values by adolescents can increase the risk of deviation behavior (A.O'donnell, Schwab-Stone et al. 2006). High expectations of adolescents from family and society and meaninglessness of life, school, and social activities can also lead a person to alienation and other psychological problems such as anxiety, stress, and depression (A.O'donnell, Schwab-Stone et al. 2006; Hascher and Hagenauer 2010).

Alienated adolescents, with a feeling of meaninglessness of school activities, usually do not accept the goals proposed by schools. This meaninglessness of life and activities increase the risk of isolation from the wider society and peers, disruptive behaviors, and vandalism (Newman and Newman 2001; Brown, Higgins et al. 2003; Hascher and Hagenauer 2010). The feeling of alienation also increases in adolescents who are bullied or rejected by peers at school (Rovai and Wighting 2005; Shrivatava and Mukhopadhyay 2009). If the feeling of alienation is combined with depression and anxiety, the risk of self-harming and suicide will increase (Shrivatava and Mukhopadhyay 2009).

A study about social alienation and violence among adolescents reveals that the feeling of alienation is significantly associated with psychological problems and violence (A.O'donnell, Schwab-Stone et al. 2006). Another study among school-aged adolescents also indicates a strong relationship between the feeling of alienation and internalization of problems such as emotional instability, depression, and anxiety (Shrivatava and Mukhopadhyay 2009). A study among American-Indian adolescents showed a strong relationship between the feeling of alienation, hopelessness, and alcohol use (Johnson and Tomren 1999). Social alienation was also found as a risk factor for a variety of symptoms among adolescents, both physical (headache, stomachache, back pain, and dizziness) and psychological (feeling low, bad temper, nervousness, and sleep difficulties) (Rayce, Holstein et al. 2008).

2.5 HEALTH AND ALIENATION IN IMMIGRANTS

Numerous studies show that the feeling of social alienation is higher among immigrants than among natives (Cabrera and Nora 1994; Yu, Huang et al. 2003; Lindqvist 2009; Miller, Birman et al. 2009). Poor self-reported health is also more pronounced among the immigrant population (Oppedal and Roysamb 2004; Tinghög, Hemmingsson et al. 2007; Smith, Kelly et al. 2009; Cho and Haslam 2010; Veling and Susser 2011). The health of immigrants in general and in particular immigrant youth has been one of the main research concerns for decades (Oppedal and Roysamb 2004; Krieger 2008; Cho and Haslam 2010). These researches pointed out that immigrant youth of all racial and ethnic groups' experiences higher rates of depression, alienation, suicidal ideation and lower feelings of "self efficacy" than the native-born children of native-born parents (Newman and Newman 2001; Oppedal and Roysamb 2004; Roberts 2005; Cho and Haslam 2010). Strandmark (2004) found that immigrants who experience the cultural differences between the old country and the new country show a higher rate of social alienation. The above-mentioned risk factors are closely related to the theory of Robert Park about marginal man; "the marginal man is one who is poised in psychological uncertainty between two (or more) social worlds; reflecting in his soul the discords and harmonies, repulsions and attractions of these worlds, one of which is often dominant over others…" (Lefcowitz 1964). Some studies show that cultural differences significantly affect the experience of loneliness, the sense of isolation, and alienation (Johnson and Tomren 1999; Rokach, Bauer et al. 2003).

Culture is defined by UNESCO (1982) as "the collection of distinctive traits, spiritual and material, intellectual and affective which characterize a society or social group. It comprises besides arts and letters, modes of life, human rights, value system, traditions, and beliefs". Facing and coping with new cultures is challenging because some cultural values can be in contradiction with others (Schulz 2011). Stress-related cultural adaptation and acculturation are known as a risk factor for health and the feeling of alienation of immigrants (Johnson and Tomren 1999; Oppedal and Roysamb 2004; Pumariega, Rothe et al. 2005; Berry, Phinney et al. 2006; Knight, Vargas-Chanes et al. 2009; Miller, Birman et al. 2009; Smith, Kelly et al. 2009). The acculturation process increases stress in adolescents, because they need to cope with a new culture and language (Anagnostopoulos, Vlassopoulou et al. 2004; Smokowski, Bacallao et al. 2009). Language barriers can affect health by limiting access to health-care providers and increase the feeling of alienation by making communication with others challenging (Anagnostopoulos, Vlassopoulou et al. 2004). Acculturation as a complex adaptation and integration process can isolate individuals who are not interested in contacts with others, and it can alienate (marginalize) people who are neither interested in contacts with others nor interested in attachment with his/her homeland culture and identity (Johansson 1997).

The lack of social support from the family or society is also found as a risk factor for the feeling of social alienation and health issues among immigrant adolescents (Hall-Lande, Eisenberg et al. 2007; Merz, Ozeke-Kocabas et al. 2009). Adolescents who receive more support from

friends, family, and school staff feel healthier, are more positive about the future, and are more socially active (Hall-Lande, Eisenberg et al. 2007). Some studies revealed that the lack of sense of belonging among immigrant groups increases the risk of mental problems as well as the risk of suicide (Johansson, Sundquist et al. 1997; Bayard-Burfield, Sundquist et al. 1999). Stress and anxiety related to the process of immigration also can affect a person's well-being and the sense of alienation (Nazroo 2003). Experiencing harassment, discrimination, and bullying, which is higher among adolescents' from minorities, can affect their health as well as contribute to their feeling of isolation and social alienation (Nazroo 2003; Due, Holstein et al. 2005; Rovai and Wighting 2005; Harris, Tobias et al. 2006; Shrivatava and Mukhopadhyay 2009).

Smith et al (2009) showed that the health and feeling of alienation can be different among first- and second-generation immigrants. First and second generation immigrants may experience different childhoods which can affect their health, their sense of belonging to the family and society, and the acceptance of the society norms (Nazroo 2003). The feeling of alienation is significantly higher among first-generation immigrants, because, at the same time, they increase the distance from their family and they cannot make close relationships with native adolescents (Newman and Newman 2001; Roberts 2005; Merz, Ozeke-Kocabas et al. 2009).

2.6 SWEDEN AS A MULTICULTURAL SOCIETY

Because of immigration, Sweden, as a member of the European Union, has a multicultural population. In a multicultural society, people with different cultural backgrounds need to learn how to interact with other cultures while preserving their own identity (Masini 2011). According to Statistic Sweden (2011), Sweden's population is about nine and half million, and Sweden has one of the highest life expectancy in the world. About 5.4% of the Swedish population is in the age range between 13 and 19. Nearly 20% of adolescents have an immigrant background, and almost 7% of them are born outside Sweden (SCB 2010). Stockholm, as the capital, is the most populated area in Sweden and contains a large population from an immigrant background. The immigrant population is not equally distributed over all the areas of Stockholm, and for example, in one of the districts in Stockholm, almost 77% of the residents have an immigrant background (scb/usk 2009). Although poor self-reported health is more pronounced in the immigrant population, adolescents in Sweden are generally living in good conditions and have a better mental and physical health than the same age group in other countries (Ashing 2009; Wiking, Saleh-Stattin et al. 2009). The compulsory school lasts 9 years, and during these years, students get a medical exam three times (Berg-Kelly 2003). Almost 25% of the adolescents who finish compulsory school do not continue to high school, and this number is higher among immigrant youth (Edgardh 2002; Lindqvist 2009). The unemployment rate is higher among the immigrant population in Sweden, and social and economical exclusion of young immigrants is worrisome (Lindqvist 2009). The Swedish health policy gives special attention to youth and particularly to the health of immigrants (Lindqvist 2009). One of the major issues of the public-health policy in Sweden is the mental health of adolescents with respect to gender and also with respect to immigration background (Bayard-Burfield, Sundquist et al. 1999; Hjern and Allebeck 2002; Hagquist 2009). Recent research has

demonstrated that the number of adolescents who experience health problems in Sweden increases, and those adolescents complain more frequently about experiencing stress (Nygren, Janlert et al. 2011). Research investigations that explore the health of adolescents assess possible risk factors and can help policy makers have a better preventive health-policy program.

The health of adolescents is investigated from different perspectives, and this study explores the health status from a sociological point of view by investigating health-related social alienation. This has been only poorly investigated previously; therefore, this thesis is a unique contribution to this field. Few studies on health and social alienation amongst youth in the Swedish context exist, and social alienation is one of the most negative factors when it comes to integration. The study presented in this thesis investigates feelings of social alienation and health status of adolescents in Stockholm; in doing so, an original and unique contribution is made to the current knowledge base, holding the potential for considerable knowledge transfer and impact upon health and social policy and practice.

3 AIMS

The overall aim of this study is to explore the possible relationship between self-reported health and the feeling of social alienation.

The specific aims are:

- To translate and test the reliability and validity of the Jessor and Jessor general social-alienation scale for use in the Swedish context (sub-study I);
- To investigate the social-alienation status of Swedish high-school students with respect to their gender and immigrant background (sub-study II);
- To explore the self-reported health status of high-school students in Stockholm, by focusing on immigrant background and gender (sub-study III);
- To investigate the relationship between the sense of social alienation and self-reported health, both mental and physical, among adolescents in Stockholm (sub-study IV);
- To explore the relationship between self-reported mental health, feeling of alienation, and self-reported physical health by examining the role of demographic and socio-economic variables (sub-study V).

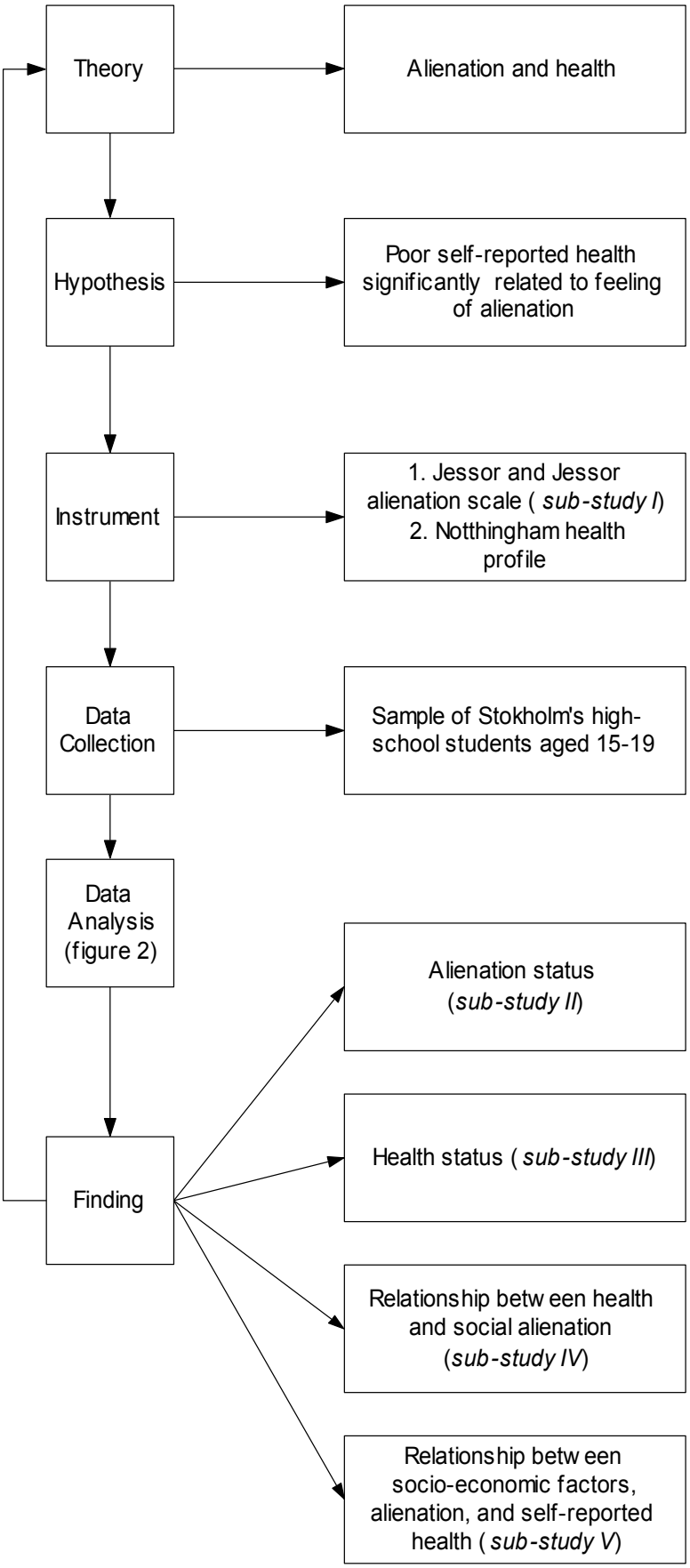
4 METHOD

4.1 STUDY DESIGN

This study draws upon multidisciplinary perspectives (psycho-sociology, e.g, migration studies and public health) on the phenomena of social alienation. The theoretical framework used in this thesis is influenced by a sociological perspective in terms of the effect of social alienation on self-reported health.

The methodological study design of this thesis is cross sectional, and in order to achieve the above-mentioned goals, the methodological approach in this research is performed within the quantitative paradigm by using two pre-designed questionnaires for data gathering. The research followed the standard quantitative process, as shown in figure 1, by starting with alienation theories and literature review on health-related social alienation. Furthermore, the appropriate instruments for self-reported health and social alienation were identified. The study proceeds with sample selection and data gathering. This doctoral thesis includes the five following sub-studies: (I) validation of the alienation scale to be used in the Swedish context, (II) exploration of the social-alienation status of Swedish adolescents with respect to gender and immigration background, (III) exploration of the health status of Swedish adolescents with respect to gender and immigration background, (IV) investigation of the relationship between health and social alienation among adolescents, and (V) investigation of the relationship between socio-economic factors, mental health, and social alienation.

Figure 1 Logical structure of the thesis research process



4.2 SAMPLE

The target population for this research was high-school students in Stockholm, ranging between 15 and 19 years of age. Schools were selected from 29 high schools in different parts of Stockholm, and random sampling was conducted until we collected enough high schools to cover Stockholm (geographically). Finally, eight high schools from different geographical areas of Stockholm were included in this research. The various high schools present different educational programs and students can register in any school, regardless of the distance from their residence area. However, we assumed that students usually prefer going to the closest school; therefore, we tried to have high schools from different geographical locations to prevent the bias of selection. One of the high schools declined participation (because the new principal did not agree to let us collect data at this school), but we were able to recruit another high school at a later stage, which was selected randomly.

The sample of students was selected randomly from these eight schools. In the first phase of the sample selection, we sent an information letter about the project to the principals of each school, including a description of the objective of the study and of the process of sample selection and a copy of the scales. When they agreed to participate, we asked them for a list of their students. We also assured them about the confidentiality of the data and emphasized that the students could withdraw their participation whenever they wished to. After carrying out the sample selection in each high school, the data collection for each school was scheduled. The estimated sample size, with a power of 80%, calculated by the means of the Cochran formula and by using G*power software, was around 430.

4.3 DATA COLLECTION

All data from the main study were gathered during the last part of 2007 and the beginning of 2008. The questionnaire was handed out directly to the students who completed the questionnaire in about 25 minutes at the school. I was present at the schools while the students completed the questionnaire, to answer the participants' questions; we believe that this contributed to a high response rate (91%). Four questionnaires were excluded from the final analysis because they did not fulfill the NHP and Jessor and Jessor items. One questionnaire was also excluded from the last sub-study because it did not fulfill the socio-demographical variables.

4.4 INSTRUMENTS

Two sets of questionnaires were used in this study, the Nottingham Health Profile (NHP) and the Jessor and Jessor social-alienation scale. These two scales were selected for use in this project, because the NHP is a general health scale measuring self-reported health and the Jessor and Jessor scale is also a general alienation scale. This scale was originally designed to capture

general alienation in adolescents (Seeman, 1991, Jessor and Jessor, 1977). NHP is a general health scale for use in general populations that are not necessarily ill. This self-compilation scale is known as a first highly tested self-reported health scale in Europe (Bowling 1999). The scale is also short and simple and can be used in general population; it is also extensively tested for reliability and validity (Bowling 1999). NHP cannot be used as a scale to gather diagnostic data and is more related to perceived health status. NHP has been translated into Swedish (Wiklund, 1988) and has been employed in several studies in Sweden (Hunt, McEwen et al. 1984; Wiklund, Romanus et al. 1988; Wiklund and Dimenäs 1990; Garcia and McCarthy 2000). The description of both scales is presented below.

4.4.1 Self-reported health

The NHP was used in this study to measure the health status of youth. The self-reported health scale is generally used to capture the respondents' subjectivity for generating a self-reported description about their health status in the way he/she experiences it (Bowling 1999). Like many other scales, NHP focuses more on the negative outcomes of feeling ill (McDowell 1996; Bowling 1999). The original scale has been tested for face, content, and construct validity and for reliability; it shows a high validity and is recommended for use in general population (Bowling 1999). NHP consists of two parts, the second part being optional (Garcia and McCarthy 2000). Part one of the NHP, which has been used in this study, contains 38 questions divided in six groups. It covers (1) physical mobility (PM, 8 items), (2) pain (P, 8 items), (3) sleep (S, 5 items), (4) social isolation (SI, 5 items), (5) emotional reactions (EM, 9 items), and (6) energy level (EL, 3 items) (McDowell 1996; Bowling 1999).

The NHP is scored from 0 (no problem) to 100 (where all problems are affirmed) in each domain. An overall score for the NHP is not obtainable. All the items in this scale are in the same format as that in any group of health; items are summed and weighted. A score falling in the higher range indicates a greater reporting of problems for each dimension of health (Bowling 1999). The possible responses to items are "yes" and "no", and weights are applied to those responses.

4.4.2 Social alienation

The Jessor and Jessor general alienation questionnaire was used to explore feelings of social alienation among Swedish high-school students in Stockholm. The scale is based on the definition of alienation that is more related to social isolation and meaninglessness, and it measures the feeling of social alienation in terms of helplessness, isolation, and meaninglessness (Seeman 1991). Meaninglessness refers to feeling incomprehensibility and a lack of understanding of personal and social events, and isolation signifies the feeling of being excluded by society and groups and feeling abandoned (Seeman, 1975). The original scale was tested for reliability (internal consistency and stability) and validity, and the results revealed that this scale is validated to be used among adolescents (Seeman 1991). This scale consists of 15 Likert-type items with 5 alternatives that range from strongly agree to strongly disagree. Items

worded negatively are subtracted, and the scores are summed. Scores range from 15 (low alienation) to 60 (high alienation) (Seeman, 1991, Jessor and Jessor, 1977). For the purpose of this study, this scale was translated to Swedish, and the process of translation is presented in sub-study I.

4.5 MAIN VARIABLES

In this study, the two sets of independent variables were social alienation and self-reported health. The sets of independent variables were included in this research. The main independent variable was immigrant background. Immigrant background was divided into three categories: (1) adolescents with both parents born in Sweden (labeled Swedish), although it is acknowledged that some of these individuals may have diverse ethno-cultural backgrounds; (2) adolescents born outside of Sweden and living presently in Sweden (labeled first generation); and (3) students born in Sweden but who had at least one parent born outside of Sweden (labeled second generation).

Gender (female/male) was another main independent variable included in the study. These two independent variables were examined as predictors of alienation and self-reported health in sub-studies II and III. The other main variable was age (from 15 to 19 years). In sub-study V, other socio-economic variables such as parents' birth place and parents' educational level (no or low, high school, and university) were included. The neighborhood characteristic, which consists of structural factors such as geographical location of home, home ownership, and municipality income, was the final independent variable in sub-study V. The second and third factor can also represent the socio-economic status of the residents.

4.6 ETHICAL ISSUES

This project received ethical approval from Karolinska Institutet's Stockholm ethics committee "Regionala Etikprövnings Nämnden i Stockholm-Protokoll 2006/5:5". Ethical considerations were made at all stages of the study.

The heads of the schools that participated in the study were informed about the study objectives, and their authorization was obtained. The students received information, written and verbal, about the aim of the study and about their rights to withdraw their participation at any stage of the research process. The data was gathered by the PhD student, who was present at the high schools while the students completed the questionnaire. The students were guaranteed strict confidentiality regarding their responses.

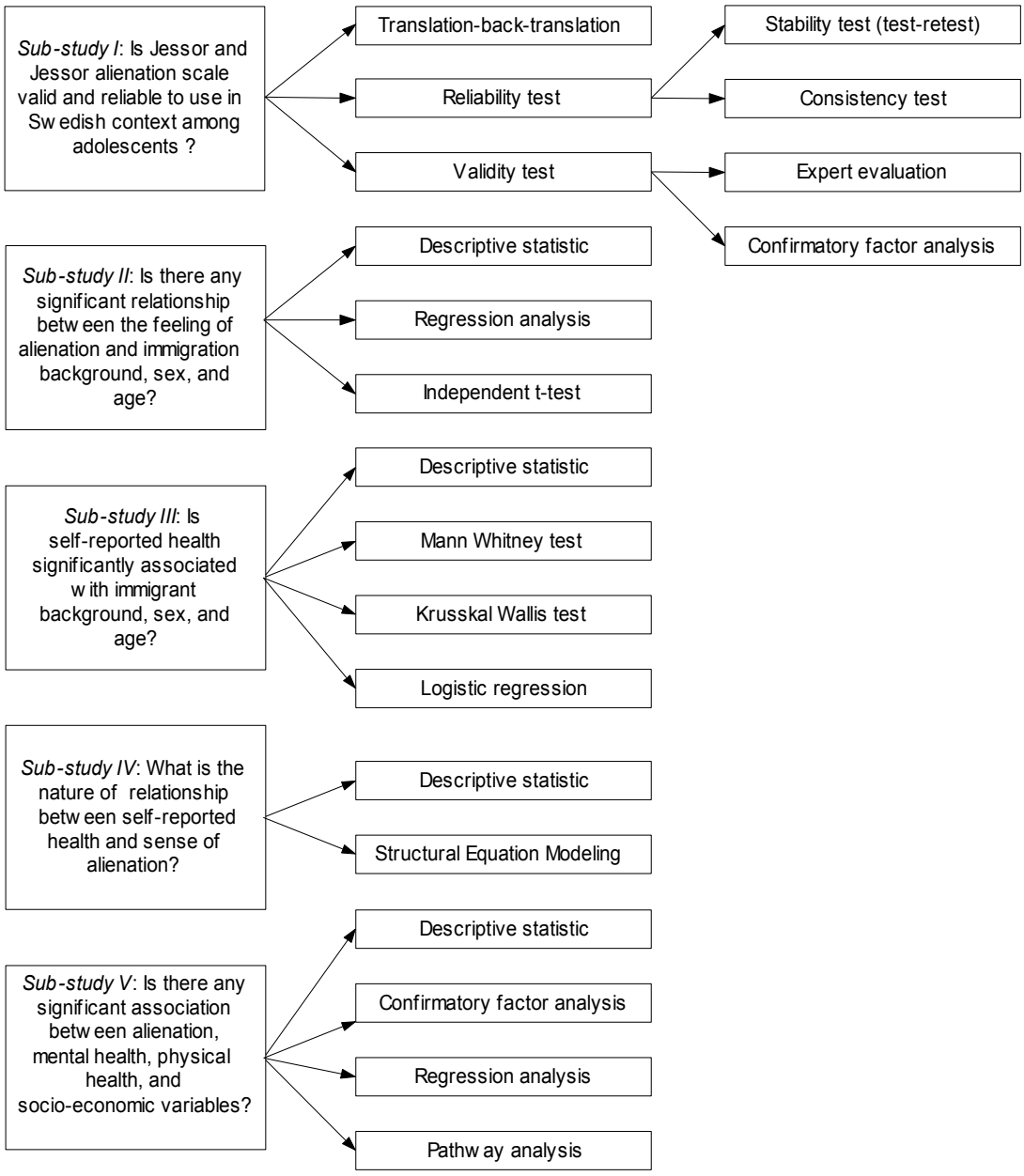
An ethical issue that can be discussed is the fact that the researcher was present at the schools in order to collect the data. This decision was made because we wanted to avoid the school personal to see students' answers in order to follow ethical guidelines. Even though we assessed

the questions provided to the students as not being sensitive, we are aware of the fact that, by answering the questions, students could have become aware of their problems and maybe for the first time reflected upon them. However, we do not have any way to control such issues, in most cases, when performing quantitative studies.

4.7 DATA ANALYSIS

To analyze the gathered data, several statistical tests and analyses were utilized in each sub-study on the basis of the aim and distribution of the data. Figure 2 shows the analysis based on the aim and the research questions of the sub-studies. Each statistical analysis was performed by using SPSS, AMOS, MPLUS, and Mx 32 software.

Figure 2 Research questions and the method of statistical analysis



4.7.1 Sub-study I- Alienation scale

Sub-study I, entitled "Measuring social alienation in adolescents: translation and validation of the Jessor and Jessor alienation scale", aims at identifying and preparing an appropriate alienation scale to be used in the Swedish context. Because we could not find any alienation scale in Swedish, the English version of the Jessor and Jessor alienation scale was selected for translation (Seeman 1991). The translation was done by four translators who were fluent both in English and in Swedish. The standard forward-backward translation technique was used for this purpose (Rode 2005). Furthermore, two groups of experts (sociologists and psychologists) assessed the translated social-alienation scale to evaluate the quality of the

translation as well as to determine the validity of the instrument. Later, a pilot test was performed with a sample of 78 students to examine whether the students had any difficulties to understand the items. To validate the translated version of the Jessor and Jessor social alienation scale, we considered three measurements of validity: (1) face validity, (2) content validity, and (3) construct validity. In relation to face validity and content validity, the experts mentioned above assessed whether the Swedish version of the social alienation questionnaire could measure social alienation and whether it was possible to use it in the Swedish context.

The dimensionality of the scale (construct validity) was evaluated by factor analysis within the structural equation modeling. The fitness of the model was assessed by using the chi-square goodness of fit test, Root Mean Square Error of Approximation (RMSEA), Root Mean Square (RMR), and Akaike Information Criterion (AIC). The reliability of the scale was also tested by several statistical tests that follow hereafter. The stability (test-retest) was estimated by generating a Spearman correlation coefficient to test the stability of the test-retest results. The test and retest were performed with a sample of 51 students at this stage of the research. The internal consistency was estimated by the Cronbach's alpha coefficient. Split half and the Guttman reliability methods, which are typically presented as a Spearman-Brown coefficient, were also used for testing internal consistency. To determine the construct validity and internal-consistency reliability, the translated version of the Jessor and Jessor scale was administered to a sample (446) of young people aged between 15 and 19.

4.7.2 Sub-study II- Alienation status of the sample population with respect to age, sex, and immigration background

Sub-study II assesses the social alienation status of Swedish adolescents with respect to whether the immigrant background and gender affected the participants' feeling of alienation. The Jessor and Jessor social alienation scale, which was translated and validated for use in the Swedish context, used to assess the social alienation status of the target population. The numbers of students who participated in this study was 446. Several statistic analyses were performed to describe the data distribution and a possible significant relationship between variables. The main independent variable was the immigrant background, but impact variables such as age, sex, mother's and father's education, type of home, and schools were also examined. In relation to the immigrant background, the students were divided into three sub-groups: (1) native Swedish, (2) second-generation immigrant, and (3) first-generation immigrant. Descriptive statistics were also calculated for overall social alienation scores and for two dimensions of social alienation (isolation and meaninglessness). Sequential multiple regression analysis was performed to examine the relationship between the above-mentioned variables and the "feeling of alienation" and also with two subscales, i.e., isolation and meaninglessness, to examine any differences between the predictors of the two subscales.

4.7.3 Sub-study III- Health status of the sample population with respect to age, sex, and immigration background

Sub-study III addresses the self-reported health status of the sample of adolescents with respect to immigration status, age, and sex. The Nottingham health profile (NHP) was used for self-reported health among the sample group. The NHP assesses six dimensions of health status: physical mobility, pain, sleep, social isolation, emotional reaction, and energy level. This scale was already available in Swedish and had previously been used in several studies in Sweden (Hunt, McEwen et al. 1984; Wiklund, Romanus et al. 1988; Wiklund and Dimenäs 1990; Garcia and McCarthy 2000). A sample of 446 students participated in this sub-study. To calculate the self-reported health score, the scores were summed and weighted with the standard weighting formula (Bowling 1999). Descriptive statistic was used to calculate the distribution of the data and determine the mean, the median, and the standard deviation. We tried to assess the assumption by using different tests. The Mann Whitney and Krusskal Wallis tests were performed to examine the relationship between the variables for the ordinal data and where there was deviation from normality. Multiple logistic regressions were also used to examine the association between the independent variables (such as sex, age, and immigrant background) and self-reported health. The mean score was used to dichotomize self-reported health scores.

4.7.4 Sub-study IV- Relationship between the feeling of alienation and health status

Sub-study IV explores the relationship between the feeling of social alienation and self-reported health among the participating adolescents. To perform this sub-study, the same data as those gathered from 446 students in sub-studies II and III were used. The data that were gathered about adolescents' social alienation by using Jessor and Jessor alienation scale as well as their self-reported health gathered by using the Nottingham health profile were statistically analyzed to examine the relationships between the participants' social alienation status and their self-reported health.

A descriptive statistical analysis was performed to explore the distribution of the data. The inter-item correlation matrix was also used to explore the correlation between seven variables, i.e, alienation and the six health dimensions (physical mobility, pain, sleep, social isolation, emotional reactions, and energy level). The relationship between social alienation and physical mobility, pain, sleep, social isolation, emotional reaction, and energy level was analyzed by path analysis by using Structural Equation Modeling (SEM). The relationship between manifest and identified latent variable was also analyzed with SEM. Several statistical tests were also performed to examine the final path model. The overall goodness of the fit was assessed with the Chi-Square (χ^2) test, the Akanke's Information Criterion (AIC), and the Root Mean Squared Error of Approximation (RMSEA). The final path drown was

based on the best model-fit analysis and theoretical paradigm with respect to the relationship between illness/health and social alienation.

4.7.5 Sub-study V- Path relationship between self-reported mental health, feeling of alienation, and self-reported physical health by examining the role of demographic and socio-economic variables

Sub-study V explores the relationship between socio-economic variables and mental health by considering the result of sub-studies II, III, and IV about the mediating role of social alienation in self-reported health. The number of the participant was 445, from the same data gathered by means of the Jessor and Jessor alienation scale and the Nottingham health profile. Mental health was set as the dependent variable by combining three dimensions of health (sleep problems, energy level, and emotional reactions). For this reason, the factor analysis was performed between these three items and one generated variable labeled as mental health. The independent variables were sex, age, parent's birth place, parent's educational level, neighborhood characteristics (geographical location of home and municipality average income per year/person).

A descriptive statistic was performed to reveal the distribution of the data. A hierarchical regression analysis was also performed to explore the relationship between the sets of variables by using mental health as the dependent variable. A pathway analysis was conducted to reveal the nature of the relationship between the variables. The presented pathway model was also examined by using the Chi-Square (χ^2) test, the Akanke's Information Criterion (AIC), and the Root Mean Squared Error of Approximation (RMSEA) test.

5 RESULTS

5.1 SOCIO-DEMOGRAFIC CHARACTERISTICS OF THE SAMPLES PARTICIPATING IN THIS RESEARCH STUDY

In this study, three different samples of students aged between 15 and 19 years participated. A sample of 78 students participated in a pilot test in sub-study I. For the reliability test of the alienation scale (test-retest), 51 randomly selected students participated. Later on, for the validity test of the alienation scale and also for the main study (sub-studies II, III, and IV), 446 randomly selected students participated. The main socio-demographic information of the samples is presented in table 1.

Table 1 Distribution of samples according to age, sex, and immigration background

Variables, n (%)	Pilot test, n = 78	Reliability test, n = 51	Main study, n = 446
Age, mean (SD)	17.1 (0.81)	16.8 (0.9)	17 (1.0)
Gender, n	51*	39*	444*
Female	26 (51.0)	22 (56.4)	263 (59.2)
Immigrant background, n	51*	38*	435*
First-generation immigrants	11(22.4)	7 (8.9)	59 (13.6)
Second-generation immigrants	14 (28.6)	11 (28.9)	109 (25.1)
Native Swedes	24 (49.0)	20 (52.6)	267 (61.4)

* The sum is not equal to the total of the sample because of missing data.

Among the first-generation immigrants, the majority were students coming from Iraq (23) and Afghanistan (5). The date of the move to Sweden among the first-generation immigrants ranged from 1989 to 2006, and 24 (42%) of them moved to Sweden before the year 2000.

The number of students with a Swedish father was 296 (67.4). After Sweden, the highest numbers were for Iraq (28), Turkey (Kurdistan) (10), Chile (6), Afghanistan (6), Morocco (6), and Finland (6). The number of students with mothers with a Swedish background was 294 (67.3). After Sweden, the majority were Iraqis (28), Finish (15), and Chileans (5).

5.2 SUB-STUDY I

Is the Jessor and Jessor social alienation scale valid and reliable to be used in the Swedish context among adolescents?

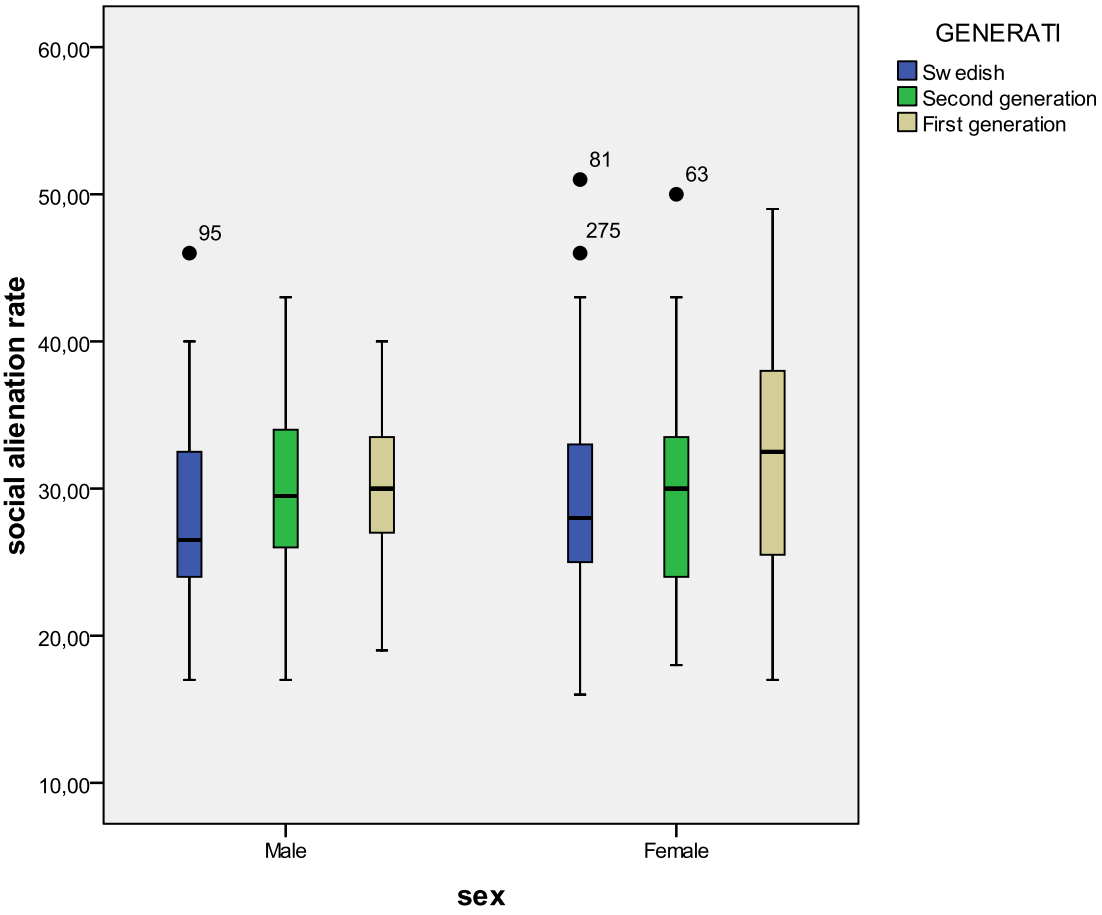
The Jessor and Jessor social alienation scale was translated to Swedish and back-translated again to English by four native English and Swedish speakers. The translated scale was approved after minor revision by the four sociology and psychology experts as well as by professor Jessor who had constructed the original alienation scale and compared the back-translation to the original version. The pilot test with 78 students revealed that the concept and the items were understandable for the target group. The expert group who evaluated the face and content validity also reported that the questionnaire can measure the feeling of alienation and can also be used in the Swedish context. The construct validity test (sample of 446 students), performed for a one-factor model (social alienation) and a two-factor model (isolation and meaninglessness), indicated that the two-factor model was slightly better than the one-factor model. Kaiser-Meyer-Olkin (KMO) was 0.86. The Chi-square goodness of the fit indices for the one-factor model was 330.7 (DF = 90, RMSEA = 0.046, AIC = 390.7). The Chi-square goodness of the fit indices for the two-factor model was 307.0 (DF= 89, RMSEA= 0.074, AIC= 367.0). The Spearman correlation for test-retest (stability test) with 51 students was 0.76. The internal consistency of the items, estimated by Cronbach's alpha, was 0.81. The Cronbach's alpha ranged from 0.78 to 0.81 if each item was deleted. The Spearman-Brown coefficient was 0.82, and the Guttman split half coefficient was 0.81.

5.3 SUB-STUDY II

Is there any significant relationship between the feeling of alienation and immigration background, sex, and age?

The social alienation scores varied between 15 and 60, and the results revealed that the mean scores of 446 students was 29.2 (SD = 6.60). The mean scores for the isolation subscale (min = 11; max = 39) was 21.2 (SD = 5.58), and for the meaninglessness subscale (min = 4, max = 15), it was 7.97 (SD = 1.98). The regression analysis results to study the relationship between sex, age, and immigrant background indicated that the overall regression analysis model was highly significant ($F = 5.26$, df, 5.42, $p < 0.001$). The results revealed that the feeling of social alienation was significantly higher for the youngest and oldest students but lower for those aged 17. First-generation immigrants also reported a significantly higher feeling of alienation than native Swedes. Although second-generation immigrants had higher alienation scores than native Swedes, the correlation was not statistically significant. The feeling of alienation with respect to gender was not statistically significant. The distribution of data with respect to gender and immigration background is presented in figure 3.

Figure 3 Median score and inter-quartile range of the feeling of social alienation according to sex and immigration background



Additionally, there was no significant relationship between the level of the feeling of alienation and parent's education level, type of home, and which school the student attended. The regression analysis that was performed for isolation and meaningless subscales by using the same predictors was highly significant (for meaninglessness, $F = 6.55$, $df = 5.42$, $p < 0.001$; for isolation, $F = 3.80$, $df = 5.42$, $p < 0.01$). The results revealed that first-generation immigrants had significantly higher scores for isolation than Swedes, and second-generation immigrants had significantly higher scores for meaninglessness than native Swedes.

There was no statistically significant difference in the isolation and meaninglessness subscales among females and males. A separate t-test analysis which was performed to investigate the feeling of alienation among first-generation immigrants depending on the date of their move to Sweden showed significant mean differences between those who moved to Sweden early and those who moved within the past 6 years. The mean social alienation score for those who moved before the year 2000 was 29.00, and for those who moved after the year 2000, the score was 33.27. The mean difference is 4.27, and the 95% confidence interval for the estimated population mean difference is between -7.99 and -0.55. The independent t-test showed that the differences were significant ($t = -2.30$, $df = 55$, $p = 0.02$, two tailed).

5.4 SUB-STUDY III

Is self-reported health significantly associated with immigrant background, sex, and age?

The descriptive analysis showed that the data was highly skewed, because the majority of students reported few problems about the six dimensions of health. The highest mean scores were related to energy level (29.6; SD = 34.5), emotional reaction (20.3; SD = 23.4), sleep (17.0; SD = 23.4), and social isolation (10.8; SD = 10.1). The lowest mean scores were for pain (4.4; SD = 13.7) and physical mobility (5.1; SD = 10.1). A nonparametric test (Kruskal Wallias) revealed a significant relationship between immigration background and energy level (Chi-square = 18.35; df = 2; $p \leq 0.001$), pain (Chi-square = 10.38; df = 2; $p \leq 0.001$), emotional reaction (Chi-square = 14.00; df = 2; $p \leq 0.001$), and sleep (Chi-square = 16.46; df = 2; $p \leq 0.001$). This means that, in all the above-mentioned dimensions, native Swedes reported significantly less self-reported health problems. There was no significant relationship between having an immigration background and the feeling of isolation (Chi-square = 1.55; df = 2; $p = 0.46$), physical mobility (Chi-square = 4.52; df = 2; $p = 0.10$), and the self-reported health problems were higher among females.

The Mann-Whitney-test results revealed a significant relationship between sex and energy level, emotional reaction, physical mobility, and isolation. There were no significant differences between females and males with respect to pain ($p = 0.05$) and sleep ($p = 0.07$). Additionally, the Mann-Whitney test was performed among two sub-groups of the sample, i.e., native Swedes and students with an immigrant background. The analysis showed that, among the students with an immigrant background, females reported significantly more problems in all six dimensions of self-reported health. Among native Swedes, significant differences between males and females were found only for the energy level and emotional reaction. The statistic analysis also showed that males with an immigrant background reported significantly more health problems with respect to energy level and emotional reaction. Female students with an immigrant background also reported significantly more problems with respect to energy level, pain, emotional reaction, and sleep.

A logistic regression analysis, which was performed to analyze the relationship between self-reported health and age, sex, and immigration background, revealed no significant differences in any of the six dimensions of health with age. Being an immigrant was associated with low energy level, OR = 3.46 (95% CI = 2.13, 5.63, $p \leq 0.001$). Being a female was also positively associated with low energy level, OR = 3.20 (95% CI = 1.85, 5.53). The likelihood of having emotional problems was associated with being an immigrant, OR = 3.40 (95% CI = 1.20, 3.68, $p < 0.001$) and female, OR = 2.10 (95% CI = 1.64, 6.24, $p < 0.001$). The likelihood of having self-reported sleep problems was associated with being female, OR = 2.52 (95% CI = 1.30, 4.89, $p < 0.001$). Being an immigrant was observed to be significantly associated with the dependent variable sleep (OR = 1.17, (95% CI = 1.30, 4.89, $p \leq 0.001$). Sex was the only

explanatory variable that was associated with social isolation. Females remained significantly associated with social isolation, OR = 3.95 (95% CI = 1.34, 11.68, $p \leq 0.01$). None of the variables were observed to be a significant predictor of pain and physical mobility.

5.5 SUB-STUDY IV

What is the nature of the relationship between self-reported health and the feeling of alienation?

The correlation statistical analysis revealed a significant correlation ($p < 0.05$) between the six dimensions of self-reported health and the feeling of alienation. Alienation moderately inter-correlated with energy level (0.46), emotional reaction (0.59), sleep (0.40), and isolation (0.60). The pathway analysis that was done by performing Structural Equation Modeling (SEM) identified three latent variables among the seven observed variables (alienation and the six dimensions of self-reported health). The firs latent variable includes alienation and isolation. The second latent variable includes energy level, sleep, and emotional reaction. The third latent variable includes physical mobility and pain. Two coefficient paths were drawn from alienation and isolation to the first latent variable which was labeled social alienation. Three coefficient paths were drawn from emotional reaction, sleep, and energy level to the second latent variable that we refer to as mental health. From pain and physical mobility, two paths were drawn to the final latent variable that we have called physical health. The final coefficient paths were drawn from social alienation to mental health, from physical health to alienation, and from physical health to mental health.

The model fit analysis revealed by Chi-square (26.56; df = 11; p = 0.005) suggests that the fit is not perfect, and the RMSEA is .05, which is generally considered as an acceptable fit. The SEM analysis revealed that alienation was a mediate variable between mental health, i.e., energy level, sleep, and emotional reaction, and physical health, i.e., pain, and physical mobility. The standardized coefficient representing the relationships was 0.7 from the feeling of alienation to mental health. The standard coefficient from physical health to mental health was 0.33, and it was 0.4 to alienation.

5.6 SUB-STUDY V

Is there any significant association between social alienation, mental health, physical health, and socio-economic variables?

The descriptive statistic revealed that, in relation to the socio-economic variables, the highest self-reported mental health problems belong to the age group 19 (12.82; SD = 93.06), students with a father from the Middle East (99.77; SD = 82.11), students with a mother from the Middle East (102.88; SD = 83.02), students with a father with a low educational level (91.45; SD = 83.57), and students with a mother with a low educational level (88.19; SD = 89.08).

The factor analysis performed to assess the consistency of the three dimensions of mental health (sleep, emotional reaction, and energy level) yielded one component. The Kaiser-Meyer-Olkin, which measures the sampling adequacy, was 0.70. The Bartlett's test of Sphericity was also significant (Chi-square = 429.81; df = 3; $p < 0.001$). The factor loading for emotional reaction was 0.89. It was 0.81for sleep, and it was 0.83 for energy level. The Cronbach's alpha was also high (0.80), indicating the high consistency of the variables.

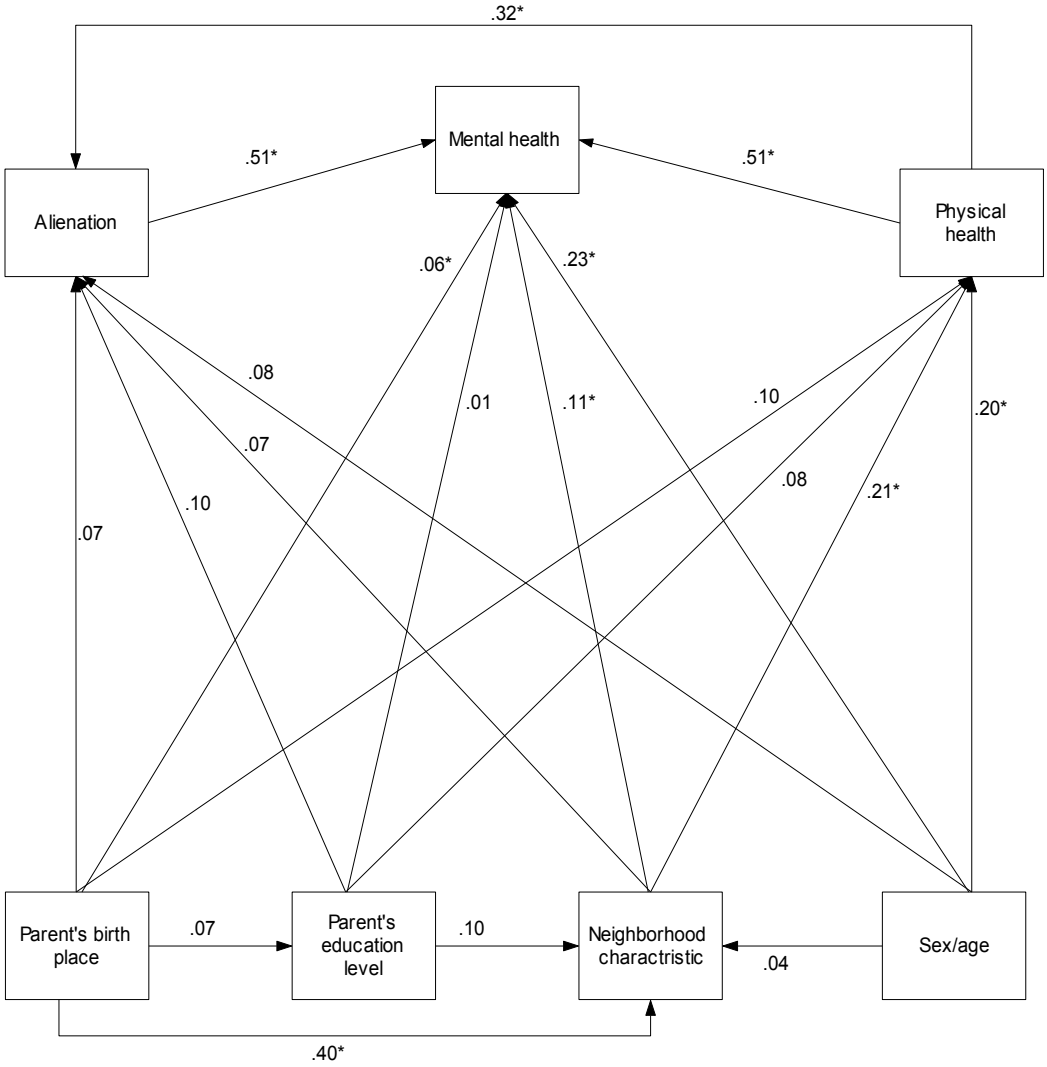
The result of the regression analysis proved that age has a significant quadratic component and that poor mental health is significantly correlated with being female, poor self-reported physical health, and a higher feeling of alienation.

A separate analysis revealed that having a father or mother born in Sweden is associated with lower mental health problems; having a father or mother born in the Middle East is associated with higher mental health problems; and having parents born elsewhere is generally associated with intermediate scores (though the mother's birth place is somewhat more important for these other places).

An additional pathway analysis, which was performed to examine the pathway relationship between the variables, showed that physical health, age/sex, and neighborhood characteristics are significant variables in relation to mental health (please see figure 4). Concerning the significant correlation between mental health and neighborhood characteristics, it needs to be noted that the highest number (almost 40%) of those who live in the north belong to the sub-group of students with Swedish parents and the highest number of students who reported that they lived in the south of Stockholm were those with a Middle-Eastern background (almost 60%). The highest number of students who lived in a home that was owned were those with a Swedish background (more than 70%), whereas the lowest number of students residing in a home owned by the family had a Middle-Eastern background (10%). The latter group primarily lived in rented apartments (75%).

The parental birth place does not have a direct relationship with feelings of alienation. Rather, the effect is mediated by the set of variables representing health; that is, the differences in parental birth place are represented as differences in the ratings of different health aspects. The analysis showed that 98.0% of the variance was explained by the model. Using MX32 software for testing the above pathway result suggested a good fit of the presented model (Chi-square = 3.74; df = 3; RMSEA = 0.05).

Figure 4 Path coefficients between all the variables representing the variable sets



*p<0.05

6 DISCUSSION

6.1 DISCUSSION OF THE FINDINGS

The overall aim of this research was to explore the relationship between the feeling of alienation and self-reported health among adolescents in Stockholm, Sweden. The sub-studies included in the thesis focused on three main variables, i.e., sex, age, and immigrant background which were considered to be related to the feeling of health and social alienation. Sub-study I attempted to provide an appropriate instrument to be used in the research project to gather the data. Sub-studies II and III explored the self-related health and social-alienation status of the sample population. Sub-studies IV and V investigated the relationship between health and the feeling of social alienation and explored this relationship by examining the role of socio-economic variables such as parent's education and neighborhood characteristics.

6.1.1 Validity and reliability of the social alienation scale

This research, with a cross-sectional design, required appropriate instruments for collecting data about self-reported health and social alienation. Because the self-reported health scale (NHP) was available in Swedish, the first sub-study aimed to identify and validate the use of the social alienation scale in Swedish.

The Jessor and Jessor social alienation scale was selected for translation and use in this study, because this scale was originally designed to measure the general feeling of alienation among adolescents. The result of the analysis which was performed for face, content, and construct validity was satisfactory as well. The result suggests that the Swedish version of the scale is an adequate, valid, and reliable questionnaire that can be used among adolescents in the Swedish context. One of the strengths of the first sub-study was that the scale was tested among three different samples of adolescents; the results of the validity and reliability analysis complemented each other. The other strength was that we used several validity and reliability techniques to test the translated version.

Additionally, although in the original version of the Jessor and Jessor alienation scale, the dimensions of the items were unclear, which may be regarded as a limitation of the scale, in sub-study I , by performing a SEM analysis, we were able to identify two main dimensions in the scale which were labeled as "social isolation" and "meaninglessness". It needs to be noted that, similarly to the original scale, the logical relationship between the two dimensions of the scale, i.e., isolation and meaninglessness, remains unclear, which can be due to the theoretical disagreement about the definition of the term "social alienation" and its corresponding dimensions.

Although this scale measures the general feeling of social alienation in adolescents and it is simple and easy to use, it needs to be acknowledged that the other dimensions of social

alienation that have been suggested in the literature, such as powerlessness, normlessness, and self and cultural estrangement, cannot be measured by this scale.

Because the studies included in this thesis focus only on the above mentioned two dimensions of social alienation, the results cannot be compared with other results of previous studies where other dimensions of social alienation, such as powerlessness and cultural estrangement, have been used. Furthermore, because no previous study has determined what dimensions of social alienation are more appropriate in assessing the feeling of alienation among adolescents, future research needs to identify the most important dimensions for measuring the feeling of alienation among this particular target group.

6.1.2 Explanation of the general result on the informants' feeling of social alienation

The finding about the social alienation status of the informants indicates a considerable level of feeling of social alienation, especially in regard to the isolation dimension (sub-study II). The level of social alienation which was found to be greater among the youngest and oldest groups of students can be explained as a result of the transition from mid school to high school for younger students and from high school to the labor market for the oldest ones. Mizelle and Irvine's study in 2000 supports the result of our finding; this study indicates that the feeling of alienation among younger students is high because they just transferred from secondary school to high school and because of the change of environment. They suggested that looses of their established social and friendship networks may lead the younger students in high school to the feeling of isolation. The significantly higher level of social alienation among older students can be seen as a result of distress which can be related to the future and the concern and insecurity of entering the job market, when considering that the unemployment rate in Sweden is higher for young people than in the general labor market (Ashing 2009). Moreover, there are several studies that show that, if students realize that their school programs do not help them to obtain fruitful employment, they consequentially experience anxiety and meaninglessness with respect to their daily life and school activities (Oerlemans and Jenkins 1998; Brown, Higgins et al. 2003; A.O'donnell, Schwab-Stone et al. 2006; Hascher and Hagenauer 2010). This supports our results which indicated a higher level of social alienation, particularly related to meaninglessness, among some groups of students.

The studies presented in this thesis did not reveal any significant differences in terms of feeling of social alienation related to gender (sub-study II & V). Although the level of the feeling of alienation was higher for female students than for male students, the differences were not significant. Thus, this finding is in disagreement with previous researches in this field which indicated that the level of social alienation is higher among girls (Killeen 1998; Newman and Newman 2001; Hall-Lande, Eisenberg et al. 2007; Ådnanes 2007). The external validity of this finding is limited because there is not previous research in this area in the Swedish context that can be compared to the results of the studies included in this thesis. Additionally, because the

findings are only based on two dimensions of social alienation, i.e., isolation and feeling of meaninglessness, the generalization of the findings can be limited. Furthermore, qualitative studies can help provide a deeper understanding about the role of gender in the feeling social alienation.

The results of the thesis did not reveal any significant association either between socio-economic indicators, such as type of home, educational level of parents, and school type, and the feeling of alienation (sub-studies II and V). Previous studies, such as those conducted by Smith and Bohm (2007), Miller et al., (2009) and Ross and Mirowsky (2009), indicated that a low socio-economic status and the disadvantage of living in a poor neighborhood can affect the feeling of alienation. The findings presented here are based on studying adolescents between 15 and 19 years, and because there are only a limited number of studies on this matter in the Swedish context, more investigations should be performed among different age groups to be able draw a general conclusion about the relationship between the socio-economic indicators and the feeling of social alienation. Additionally, we need to mention that, as the results of sub-study II show, the feeling of social alienation in the studied population can be explained by other social factors, such as having an immigrant background, than the socio-economic status.

The feeling of alienation can be explained by different factors that have been identified in previous studies, which were not investigated in the sub-studies included in this thesis. In what follows, I try to present a variety of explanations with the support of a theoretical framework or findings of previous studies that can address possible factors influencing the dependent variables (social alienation). The feeling of social alienation can be explained by several factors that might depart from the school environment, family, and wider society. One of the factors that can be associated with the feeling of alienation is bullying at school, which has been considered as an indicator of social exclusion in previous studies. (Oerlemans and Jenkins 1998; Brown, Higgins et al. 2003; Ferguson and Lavalette 2004; Due, Holstein et al. 2005; Olweus 2011). Although Sweden is known as one of the first countries in the world that has taken actions against bullying at school, the bullying rate is still significant (Forsman 2003; Ashing 2009).

The other factors that can affect the feeling of social alienation, especially during the period of adolescence, are the quality of relationships with peers and identity issues. In this period, one of the main concerns of young people is seeking friendships and membership in peer groups. If the person is rejected by other peers, the level of isolation and the feeling of alienation may increase (Newman and Newman 2001; Hall-Lande, Eisenberg et al. 2007). Low social skills, which limit a person's ability to make friends and engage in social activities, can also affect the feeling of alienation (Newman and Newman 2001). A study by Hall-Lande et al. (2007) revealed also that adolescents with feelings of isolation and without any close friends have a lower self-esteem, which in turns prevents them to engage in social activities and/or make new friends (Hall-Lande, Eisenberg et al. 2007).

Finally, it needs to be mentioned that, in Sweden, one in five students does not achieve the goals of compulsory school, learning outcomes, and one in ten (10%) fails to achieve the minimum

grade required to enter secondary school (Ashing 2009; Dahl 2009). This is an important issue to be considered in future investigation, because students who are unable to cope with the school curriculum and fail to achieve educational goals are also at risk of isolation in the classroom, which can result in a high level of powerlessness and alienation (Shrivatava and Mukhopadhyay 2009).

6.1.2.1 Explanation of the feeling of alienation among informants with an immigration background

Several studies indicated that the level of social alienation is higher among people with an immigrant background (Pumariega, Rothe et al. 2005; Merz, Ozeke-Kocabas et al. 2009; Miller, Birman et al. 2009). The results of the studies included in this thesis are in agreement with these previous findings. The results show that the level of the feeling of social alienation is higher among students with an immigrant background than among native Swedes (Sub-study II). Although the feeling of social isolation is higher among first-generation immigrants, second-generation immigrants had higher scores on the feeling of meaninglessness. An explanation was formulated on the basis of the perspectives of Newman (2001) that suggested that the first generation of adolescents who are not able to make close friendships with others because of language barriers, cultural differences, value conflicts, and increased distance from their own family are at high risk of being alienated from society; thus, they may report a higher level of feeling isolated than the second generation. Furthermore, Merz et al., (2009) argue that, although first-generation immigrants increase their distance from their family and try to adopt new cultural values, family solidarity still has a higher value than for second-generation immigrants. These challenges can lead first-generation immigrants to eventually distance themselves from the wider society (peers). This can explain why they have a greater feeling of isolation compared to second-generation immigrants. In turn, as the result of sub-study II indicated, second-generation immigrants may experience a greater feeling of meaninglessness than first-generation immigrants. An explanation could be that this group is familiar with the values of the family and society, but they give a higher place to the values of society. Sometimes, these values (society and immigrant family) are in conflict, and as Robert E. Park (1937) in his seminal theory about marginal man claimed, living in two worlds of values can marginalize and alienate a person from him/herself. In line with the conflict of values which can lead to the feeling of meaninglessness, Durkheim (1951) also argued that, if the values and norms of the society lose their power to control a person's behaviors, the risk of the feeling of meaninglessness increases. (This is called anomie and is known as a risk factor for anti-social behaviors as well.)

6.1.3 Explanation of the general result on the informants' health status

Not surprisingly, the result from sub-study III indicated that the majority of adolescents reported only few health problems. As it was expected, the data were highly skewed because of the

healthy target population. Only in two dimensions of NHP, i.e, "emotional reaction" and "energy level" which are related to the mental health aspect of self-reported health problems (Sub-study IV), the level of reported problems was high. This finding is in agreement with the results of studies such as that of Hagquist (2009) and Nygren et al. (2011), which indicated that mental health problems among adolescents are increasing in Sweden. Furthermore, the finding of sub-study III in this regard is in agreement with the comparative study among 28 countries by Overpeck (2003) on the health status of adolescents that showed that Swedish students reported a lower level of general health problems than populations from other countries. The result of this study was also quite similar to the results of sub-study III in some aspects, indicating that Swedish adolescents generally report few health problems, although in some dimensions of health such as sleep problem, headache, stomachache, low energy level, and fatigue in the morning, the level of self-reported problems was considerably high among Swedish adolescents (Overpeck 2003).

The negative emotional reaction and low energy level in adolescents which was found to be high in sub-study III was also identified in previous studies as reasons for behavioral and biological changes due to the transition from childhood to adulthood (O'Connor, Hawkins et al. 2011), the lack of supportive friends, the feeling of isolation (Hall-Lande, Eisenberg et al. 2007), and bullying at school (Olweus 2011).

Another interesting issue which was highlighted in the in the findings of sub-studies III and V was that female students reported more self-reported problems. During adolescence, which is considered as a biological and behavioral transition time, females generally develop faster than male during the same period, which can affect their physical and mental health (Wrangsjö 2004). Another explanation could also be that females and males may perceive their health differently, or probably, females are more likely to report their health problems than males.

6.1.3.1 Explanation and comparison of self-reported health status among informants with an immigration background and native Swedes

As the results of sub-study II showed, students with an immigrant background reported more health problems than native Swedes. Moreover, first-generation immigrant students also reported more health problems than second-generation immigrant students. This finding is in agreement with the studies of Oppedal et al. (2004) and Wiking et al. (2004) that investigate health and well-being among immigrant populations. The studies by Wiking et al. (2004) and Sundquist et al. (2000) which have been conducted in Sweden found that the higher self-reported problems among the immigrant population can be due to experiences of discrimination and/or problems with acculturation. Additionally, Oppedal et al (2004) conducted a study about mental health among adolescents in Norway and indicated that poor self-reported health is mostly explained by stress-related acculturation and discrimination rather than socio-economic status. Because several reports showed some level of experience of discrimination among the immigrant population in Sweden, especially within labor and housing markets, this issue needs

to be taken into consideration in future research (Wiking, Johansson et al. 2004; Lindqvist 2009).

Concerning higher self-reported problems among students with an immigrant background, the other explanatory indicator that was found as an important variable is the low socio-economic status of people with immigrant background (Nazroo 1998; Harris, Tobias et al. 2006; Smith, Kelly et al. 2009; Veling and Susser 2011). Living in a poor neighborhood with a high density of immigrant population can increase the risk of health disparity (Karlsen, Nazroo et al. 2002; Veling and Susser 2011). This is in line with the finding of study IV which showed an association between the informants' neighborhood characteristics and their self-reported health. This is an important issue in Sweden because statistics show that about a half million of people with immigrant background live in the neighborhoods with the highest unemployment rate (Lindqvist 2009). The difficulties to access public health services because of communication problems caused by language barriers or not being familiar with the social service system in the new society have also been found as a risk factor for poor health among immigrant population (Anagnostopoulos, Vlassopoulou et al. 2004).

Sub-study III not only showed that self-reported health is poorer among students with an immigrant background, but it also showed that theses self-reported health differences are more remarkable between male and female students with an immigrant background. Female students with an immigrant background reported significantly higher self-reported health problems than males with an immigrant background in all six dimensions of health. These differences were however only observed in two dimensions of health among native Swedes. Oppedal et al. (2004) argue that, generally, these differences can be explained by differences in the expected role and responsibilities of males and females in families with an immigrant background and challenges they are facing in wider society. Males' mental health problems are more related to problems with their parents, whereas females' health problems are more related to the challenges that they face at school. This finding suggests that female students with an immigrant background probably reported more health problems because they face more challenges at school in regard to peer relationship and school activities. Furthermore, it is difficult to know whether the higher health problems reported by female students with an immigrant background can be due to these individuals' openness to explain their feeling; or maybe, they simply perceive their health differently than male students.

6.1.4 Acculturation as a possible key factor between health and the feeling of alienation among students with an immigrant background

As mentioned above, the feeling of alienation and self-reported health problems were higher among students with an immigrant background. As several studies in the field of acculturation have showed, one of the main components which can affect the feeling of alienation is the process of post-migration adaptation (Anagnostopoulos, Vlassopoulou et al. 2004; Oppedal and Roysamb 2004; Choi, Miller et al. 2009; Knight, Vargas-Chanes et al. 2009; Miller, Birman et

al. 2009; Phinney 2009; Cho and Haslam 2010). Phinney (2009) in his study distinguished between four groups of adolescents with immigrant background with respect to the acculturation process. He divided these adolescents into the following groups: (1) ethnically embedded or separated, (2) nationally oriented or assimilated, (3) bicultural or integrated, and (4) diffused or marginalized. Ethnically embedded adolescents keep a strong attachment to their family and family values. They are not entrusted to integrate into the wider society, and usually, they are not fluent in the language of the host country. As the finding of sub-study II showed, the feeling of isolation was more pronounced in first-generation immigrant students. This applies to the Phinney's categorization of the immigrants who are marginalized. According to Phinney, this group is separated from the cultural view of their home country, and at the same time, they cannot adapt themselves to the cultural values of the host country. They have instable cultural identity, and they have less sense of belonging either to the host society or their home society. Moreover, there is another group in Phinney's categorization that refers to the acculturation process that leads to biculturalism. The bicultural group follows two set of values (home and society); if these values are in conflict, the sense of meaninglessness increases. This description applies to the finding of sub-study II which showed that second-generation students have a stronger feeling of meaninglessness.

Conclusively, it is possible that the results of the studies in this thesis about the group of students with an immigrant background who reported a high level of isolation (first-generation immigrants) or meaninglessness (second-generation immigrants) can be related to these individuals' position in their acculturation process.

Acculturation can also be seen as a possible explanatory indicator in regard to the higher self-reported health problem among students with an immigrant background. Going through the acculturation and the distress related to challenges and conflict of values not only can affect the feeling of social alienation among the individuals with an immigrant background but can also result in health problems such as depression and anxiety (Johnson and Tomren 1999; Choi, Miller et al. 2009; Smokowski, Bacallao et al. 2009). Pumariega et al. (2005) argue that the stress related to acculturation can increase the risk of emotional disturbance in first-generation immigrants, especially for new comers. This risk factor is linked to another study which showed that adolescents with more distress problems are at risk of psychiatric illness in adulthood (Oppedal and Roysamb 2004). Such stress can be due to cultural shock as well. As Leao et al (2009) pointed out, cultural shock is a consequence of rapid social and environmental changes especially among first-generation immigrants, and it can also cause emotional stress reactions that lead to depression anxiety, aggression, anger, and meaninglessness. The stress related to the acculturation process can explain the higher self-reported problems among students with an immigrant background in the studies in this thesis.

6.1.5 Mediating role of social alienation in mental health and effect of socio-economic variables

Finally, in the last two sub-studies in this thesis, the feeling of social alienation was found as a mediator variable between mental and physical health. Poor self-reported mental health was significantly associated with a higher level of feeling social alienation, and social alienation was significantly associated with poor self-reported physical health. The pathway analysis based on the theoretical framework and previous studies confirmed our assumption about the relationship between self-reported health and the feeling of social alienation. This result is similar to the findings from a study by Rayce et al. (2008) which found that social alienation is a significant variable, besides bullying, associated with psychological symptoms, such as stress, emotional reactions, and sleep difficulties, and physical symptoms, such as pain. Rayce et al. (2008) argued that these correlations can be explained by stress or health-risk behavior among alienated people.

The fact that alienation can be seen as a mediating variable in health is supported by some studies that revealed that health-risk behaviors such as suicide attempt (Johnson and Tomren, 1999), fewer visits to health services (Edgar, 2011), lack of physical activities, and less preventive care (Sanders-Phillips, 2002) are more pronounced among alienated people. A study about adolescents published recently showed that alienation from peers was found as a significant variable for having a high level of depression, whereas good communication with peers was associated with low depressive symptoms (O'Connor, Hawkins et al. 2011). In turn, depression related to social alienation can increase the inability of networking which can result in even more isolation (Hall-Lande, Eisenberg et al. 2007). On the other hand, as the result of sub-study V showed, a higher feeling of alienation is associated with higher self-reported physical-health problems. In this regard, a study by Killeen (1998) indicated that physical limitation or disability possibly increases the risk of alienation by limiting the person's mobility and social networking. This study also showed that the students with poor eye sight or hearing problems were at risk of alienation. According to the theory of Ross and Mirowsky (2009), social alienation is cognitively linked to social environment and distress, and social alienation is a predictor of psychological distress. Furthermore, in line with the findings of sub-study V, the research study of O'Donnel et al. (2006) which was performed by using the Jessor and Jessor social-alienation scale pointed out the mediation role of alienation between violence and psycho-emotional maladjustment. It also showed that the feeling of alienation was associated with emotional and psychological problems.

6.1.6 Pathway of the relationship between socio-economic variables, health, and social alienation

Sub-study V investigated the pathway relationship between socio-economic variables, health, and social alienation. By entering socio-economic variables to the pathway diagram of health-

related social alienation, this sub-study attempted to validate the finding of the previous three sub-studies and to explore the nature of the relationship between the presented variables.

The feeling of alienation was found in this sub-study as a mediator factor between mental and physical health. In agreement with the finding of sub-studies II and III, in this study, gender and age remain significant variables related to mental-health problems, whereas age is the only significant variable that is related to the feeling of social alienation. The parents' birth place was found to be a significant factor in self-reported mental health. Furthermore, students with native Swedish parents had a lower level of mental-health problems, whereas it was highest for students with parents from the Middle East. However, the country of origin of the parents was not a significant variable with respect to the feeling of alienation, when considering the finding of study II, which indicated a significantly higher feeling of alienation among students with an immigrant background; this finding suggests that the feeling of alienation is higher among students with an immigrant background than among natives, regardless of the country of origin. Thus, the results of sub-study V confirm the results from the other sub-studies in this thesis.

The other important indicator that should be addressed is the length of stay in the host country (Sweden), and as the findings of sub-study II revealed, there is a significant relationship between the feeling of alienation and the date of arrival to Sweden as immigrant. It can be explained that the students who had lived in Sweden longer probably had better language skills, which facilitated their communication with others and their integration in the society. It could help them understand the cultural values of the host country and also find new friends, which could reduce their feeling of alienation.

In relation to the high reported mental health problems, the country of origin of the sample population seems to play an important role. The results (sub-study V) indicated that the highest self-reported mental health problems were reported by students with a Middle-Eastern background. The descriptive study showed that the majority of them came from countries in a critical situation (Iraq and Afghanistan). These students may experience critical life events, which, on the basis on several previous studies, can affect their mental health (Brough, Gorman et al. 2003; Zhang and Ta 2009; Hollander, Bruce et al. 2011; Kirmayer, Narasiah et al. 2011; Steel, Momartin et al. 2011).

The neighborhood characteristic is another variable that is significantly associated with mental health (sub-study V). Previous research studies showed that neighborhood characteristics can affect health (Ross and Mirowsky 2009; Linden-Bostrom, Persson et al. 2010). Living in an owned house and in areas with better accessibility to social services is an important factor which can be an indicator of the high socio-economic status of the students' family. Our finding also indicated that there is a notable difference in the distribution of the sample population in regard to the geographical location of residence and home type between native Swedish students and students with an immigrant background. Students with native Swedish parents reported living in a residence, which represents a higher socio-economic status as the majority of them lived in owned house, whereas students with a Middle-Eastern background mostly reported living in rental apartments. This finding allows us to argue that Swedish

students have a better socio-economic status and that people who own their homes enjoy a better economic welfare, which in turn might create better circumstances for promoting health than those who live in rented apartments. The finding of this sub-study (V) is important if we consider that previous studies have shown that, in Sweden, the immigrant population mostly lives in neighborhoods with socio-economic disadvantage, and socio-economic disadvantage is known as a risk factor for health and well-being (Lindqvist 2009; Johansson and Olofsson 2011).

In relation to the parents' educational level, although students with parents who have a low educational level reported more mental-health problems and a stronger feeling of social alienation, this finding was not significant (sub-studies V and II). Usually, the educational level of the parents varies depending on the country of origin of the sample (DebBurman 2005). Because we were not able to investigate the relationship between the country of origin and the educational level of the parents because of the small number of participants for each country, there is a possible risk of bias in this finding. Thus, we recommend future research, particularly to investigate the relationship between the country of birth of the population, the educational level of the parents, and self-reported mental health.

6.2 MEOTHODOLOGICAL CONSIDERATIONS AND LIMITATIONS

The first methodological consideration should refer to the selection of an appropriate social-alienation scale. First and foremost, there was no universal definition of the concept of alienation. The term social alienation is sometimes interchanged with other terms such as anomie, marginality, cultural estrangement, self-estrangement, and powerlessness (Seeman 1991). This concept is also critically analyzed by sociologists which state that, if the concept of social alienation explains all negative aspects of human behavior, it essentially explains nothing and needs to be abandoned: others say that, if the term alienation is used to explain feelings such as powerlessness, isolation, or anomie, we should avoid the term alienation and use the true terms instead (Affinnih 1997; Yuill 2011).

Despite the criticism of the concept, the term alienation is frequently used in scientific work. Seeman postulates (1991) that this concept is too important in behavioral science and in sociological research to be bypassed or ignored. In conclusion, as mentioned above, there is still a disagreement about the definition of the concept of social alienation as well as the value of its use in research, which makes the selection of an appropriate social alienation scale difficult. The second challenge was with respect to the selection of a scale from existing instruments that could measure social alienation among adolescents. Many existing social alienation scales are still being developed, and they are still subjected to constant reversions. Therefore, finding an appropriate tool for use in this research was challenging, and the options were limited. After a systematic search to identify social alienation scales in Swedish, we failed to find any. Therefore, as a first step in our research study, we decided to select a standardized scale in English and translate it to Swedish.

Furthermore, the cross-sectional design of this study limits the significance of the relationship between the variables that were included in the sub-studies in this thesis. The associations between the variables do not indicate a cause-effect relationship, because dependent and independent variables are measured simultaneously. The results from several previous studies were used to assess/examine the creditability of the significant associations that were found in our research; otherwise, it was also almost impossible to find out whether the outcome (health or alienation) comes first or is a consequence of certain factors.

The results of the studies presented in this thesis are based on self-reported data. Thus, reported poor health and/or feeling of alienation are not based on medical and psychological examination. The physical health dimension of NHP does not indicate any physical disabilities, and self-reported mental-health dimensions do not represent any psychological problems. Therefore, the pathway model of the relation between the feeling of alienation and health status is not a linear model; it cannot be generalized nor can it be representative of medical symptoms.

The sample population was divided into three groups (sub-studies II and III) because of the small size of the sample, and therefore, we did not have large enough numbers to perform the analysis for each of the ethnic groups represented among the sample population. I am aware that placing all students with an immigrant background in one group may increase the risk of bias, because there are variations in the immigrant population, even within one ethnic group, that make the group diverse, and this increases the risk of bias. In sub-study V, I tried to categorize the students according to the birth place of their parents; but, as mentioned above, because we had a small sample in each category, the power would have been lower than 80% if we had broken down the sample into smaller categories, and the probability of error would have been higher.

The other weakness of this study that can create a possible bias on the overall finding is related to the data-gathering process. The data were gathered during different times from winter to the end of spring. The weather differences during data gathering may affect the way that the students answered the questions. Also, some data were gathered early in the morning when the students just arrived at school, and some data were gathered during the day (before noon, after lunch); this can also affect the students' responses.

We need to acknowledge that, because there is no other social alienation scale in Swedish, we could not evaluate the external validation of the Jessor and Jessor social alienation scale. The Swedish version of the social-alienation scale which is used in this research study is only validated for use among adolescents. However, regarding the use of the scale in age groups different from our target group, the scale may need future validation evaluations. By using only questionnaires in the cross-sectional study, we cannot qualitatively explore how and through which process the feeling of social alienation affects the feeling of illness and health.

Conclusively, this study was performed among adolescents aged between 15 to 19 years, in Stockholm County, and the findings cannot be generalized to the general population of Sweden.

6.3 IMPLICATIONS

Improving health and in particular mental health of adolescents is a major concern for policy makers, public-health researchers, and care-science researchers at the national and international levels. Youths' daily life and school activities play an important role in the health of adolescents and the integration of minorities into the dominant society. The results of this study may provide evidence that helps identify high-risk groups among adolescents with respect to health and social alienation; this can encourage social policy makers and health-care professionals to bring their attention to these risk groups. Studying alienation is an important issue as well for the integration of minorities and for health-policy makers who are attempting to reduce the level of mental health problems among adolescents. As suggested by Killen (1998) and Hascher et al. (2010), nursing intervention can reduce the risk not only of health problems but also of alienation and isolation.

Alienated people, as previously mentioned, are less socially active, and the likelihood that they voluntarily seek health care and/or discuss their feelings in relation to isolation or loneliness is very low. It seems to be necessary for nurses and social workers at schools to identify the students at high risk of alienation and psychological problems and help them improve their social network. The findings of this research can help health care staff understand the importance of the impact of social variables such as alienation on feeling ill or healthy and also bring special attention to high-risk groups such as students with an immigrant background and/or females in this particular group of students. By following the identification of the risk groups, care can be provided to the alienated students through various interventions that can help prevent social alienation and its health impact; this includes helping students find new friends, arranging social activities, and facilitating access to exercise facilities (Killeen 1998; Dobmeier, Hernandez et al. 2011). Support groups at school also can provide opportunities for students to meet and develop relationships with peers; this can reduce the risk of alienation and mental-health problems.

6.4 FUTURE RESEARCH

There are still many issues that need to be explored in future research. One of the main issues that can be associated with both health and social alienation is the family system. Parent-child relationships, conflicts at home, parent separation, number of siblings, and family support all play an important role in the feeling of alienation and health and require more investigation in the future.

For a deeper understanding of the feeling alienation and its relation to health status, qualitative research is also recommended. I also recommend future studies on this subject among different age groups and among people with physical disability to achieve a broader

understanding of the association between the variables that were studied in the present research.

The socio-economic status (SES) of adolescents is usually assessed by the socio-economic status of their parents. Because some students live with separated parents (mostly one week with their father and one week with their mother), measuring the SES becomes challenging because of the SES of the mother and father. Thus, I recommend further research measuring the subjective social status (SSS) instead of the SES. Furthermore, discrimination and bullying should be investigated when studying the feeling of alienation in adolescents and their influence on illness and health. Future research investigating the relationship between the feeling of alienation and the level of self-esteem is also recommended.

In this study, we did not aim at investigating the health and social alienation of any specific immigrant population; however, it is interesting to study health and its relation to the feeling of social alienation in different groups of immigrants by comparing the groups according to socio-economic status, length of stay in the host country, and country of origin. It is also recommended to conduct strategic sampling instead of random sampling to get large enough samples to perform statistical analysis for each sub-group.

Today, the role of advanced technological networking emerges as a new area of research. The overuse of cyber networking over social networking affects physical and mental health, feeling of loneliness, and social alienation. These issues also seem to be important in public-health research and need to be taken into consideration in future research.

7 FINAL REMARKS

The research study presented in this doctoral thesis provided a valid alienation scale for use among Swedish adolescents. The overall findings of this study showed the mediating role of alienation in self-reported health. Having an immigrant background was also found to be an important factor in self-reported health and the feeling of alienation.
More specifically, this study found that:

- The Swedish version of the Jessor and Jessor alienation questionnaire is reliable and valid for use in the Swedish context among adolescents.
- The feeling of social alienation is higher among students with an immigrant background (first and second generation), and they reported a higher level of feeling of alienation than native Swedes.
- The older and younger students reported a significantly higher feeling of alienation.
- No significant association was found between gender and some socio-economic variables, such as parents' education, type of home, and school location, and the feeling of alienation.
- Poor self-reported health was higher among students with an immigrant background than among Swedish natives.
- Gender was found to be an important variable in self-reported health among students with an immigrant background, and female students with an immigrant background reported more health problems than native Swedes and males with an immigrant background.
- Social alienation was significantly associated with the dimensions of health related to mental health.
- Social alienation was found to be a mediating variable between self-reported physical-health problems and self-reported mental-health problems.
- Self-reported mental health was significantly associated with the feeling of alienation.
- The feeling of alienation was significantly associated with self-reported physical health.
- Age and sex were found to be significant variables in self-reported mental health.
- Students with a Middle-Eastern background reported significantly more mental-health problems.
- Neighborhood characteristics were found to be a significant factor in self-reported mental health.
- The feeling of alienation, which was higher among first-generation immigrants, was also associated with the length of stay in Sweden.

8 SUMMERY IN SWEDISH

Bakgrund: Ungdomars hälsoriskbeteenden och sociala utanförskap håller på att sakta erkännas som folkhälsoproblem. En av de hypoteser som växer fram är att individer med en stor känsla av utanförskap riskerar att drabbas av psykisk ohälsa negativa hälso-och riskbeteenden. Antalet ungdomar i Sverige som upplever hälsoproblem, framför allt mentala hälsoproblem ökar. Hälsan hos ungdomar är en av de viktigaste frågorna för folkhälsoforskare, men det finns en brist på bevis för hälsorelaterade sociala utanförskap i Sverige.

Syfte: Denna avhandling syftar till att undersöka sambandet mellan känslan av socialt utanförskap och självrapporterad hälsa. Den första delstudien syftar till att testa en lämplig enkät gällande socialt utanförskap för användning i en svensk kontext och bland ungdomar. Den andra och tredje delstudien syftar till att utforska sociala utanförskap och den självrapporterade hälsotillståndet hos Stockholms gymnasieelever genom att undersöka vilken roll ålder, kön och invandrarbakgrund har. Den fjärde delstudien undersöker relationen mellan självrapporterad hälsa och känslan av socialt utanförskap. Den sista delstudien undersöker sambandet mellan känslan av utanförskap och psykisk hälsa genom att undersöka vilken betydelsen av de socioekonomiska faktorerna.

Metod: Avhandlingen är uppbyggd kring fem artiklar genom analys av data som samlats in genom Nottingham Health Profile (NHP) samt Jessor & Jessor skalan rörande socialt utanförskap. De data som samlas in från åtta gymnasieskolor i Stockholm och antalet deltagare i studien var 446 (ålder = 15-19, SD = 1,01; medelvärde = 17).

Resultat: Jessor & Jessor skalan översattes till svenska och upprepade tester gällande validitet utfördes så som översättning och tillbaka översättning, innehållsvaliditet samt begreppsvaliditet. Stabilitet-och inter-konsistens testet utfördes också för att undersöka tillförlitligheten av skalan. Det samlade resultatet av de ovannämnda testerna visade att den svenska versionen av skalan är en lämplig och giltig enkät att använda för ungdomar (artikel I). Ålder visade sig vara associerad med en känsla av utanförskap och mental hälsa, och ungdomar som var 17 år visade färre mentala hälsoproblem och en lägre känsla av utanförskap (artikel II och V). Kön visade sig vara en av de viktigaste signifikanta variabler i frågan om självrapporterad hälsa och visade sig bidra till ett större antal hälsoproblem, där kvinnorna rapporterade ohälsa i större grad än männen (artikel III och V). Dessa skillnader var betydligt större bland invandrarelever. Dock infödda svenska kvinnor visade skillnader i faktorer så som energinivå och känslomässiga reaktion i större utsträckning än infödda svenska män. Kvinnliga studenter med invandrarbakgrund rapporterat signifikant högre självrapporterade hälsoproblem så som isolering, fysisk rörlighet och smärta. Invandrarbakgrund visade sig vara en betydande variabel i den självrapporterad hälsan och känslan av utanförskap (artikel II, III, och V). Elever med invandrarbakgrund hade rapporterade i större utsträckning självrapporterade problem gällande sömn, smärta, känslomässig reaktion, och energinivån (artikel III). De hade också större hälsoproblem, framför allt mentala hälsoproblem (artikel V). Studenter från icke-svenska föräldrar (i synnerhet från ett Mellanöstern ursprung) hade signifikant högre antal hälsoproblem i jämförelse med infödda svenskar (artikel V). Elever med invandrarbakgrund rapporterade också en starkare känsla av socialt utanförskap än etniskt svenskar, och känslan av utanförskap

var ännu högre bland första generationens invandrare (artikel II). Områdes egenskaper, såsom var man bor och hur man bor konstaterades också vara en viktig variabel för den självrapporterad psykiska hälsan. Inga signifikanta skillnader om gällande känslan av utanförskap och självrapporterad hälsa observerades med avseende på föräldrarnas utbildningsnivå (artikel II och V). Slutligen så fann man att utanförskap agerade som en medlande variabel mellan självrapporterad psykisk hälsa och självrapporterad fysisk hälsa (artikel IV och V). De mer allvarliga psykiska hälsoproblem var förknippade med en högre känsla av utanförskap, och känslan av utanförskap är associerad med självrapporterade fysiska hälsoproblem (artikel IV och V).

Slutsats: Resultaten i denna avhandling visar att kvinnliga studenter rapporterar hälsoproblem i större utsträckning än manliga studenter, och skillnaden är större bland eleverna med invandrarbakgrund. Resultatet visar att känslan av utanförskap och självrapporterade hälsoproblem är högre bland elever med invandrarbakgrund, oavsett ursprungsland, men också att självrapporterade hälsoproblem rapporteras mer av studenter från Mellanöstern. Resultaten visar också ett starkt samband mellan känslan av utanförskap och antalet psykiska hälsoproblem, vilket tyder på en medlande roll gällande känslan av utanförskap samt psykisk ochfysiskhälsa.

Nyckelord: enkät, hälsa, fysisk, invandrare, isolering, meningslöshet, psykisk hälsa, socialt utanförskap, skala, studenter, självrapporterad hälsa, Stockholm, Sverige, tonåringar, tvärsnittsstudie, ungdomar.

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