Violence in adolescence and later work marginalization?

A prospective study of physical violence, sexual abuse and bullying in 15-year-olds and marginalization from work in young adulthood

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SUMMARY

Background
The long-term consequences of childhood exposure to physical abuse, sexual abuse, and bullying are of great public health concern, both at the individual and the societal level. The World Health Organization (WHO) has also acknowledged this as new evidence has documented the economic and societal costs associated with abuse in terms of substantial health care, social welfare, and lost productivity. Research has documented the negative outcomes associated with abuse and bullying in terms of severe physical and psychological health problems. However, epidemiological studies focusing on both abuse and bullying are lacking, and few studies have examined the long-term implications for the level of functioning, such as work participation. Most research on exposure to bullying and abuse has focused on the individual predictors of school functioning rather than the social context. The school climate and the person’s level of social support are important factors that may attenuate or increase the risk of impaired academic performance and subsequent work marginalization. Thus, it may be important to study the interrelationship between individual predictors and their social context to capture the complexity of the long-term consequences associated with exposure to abuse and bullying.

Objectives and research questions

1. The main objective of the thesis was to gain knowledge about the long-term consequences of exposure to physical abuse, sexual abuse and bullying in terms of subsequent marginalization from work and education. In addition, we investigated whether school-level factors and support from the person’s immediate setting, in interplay with the exposure would influence this association.

More specifically, the research questions were:

- Do adolescents exposed to abuse or bullying (exposed) in junior high school perform worse academically compared with adolescents not exposed (nonexposed) to these types of adversities? Does the school climate have a stronger impact on academic achievement for the exposed adolescents versus the nonexposed adolescents? (Paper I).
• Is exposure to physical abuse, sexual abuse and/or bullying in junior high school associated with subsequent marginalization from work and education in young adulthood? Does high-school completion have a mediating effect on this potential relationship (Paper II)?
• Is exposure to physical abuse, sexual abuse and/or bullying in junior high school associated with receiving long-term welfare benefits in young adulthood? Does social support moderate this relationship (Paper III)?

Materials and Methods
This is a prospective cohort study that follows the same individuals for an extended time period. The baseline data consists of questionnaire data from the Youth Health Survey, which were conducted by the Norwegian Institute of Public Health between 1999 and 2004 with 15,966 adolescents in 400 schools from six counties in Norway. The baseline data were linked to high-quality Norwegian registries, such as the Historical Event Data Base (FD-Trygd) and the National Education Data Base (NUDB), which provide information about each person’s sick leave, unemployment benefits, social benefits, medical and occupational rehabilitation benefits, disability pension and level of education. This allowed us to follow each person’s work and educational progress up to the age of 26 years. Multilevel analyses, linear regression, ordinal logistic regression and Cox regression were used to examine exposure to abuse and bullying and their associations with academic achievement and work marginalisation. Of the baseline participants, 88% (14,063) permitted the linking of data. Self-reported measures were used for academic achievement (grades), sociodemographics and the exposure variables. Participants were asked about their last 12 months’ exposure to physical abuse from youth, adults or both, sexual abuse and bullying. High-school completion and work marginalization outcomes were measured using registry data.

Results
In the first paper, we found that exposure to physical abuse, sexual abuse and bullying was associated with lower grades. School climate was of importance as high levels of bullying in a school resulted in lower academic performance regardless of the individual’s previous exposure to abuse.
In the second paper, we found that reduced work participation in young adulthood was predicted by previous exposure to abuse and bullying in junior high school. Additionally, a negative dose–response relationship was observed between exposure to abuse and completing high school within five years. The respondents reporting three types of abuse (including bullying) had the highest frequency of not completing high school. Exposure to physical abuse and bullying increased the odds of lower work participation, independent of high-school completion.

In the third paper, we found that exposure to abuse and bullying in junior high school increased the risk of receiving long-term welfare benefits in young adulthood. A cumulative association of abuse was observed in which multiple types of abuse led to a higher likelihood of receiving welfare benefits compared with the cases of single types of abuse and no abuse. However, the risk of receiving long-term welfare benefits was reduced with family support and good classmate relationships.

**Conclusion**

The results of the three papers indicate that the ability to participate in work is formed early in life. Individuals exposed to life adversities such as sexual and physical abuse and/or bullying in junior high school have a greater risk of poorer achievement in school, dropping out of high school and poorly integrating in work in young adulthood. Furthermore, exposure to multiple types of abuse increases this risk. The school climate and the person’s immediate setting present both risk and protective factors that may affect these outcomes. High levels of bullying in a school represent a threat to the academic achievement of all individuals at a school, while family support and good classmate relationships may serve as a protective factor for vulnerable individuals in regards to work participation outcomes in young adulthood. This thesis emphasizes that preventative efforts at an early age are crucial for successful integration of young adults. Moreover, further investigations of the long-term consequences of exposure to sexual abuse, physical abuse and bullying are needed.
ACKNOWLEDGEMENTS

The doctoral project was funded by the Research Council of Norway and is part of the VAM program, which is a research program focusing on welfare, work and migration. Our research project, “Out of work. Life adversities and health behaviour in 15-year-olds as predictors of marginalisation from the labour market ten years later” is a collaboration project between the Faculty of Medicine (UiO), The Norwegian Centre for Violence and Traumatic Stress Studies (NKVTS) and the Centre for Child and Adolescent Mental Health (RBUP). The research group consists of a mix of medical and social-science-oriented researchers: Lars Lien (MD, PhD), Siri Thoresen (Psychologist, PhD), Åse Sagatun (MSc, PhD, Postdoc), Ole Rikard Haavet (MD, PhD), Ole Kristian Hjemdal (Sociologist), Grete Dyb (MD, PhD) and Lisbeth Homlong (MD, PhD student). The main supervisor for my PhD project is Siri Thoresen. She is head of the epidemiological research program at NKVTS. She has conducted several research projects on life adversities and traumatic stress, and her work has a special focus on methodology and measurements. The second supervisor is Grete Dyb from University of Oslo and NKVTS. She is the principal investigator of the Utøya project at NKVTS and specializes in children and youth psychiatry.

Special thanks
I would especially like to thank the adolescents and schools that participated in the Youth Health Surveys for letting us use their information for this research.

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Santa Barbara, February 2014

Ida Frugård Strøm
LIST OF PAPERS

Paper I


Paper II


Paper III

1. FRAMEWORK

This thesis (sub-project 1) focused on work impairment in populations that are vulnerable in terms of being exposed to sexual abuse, physical abuse and/or bullying in junior high school and investigated how school climate and social support may affect the relationship between exposure to these types of abuse and to school functioning and work ability. The PhD thesis was part of a larger interdisciplinary project that was a collaboration between the University of Oslo, the Centre for Child and Adolescent Mental Health, Eastern and Southern Norway (RBUP), and the Norwegian Center for Violence and Traumatic Stress Studies (NKVTS). The research team consisted of researchers from various disciplines, such as psychology, sociology and medicine. This gave the project a unique approach as it studied work marginalization from different scientific perspectives and thereby acquired a holistic view of the problem. The project was divided into three sub-projects, the main purpose of which was to study the push and pull factors that may predict later work inclusion or marginalization. The different sub-projects had a special focus on vulnerable populations (sub-project 1), mental health and health behaviour (sub-project 2) and the use of health services (sub-project 3) as predictors of work marginalization.

The project was funded by the Research Council of Norway and it is part of the Welfare, Working Life and Migration (VAM) program focusing on ageing, consequences of increased wealth, international migration, family and society, economic growth and organization of working life, and support for organizing and governing a welfare society (The Norwegian Research Council; http://www.forskningsradet.no/prognett-vam/Home_page/1232443453131).
2. INTRODUCTION

The topic of the thesis concerns adolescents who have been exposed to violence, such as sexual abuse and physical abuse, or bullying in junior high school and their subsequent risk of work marginalization. This was explored by following a Norwegian adolescent population (15,966 individuals) in the Youth Health Surveys (1999–2004) and in the 10 years following the completion of junior high school. This resulted in the publication of three papers, which constitute the foundation of this thesis.

The topic of the thesis involves several fields of research and disciplines, such as social sciences, epidemiology, economy and medicine. This thesis is mainly rooted in the social sciences and epidemiology.

The thesis is written within a public health approach, using socioecological theory as a framework for understanding how to consider the environment in which the individual is nested within. Other theories are also applied to explain mechanisms related to violence, bullying and behaviour. The benefit of a public health approach is that it draws upon knowledge from multiple disciplines.

The following sections discuss the background and status of knowledge of violence, bullying and work marginalization: The first section (3.1) gives a brief historical overview of abuse and bullying, and is followed by sections on their prevalence in Norway (3.2) and outcomes (3.3). Marginalization and its association to violence and bullying are then discussed (3.4), and followed by an overview of the situation of marginalization in Norway (3.5) and its possible pathways (3.6). Finally, the public health approach (3.7) and the theoretical framework (3.8) are discussed in more detail, and how they interrelate (3.9) is examined. Finally, a summary of the background is given (3.10).
3. BACKGROUND

3.1 Historical background

Child abuse has existed throughout history, but was first recognized in the 1800s; the first case of child abuse was recorded in the United States in 1874. However, actions to prevent abuse and provide help to victims have been slow to emerge as pointed out by Gellert, Townsend, and Keating (2010). It was not until 1962 that child abuse was acknowledged as a social problem, at which time it was given the medical diagnosis of “battered child syndrome” by Kempe et al. (Kempe, Silverman, Steele, Droegemueller, & Silver, 1962). This article created great media attention and political interest and, by the late 1960s, all states in the United States had child-abuse-reporting laws in place (Gellert et al., 2010). Since then, a multitude of studies have investigated the problem and its subsequent outcomes. The majority of research has centred on the individual and the personal consequences in terms of developmental delays and stress-related suffering. During the past two decades, the ecological perspective in which the social context is considered (Bronfenbrenner, 1977) has received more attention. Although it is hard to estimate precise statistics for child abuse (physical abuse, psychological abuse, sexual abuse and neglect), the United States has more than 3 million reports of child abuse every year (which can involve multiple children), and 2%–3% of children under the age of 18 years may be abused (Gellert et al., 2010). In Europe, it is estimated that 18 million children suffer from sexual abuse and 44 million from physical abuse. Research has also found great societal costs associated with the abuse (Gilbert et al., 2009; WHO, 2002).

Systematic studies of bullying started with Olweus’ work in Sweden in the 1970s, followed by studies in other Scandinavian countries (Olweus, 1999; Smith, 1999). This work was followed by research in Japan and other European countries starting in the 1980s and by research in the United States, Canada, Australia and New Zealand starting in the 1990s. Suicides committed by bullied students, school shootings (in the USA) and the following media attention on the topic inspired many of the early intervention campaigns and studies on bullying (Furlong, Soliz, Simental, & Greif, 2004; Smith, 1999). The research has mainly focused on the psychological consequences of bullying, and similar to research on abuse, the conceptualization of bullying has emphasized an ecological perspective. Bullying is a phenomenon that is reciprocally affected by the individual, family, school, peer group, community and society (Swearer et al., 2006).
However, most research has empirically studied the individual rather than the contextual levels of bullying. A study comparing the prevalence of bullying in 40 countries found that exposure varied across countries, with estimates ranging 8.6%–45.2% among boys and 4.8%–35.8% among girls.

### 3.2 Prevalence of physical abuse, sexual abuse and bullying in Norway

#### 3.2.1 Physical and sexual abuse (abuse/violence) in Norway

Prevention of abuse has been on the political agenda of the Norwegian government since the 1970s. Violence against children was prohibited in 1981 (Children Act) and the United Nation’s convention on children’s rights was ratified in 1991 and incorporated into law in 2003 (The Ministry of Children Equality and Inclusion, 2012). There is a lack of epidemiological investigations on abuse among youth in Norway. The studies that have been conducted on physical abuse have varied in terms of measurements, geographical area of study and age of the respondents. The studies investigating physical abuse among 15 year olds have found prevalence rates ranging 10%–35% (Gautun, 1996; Haaland, 2000, 2002; Øia, 2007). For example, Gautun (1996) found in a sample of 14,000 adolescents aged 15–24 years that about one-fifth of youths in Oslo were exposed to physical abuse, compared with one-tenth of those in other municipalities. Another study that investigated physical abuse by parents of high-school students (16–19 years of age) found a similar level of prevalence, with 25% of students having experienced physical abuse from one parent while 7% had experienced abuse from both parents (Stefansen & Mossige, 2007). A study conducted in Oslo (Øia, 2007) of about 11,500 youths aged 14–17 years found that 35% of the boys and 23.3% of the girls reported abuse that left physical marks in the last year. A recent population study conducted in Norway by Thoresen and Hjemdal (2014) found that 30.2% of respondents younger than 18 years old were exposed to acts of physical abuse that were less serious (pinching, shaking, pushing or hitting with a flat hand), while 5% were exposed to more serious acts of physical abuse (hitting with a fist, kicking, beating, or attacking in other ways). These studies exemplify how the numbers may vary by geographical area and by the specificity of the measure. Stefansen and Mossige (2007) argued that the prevalence of physical abuse will vary depending on the measurement used (serious versus less serious acts of violence). The same methodological problem is valid for studies on
exposure to sexual abuse. Four representative studies have been conducted on the prevalence of exposure to sexual abuse before the age of 18 years (Steine et al., 2012; Sætre, Jebsen, & Holter, 1986; Tambs, 1994; Thoresen & Hjemdal, 2014). The prevalence for girls ranged 4%–24% and that for boys was somewhat lower, ranging 1%–14%. The large range is due to the different measurements and whether serious acts of sexual abuse, such as rape, were measured compared with milder forms, such as sexual contact. Other non-representative studies have found similar prevalence ranging 0.4%–22% for girls and 0.4%–8% for boys when asking respondents having a mean age ranging 15–23 years about exposure to sexual abuse before the age of 18 years (Bendixen, Muus, & Schei, 1994; Dahle, Dalen, Meland, & Breidablik, 2010; Pedersen & Aas, 1995; Stefansen & Mossige, 2007). Despite the different methodological approaches, all the investigations show that exposure to physical and sexual abuse is a prevalent problem in Norway.

3.2.2 Bullying in Norway

Actions carried out in response to bullying in Norway include the creation of bullying manifestos, legislation and bullying prevention programs. The first manifesto against bullying was introduced and signed by the government in 2002 as a response to a 60% increase in the number of victims and bullies since 1995 (Roland, 2011). The goal was zero tolerance of bullying, emphasizing the responsibility of adults who were involved in the lives of children and adolescents. The manifesto was re-signed by the government in 2006, 2009, and 2011 (Roland, 2011). There are also laws in place that secure the children’s well-being and safety in school, in which bullying is included. The laws secure the students’ physical and psychosocial environment and ensure that the students are not subjected to harassment, such as bullying. The schools are responsible for developing a plan of action to combat bullying according to the government’s direction. Bullying prevention programs are a tool that the schools have used in the effort to reduce bullying. After the first manifesto was introduced, there was strong interest in bullying prevention programs and many schools (about 75%) implemented such programs. However, since 2004, interest in preventing bullying decreased and the focus shifted towards national tests and education, and as a result, fewer schools implemented the programs (Roland, 2011). The prevalence of bullying has for the past five years remained relatively stable (Table 1). The prevalence of bullying (including all frequencies of bullying) ranged 21.0%–28.7% between 2007 and 2012. A small decrease was observed in 2012, but can be considered marginal. The
numbers are based on a survey of about 380,000 students made by the Norwegian Directorate for Education; the survey of 7th, 10th and 11th grades is mandatory for all schools to complete (Wendelborg, 2012). This research confirms that bullying is a prevailing problem in Norway.

### Table 1

| Source: Reprinted and translated with permission from Wendelborg from his report on Bullying, discrimination and disturbance in the classroom —Analysis of the student survey 2012. |

<table>
<thead>
<tr>
<th>Prevalence of bullying of students in 5th to 13th grades</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
</tr>
<tr>
<td>------</td>
</tr>
<tr>
<td>Many times a week</td>
</tr>
<tr>
<td>About one time a week</td>
</tr>
<tr>
<td>2-3 times a month</td>
</tr>
<tr>
<td>Rarely</td>
</tr>
<tr>
<td>Not at all</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

3.3 Outcomes associated with abuse and bullying

Although there are studies that have examined multiple types of abuse, few studies have investigated the combined effect of physical abuse, sexual abuse and bullying. These forms of abuse have in large been studied in two separate research fields employing two distinct research traditions. In the following sections, the long-term consequences of abuse and bullying are therefore presented separately.

3.3.1 Long-term negative outcomes associated with physical and sexual abuse

Cross-sectional research has documented an array of negative outcomes associated with abuse, such as poor mental and physical health and a lower sense of well-being (Killen, 2009; Massie & Szajnberg, 2006; Miller-Perrin & Perrin, 2012). This has been confirmed by longitudinal studies that have also shown negative consequences in terms of poor mental and physical health (Annerbäck, Sahlqvist, Svedin, Wingren, & Gustafsson, 2012; Chartier, Walker, & Naimark, 2007), poor academic performance (Leiter & Johnsen, 1997), substance abuse (Felitti et al.,
1998), re-victimization (Finkelhor, Ormrod, & Turner, 2007b) and increased healthcare utilization and healthcare costs (Chartier et al., 2007; Wegman & Stetler, 2009). However, prospective epidemiologic studies are scarce and the majority of studies have focused on the psychological consequences of abuse, with sexual abuse in the female population having received the most attention (Arias, 2004; Chartier et al., 2007; Wegman & Stetler, 2009). In recent decades, there has been more focus on the somatic health outcomes of abuse (Chartier et al., 2007; Felitti et al., 1998). Four different pathways have been suggested to explain the effect of abuse on health (Kendall-Tackett, 2002), namely the behavioural, social, emotional and cognitive pathways. The behavioural pathway describes the harmful activities that the abused individuals may engage in, such as substance abuse, activities associated with eating disorders and high-risk sexual behaviour. The social pathway describes the social relationships and problems with social connections, such as revictimization. The emotional pathway focuses on mental-health outcomes, such as depression and posttraumatic stress disorder. Finally, the cognitive pathway includes a negative perception of self and relates to depression, health perception and self-efficacy (Kendall-Tackett, 2002).

3.3.2 Long-term negative outcomes associated with bullying in school
Bullying differs from sexual abuse and violence in that it has for the most part been studied outside the home and in a school setting. The outcomes of bullying have mostly included psychological outcomes in terms of low self-esteem, low self-efficacy, depression, anxiety and suicide ideations (Juvonen, Nishina, & Graham, 2000; Nansel et al., 2001; Dan Olweus, 1993, 1997; Rigby, 2000; Wolke, Woods, Bloomfield, & Karstadt, 2001). There has been less focus on long-term health effects (Arseneault et al., 2010; Ttofi & Farrington, 2012) as a result of childhood bullying. The few longitudinal studies conducted on health outcomes have showed an increased risk of depression, poor self-esteem and poor adult somatic health (Allison, Roeger, & Reinfield-Kirkman, 2009; Sourander et al., 2007; Zwierzynska, Wolke, & Lereya, 2004).

3.3.3 Associations of abuse and bullying to academic performance
Another risk factor that has been associated with exposure to abuse and bullying is poor academic achievement. Adolescents’ academic achievements are of great importance to future school choices and a subsequent career. Several studies have found an association between
exposure to abuse and poor academic performance (Crozier & Barth, 2005; Hoffman-Plotkin & Twentyman, 1984; Kendall-Tackett & Eckenrode, 1996; Leiter & Johnsen, 1994; Perez & Widom, 1994; Slade & Wissow, 2007). Veltman and Browne (2001) presented a literature review of 92 studies on the consequences of abuse in terms of developmental delays. They found that 75% of the studies concluded that abused children had delayed physical and mental development and 86% of the studies indicated that they were delayed in both the development of receptive and expressive language. Finally, 91% of the studies showed that abused children had poor academic performance as they required special education (Veltman & Browne, 2001). Still, there have been some inconsistencies in regards to sexual abuse and academic performance, as some studies have not found any association between the two (Pears, Kim, & Fisher, 2008; Veltman & Browne, 2001). Thus, the relationship between abuse and academic achievement is not clear, although the majority of studies indicate that there is an association between exposure to abuse and impaired academic performance.

Similarly to research on violence and academic achievement, it has been documented that bullied children and adolescents are more likely to perform worse in school compared with students who are not bullied (Juvonen, Yueyan Wang, & Espinoza, 2011; Konishi, Hymel, Zumbo, & Zhen Li, 2010; Rothon, Head, Klineberg, & Stansfeld, 2011).

Thus, exposure to abuse and bullying may lead to psychological and somatic health problems, such as headaches, concentration problems, depression, anxiety, low self-esteem and low self-efficacy, which in turn may make it difficult for the child to perform well at school (Breuner, Smith, & Womack, 2004; Killen, 2009a; Leiter & Johnsen, 1994; Shonk & Cicchetti, 2001; Slade & Wissow, 2007; Stensland, Dyb, Thoresen, Wentzel-Larsen, & Zwart, 2013; Wilson et al., 2006). The link between abuse and academic achievement is complex, but is usually explained through four mediating pathways. Among these are the emotional and behavioural disorders associated with abuse, as mentioned above. Other possible pathways are cognitive deficits, social and relational difficulties and low parental support and family instability, which have all been associated with abuse and subsequent impaired academic achievement (Wilson et al., 2006).
In summary, it has been documented that individuals who have been exposed to physical abuse, sexual abuse and bullying struggle with school. However, we know little about the long-term consequences of exposure in terms of how they manage student life and employment in young adulthood. Is there a chance that once they leave the unhealthy home or school environment, they will be able to successfully adjust to adulthood? Or will the negative consequences of the exposure continue into adulthood and impair a healthy adaptation to work and student life? Moreover, what are the possible protective factors that promote the work integration of exposed youth and how important are they for work integration? These are some of the questions that are of interest of this study. Employment is a crucial part of our daily lives as it provides income, skill acquisition, and social connections, contributes to one’s self-identity and health, and adds structure to the day (Caspi, Wright, Moffitt, & Silva, 1998; Ross & Mirowsky, 1995; Tam, Zlotnick, & Robertson, 2003). A person who is on the “sideline” of society, not participating in work or education, but who still has a chance of inclusion may be considered to be marginalized from work (Hyggen & Hammer, 2013). Marginalization may have negative consequences for both the individual and society. At the individual level, marginalization may lead to mental and physical health problems, financial problems and social isolation, while at the societal level it may lead to loss of work productivity, loss of income revenue and taxes and increased expenses in terms of welfare benefits and increased health care (Hyggen & Hammer, 2013; Normann, 2007; Rasmussen, Dyb, Heldal, & Strøm, 2010). Although violence and bullying have been associated with a range of negative outcomes, there is a lack of epidemiological studies that explore the long-term adjustment to adult life and factors that are associated with adaptive development. This information is of crucial importance to both the individual and society.

3. 4 Work marginalization

Research on abuse, bullying and work impairment is still in its infancy. Only three epidemiological studies have been conducted on abuse and work impairment (Anda et al., 2004; Liu et al., 2012; Zielinski, 2009). Other studies on this subject were limited to smaller specified samples of severe cases of abuse (Derr & Taylor, 2004; Sansone, Leung, & Wiederman, 2012; Smith, 2005; Tam et al., 2003). Two of the studies (Anda et al, 2004; Liu et al., 2012) examined adverse childhood experiences (ACEs) and work impairment/unemployment. Both investigations found a graded relationship between the ACEs and work impairment in that the unemployment
rate and rate of work problems were significantly higher for individuals who reported multiple adverse childhood experiences. Liu et al. (2012) found that educational attainment, marital status, and social support mediated the relationship between multiple ACEs and unemployment, while Anda and colleagues (2004) found that the relationship between the ACE score and work impairment was mediated by interpersonal relationship problems, emotional distress, somatic symptoms and substance abuse. Liu et al. (2012) argued that the relationship between ACEs and unemployment may be due to the ACEs impairing the children’s cognitive ability, which may result in lower educational attainment and social isolation, which in turn may reduce the likelihood of employment. The third epidemiological study (Zielinski, 2009) found that adults with a history of maltreatment had increased rates of unemployment, poverty and Medicaid use. On the basis of previous research in various fields, the author suggested that possible pathways between maltreatment and socioeconomic well-being may be educational attainment, psychopathology and physical health.

Only two studies have focused on bullying and work impairment, and these have been limited by small selected samples (Sansone, Leung, & Wiederman, 2013; Varhama & Bjorkqvist, 2005). Varhama and Björkqvist (2005) conducted a study in Finland examining bullying among a small sample of long-term unemployed in which 29% had been bullied in school at least once a week during their adolescence. Sansone et al. (2013) conducted a retrospective study on bullying and found that individuals who had been bullied reported a relatively greater number of jobs and a greater likelihood of having been “paid under the table” and having been fired.

These studies indicate that exposure to abuse or bullying may increase the risk of work impairment and that exposure to multiple types of victimization may increase this risk. Moreover, social support and educational achievement was used to explain possible pathways for the relationship between exposure to abuse and bullying and marginalization. However, this research has been limited in terms of its cross-sectional and retrospective design, lack of data on parental sociodemographic factors during adolescence, and self-reported work performance/status.
3.5 Work marginalization in Norway

The ongoing financial crisis in Europe has put marginalization among young adults on the political agenda. However, compared with Scandinavian countries and the other Organisation for Economic Co-operation and Development (OECD) countries, Norway has the lowest percentage of long-term unemployment (Table 2) (OECD, 2013a). Furthermore, Norway has lower prevalence of NEET (not in education, employment or training) compared with Sweden and a somewhat higher prevalence than Denmark depending on the year (OECD, 2012a, 2012b, 2012c). Table 2 shows that Norway has had a steady increase in young adults (20–24 years) not in education or employment during 2003–2010. Young adults in Norway, aged 15–24 years, have a higher likelihood of unemployment compared with any other age group (OECD, 2011). This is also true for receiving social-welfare benefits; the prevalence is highest for young adults aged 18–24 years. The high-school drop-out rates are higher in Norway than in other Scandinavian countries (Sletten & Hyggen, 2013).
Table 2
Comparing unemployment prevalence in Scandinavian countries and the OECD average and NEET among young adults in Scandinavia

<table>
<thead>
<tr>
<th></th>
<th>2003</th>
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<td><strong>Norway</strong></td>
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<tr>
<td>Long-term unemployment</td>
<td>6.4</td>
<td>9.2</td>
<td>9.5</td>
<td>14.5</td>
<td>8.8</td>
<td>6.0</td>
<td>7.7</td>
<td>9.5</td>
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<tr>
<td>(12 months and over)</td>
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<tr>
<td>Denmark</td>
<td>20.4</td>
<td>21.5</td>
<td>23.4</td>
<td>20.8</td>
<td>16.2</td>
<td>13.1</td>
<td>9.1</td>
<td>19.1</td>
</tr>
<tr>
<td>Sweden</td>
<td>17.8</td>
<td>18.9</td>
<td>..</td>
<td>..</td>
<td>13.0</td>
<td>12.4</td>
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<td>16.6</td>
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<tr>
<td>OECD</td>
<td>30.4</td>
<td>31.6</td>
<td>32.4</td>
<td>31.8</td>
<td>29.0</td>
<td>25.5</td>
<td>24.2</td>
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<tr>
<td>Youth unemployment rate</td>
<td>11.7</td>
<td>11.7</td>
<td>12.0</td>
<td>8.6</td>
<td>7.3</td>
<td>7.5</td>
<td>9.2</td>
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<td>(15-24 years)</td>
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<td>Denmark</td>
<td>9.2</td>
<td>8.2</td>
<td>8.6</td>
<td>7.7</td>
<td>7.9</td>
<td>7.6</td>
<td>11.2</td>
<td>13.8</td>
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<tr>
<td>Sweden</td>
<td>13.5</td>
<td>16.6</td>
<td>22.0</td>
<td>21.1</td>
<td>18.8</td>
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<td>OECD</td>
<td>13.8</td>
<td>13.7</td>
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<tr>
<td>Youths 20-24 not in</td>
<td>2.7</td>
<td>2.8</td>
<td>2.5</td>
<td>3.4</td>
<td>3.7</td>
<td>4.0</td>
<td>4.2</td>
<td></td>
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<tr>
<td>education nor employment</td>
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<tr>
<td>(NEET)</td>
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<td>Denmark</td>
<td>2.5</td>
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</tr>
<tr>
<td>Sweden</td>
<td>4.2</td>
<td>4.8</td>
<td>4.7</td>
<td>5.3</td>
<td>5.4</td>
<td>4.4</td>
<td>5.5</td>
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</table>

Note. Long-term unemployment is measured as a percentage of total unemployment. The youth unemployment rate is measured as a percentage of the youth labour force. NEET is given as a percentage. Source: Employment and labour markets: Key tables from OECD - ISSN 2075-2342 - © OECD 2011 and OECD Factbook statistics. For explanatory notes, see OECD Factbook 2011–2012 (DOI: 10.1787/factbook-2011-en).

Despite low unemployment rates, marginalization has been debated because of the increasing rates of sick leave and disability pensions among young adults in Norway (OECD, 2013b; Olsen, Jentoft, & Jensen, 2009). Research has shown that certain groups such as young adults with lower levels of education, disadvantaged sociodemographics, physical disabilities or poor physical and mental health experience more problems with work integration (Normann, 2007). In quantitative studies, dropping out from high school has been one of the most researched and explained causes of marginalization (Falch & Nyhus, 2011; McKenna, 1996; Riddell & Song, 2011; Sletten & Hyggen, 2013) and incomplete education is often seen as the first step to marginalization (Normann, 2007). There has been less focus on previous victimization and marginalization, although characteristics such as less education and poor health are often
associated with victimization. However, in qualitative research, the emphasis has been on the diverse individual stories of marginalization (Follesø, 2010; Görlich, Pless, Katznelson, & Olsen, 2011; Natland & Rasmussen, 2012; Olsen et al., 2009; Olsen & Jentoft, 2013). The explanations for marginalization given by young adults in this research were motivational problems, poor school choices, psychological problems, unstable homes and problems with social relationships. The qualitative studies emphasize the heterogeneity of the marginalized group and the different life experiences that led to the individual being in a marginal position.

3.6 Potential pathways between exposure to physical abuse, sexual abuse and bullying and work marginalization

The transition from adolescence to adulthood is a period that is characterized by finding one’s identity and deciding a path in life, and the transition thus offers opportunities as well as risks. It is a time when the majority of young adults leave their parents’ home to become established on their own. As seen from previous research, individuals who are exposed to abuse or bullying have an increased likelihood of having poor health and difficulties with social relationships, which may make them more vulnerable in the transition from adolescence to adulthood. Similar mechanisms (behavioural, emotional, cognitive and social pathways) that have been applied to explain the relationship between abuse and health (Kendall-Tackett, 2002) may also apply to the study of abuse and bullying and their association to marginalization as all these factors may affect work performance (Anda et al., 2004). This is very much in alignment with a study by Caspi et al. (1998) that investigated early personal and family predictors of unemployment in the transition into the labour force. They found that what they called three forms of reduced capital (human, social and personal), reaching back to early childhood, contributed to unemployment. Reduced human capital related to a lack of high-school qualifications, poor reading skills, low IQ scores, and limited parental resources, reduced social capital related to growing up in a single-parent family, family conflict, and lack of an attachment to school, and reduced personal capital related to anti-social behaviour. These risk factors were still associated with unemployment despite adjusting for the duration of education and educational attainment. This suggests that factors other than education, such as personal and family characteristics, may also affect labour-market outcomes. On the basis of previous research, this study will focus on two pathways between exposure to abuse and bullying and marginalization (Anda et al., 2004; Liu et al., 2012),
namely high-school completion and social support. We will thereby address aspects of the social and cognitive pathways.

3.6.1 High-school completion
Research has suggested that completing high school reduces the risk of marginalization from work and education as it increases social capital and prepares the students for the labour market (Falch & Nyhus, 2011). A study conducted by Liu et al. (2012) showed that educational attainment had a partial mediating effect on unemployment. Quantitative research concentrating on dropping out from high school has mostly focused on the parents’ demographics and the students’ academic performance and absence from school. Few studies have investigated the underlying causes that may result in poorer grades and absence from school, such as exposure to physical abuse, sexual abuse and bullying, which subsequently may lead to dropping out from high school and later marginalization.

3.6.2 School climate and social support
The school in which the adolescence spends much of their time is a crucial arena to study as the social relationships established there may protect against the negative outcomes associated with exposure to abuse and bullying. There is no agreed upon definition of school climate. However, researchers commonly refer to it as people’s subjective experience of school life in which groups and the schools rather than the individual are used as the unit of analysis (Cohen, 2013). Research has shown how a positive school climate is associated with school connectedness, higher academic achievement and decreased high-school dropout rates (Cohen, 2013; Haynes, Emmons, & Ben-Avie, 1997; Seilström & Bremberg, 2006). It becomes especially important to study the school climate when investigating the ecology of individuals exposed to abuse or bullying as it may serve as a protective factor against some of the negative consequences of abuse and may potentially affect the adolescent’s development in a positive way (Killen, 2009; Swenson & Chaffin, 2006). On the other hand, a negative school climate may contribute to negative personal development (Killen, 2009). Research has found that many abused children often lack social abilities and may not be able to establish social relationships because of their experiences of abuse. According to attachment theory and research (Bowlby, 1977; Killen, 2009), children with abusive parents may be in risk of developing an insecure attachment to a
This may result in relationship difficulties with peers, as insecure attachment may be associated with a lack of social competence. Consequently, some abused children have aggressive or withdrawn behaviour and have trouble fitting in, and as a result, may be excluded or become victims of bullying (Kim & Cicchetti, 2010). Conversely, research has shown that children with social and emotional support and who have the ability to establish good relationships have proven to be resilient, able to cope well and be successful in life (Ezzell, Swenson, & Brondino, 2000; Killen, 2009; Runtz & Schallow, 1997). In adolescence, peers, classmates and teachers become an increasingly important source of support. Social support may be emotional (providing empathy and care), instrumental (e.g., services that directly assist the person in need), informational (e.g., advice, suggestions and information on how to address a problem), and appraisal (e.g., evaluative feedback) (Tardy, 1985).

Cohen, Underwood, and Gottlieb (2000) suggested two processes as to how social support affects health through its effect on emotions, cognition and behaviour. The first process (i.e., a stress-buffering model) is the social support provided to individuals in acute need or who are suffering from chronic stressful experiences. Social support is here referred to as the social resources that a person perceives to be available to them or as the actual help provided, which will improve one’s ability to cope with imposed stresses or reduce the reactions to a stressful event. The second process (i.e., a main-effect model) relates to the health benefits one obtains from being part of a social group. The model stresses that the group in which a person belongs affects a person’s cognition, emotions, behaviour and biological responses. The group will have a beneficial effect on the person’s health and well-being independent of a stressor being present. Belonging to a social group may give a sense of predictability and stability, and increase feelings of self-worth and self-control in regards to meeting normative role expectations. This may have implications for the person’s health as it reduces psychological stress. A large social network may also provide a range of sources of information, thus increasing the chances of having access to an appropriate source (Cohen et al., 2000).

Social support, however, may not always have a positive effect as it can relate to modelling risky behaviours of the social network one belongs to, which in turn may negatively affect health (Thoits, 2011). The level of social support may also play a role; e.g., strong family support and overprotective parents of bullied students may lead to less assertive and independent adolescents,
resulting in poor academic achievement (Rothon et al., 2011). Other research has found no effect of social support, arguing that a disturbed parent–child relationship may result in abused children not emphasizing relationships but rather relying more on the self and interpersonal reserve for successful adaptation (Cicchetti & Rogosch, 1997). These examples reflect some of the mixed findings in the literature and the complexities of social support. This may suggest that, to understand the mechanisms of social support and its effect, the different sources of social support need to be studied.

Social support has also been associated with marginalization as a lack of social capital or social ties have been found to make youth vulnerable to unemployment (Caspi et al., 1998). A study conducted in Norway found that being popular during adolescence protected at-risk youth against later marginalization (Sletten, 2013). Research has also shown that a good social network increases the chances of getting hired and getting information about job positions (Sletten & Hyggen, 2013). Additionally, studies of marginalized individuals show that the majority live by themselves and have weak social networks (Normann, 2007).

However, despite the ecological conceptualization applied in both abuse and bullying research, few studies have attempted to study the influence of the school climate empirically. Individuals are nested within social systems (family, school, peer group, community and society) and have a reciprocal relationship with their social systems; i.e., the individual and system affect each other (Bronfenbrenner, 1979). Studying an individual’s ecology allows us to investigate the interplay between the individual and his or her surroundings and thus identify possible push and pull factors that can contribute either positively or negatively to the individual’s development.

In summary, high-school completion and a good social network may protect adolescents who have been exposed to physical abuse, sexual abuse and bullying against the risk of marginalization. These risk and protective factors need to be studied within the context they occur, which in this case is Norwegian society.
3.7 The Norwegian setting

The macrosystem in which the individual is nested functions as a framework that will affect individual behaviour; additionally, the individual behaviour may affect the macrosystem (Bronfenbrenner, 1979). Individuals residing in Norway are thus affected by the unemployment rate, educational system, the general health of the population and the sense of community in the nation. At the same time, individuals may affect the systems; e.g., a well-educated and employed population is important for the nation’s socioeconomic status and well-being. I will here list some of the characteristics of the Norwegian society in terms of employment, education, community and health.

3.7.1 Employment

According to the OECD’s Better Life Index, Norway has an average wage (43 990 USD a year) higher than the OEDC average (34 466 USD). Still, there is a considerable gap between the richest and poorest as the top 20% of the population earn four times as much as the bottom 20%. Furthermore, Norway’s employment rate rates highly among OECD countries with 75% of people aged 15–64 years having paid jobs compared with the OECD average of 66%. Still, the employment rate is much lower for individuals with severe or moderate mental health problems. The unemployment rate among adolescents and young adults (15–24 years) is 8.6% in Norway compared with the OECD average of 16.2% (OECD, 2012d).

3.7.2 Education

The majority of schools in Norway are public and the education they provide thus free of charge. Elementary school and junior high school (1st–12th grade) is mandatory education, while high school is elective. The students can choose between high schools that offer vocational programmes or schools that offer more generic programs that mainly focus on theory and academic study. Education is an important requisite for finding a job in Norway, as 81% of adults aged 25–64 years and 83% of adults aged 25–34 years have earned the equivalent of a high-school degree compared with OECD averages of 74% and 82% respectively. Employment rates are higher for individuals with at least a tertiary education (88%) than for individuals without an upper secondary education (56%) (OECD, 2012d).
3.7.3 Community
Norway has a strong sense of community with 93% of the population believing that they know someone they can rely on in a time of need, compared with 90% for the OECD average. No differences between social support and education were found, with individuals who had completed only primary education having similar rates of social support as individuals who attained tertiary education (OECD, 2012d).

3.7.4 Health
In general, Norwegians are reported to have good health, with 73% being in good health, compared with the OECD average of 69%. However, those with less education or income and who are unemployed report poorer health. This can be reflected in the statistics that show that among the top 20% of the adult population, 85% report good or very good health while among the bottom 20%, only 65% report good health. Moreover, Norway has the highest incidence of sickness absence and greatest disability caseload in the OECD (OECD, 2012d, 2013b).

These results indicate that the Norwegian population has a general good quality of life compared with the populations of other OECD countries. However, it also points to the gaps that exist in Norway between the less educated, the unemployed, and individuals struggling with poor mental and physical health and the top 20% of the adult population.

3.8 Public-health framework
The WHO defines health as a state of complete physical, mental and social well-being (WHO, 1948). Although few experience a complete state of well-being, the definition emphasizes that health has several dimensions. The dimensions are connected in the sense that problems experienced in one of the dimensions tend to affect the other dimensions (Simmons-Morton, McLeroy, & Wendel, 2012).
This inter-relationship has also been found among individuals exposed to physical abuse, sexual abuse and bullying, showing impairment of all dimensions of health. Bullying and abuse can thus be considered public health issues because of the significant effect on the physical and mental health of the individuals involved. The public-health approach to abuse addresses not only the health consequences but also the social consequences in terms of high-school completion and unemployment. The WHO acknowledges new evidence documenting the economic and social costs associated with abuse in terms of the costs of intensive health care, social welfare, and lost productivity. The importance of preventive efforts was explained in “The extent of maltreatment, its far-reaching health and social consequences and high economic costs emphasize the importance of its prevention” (Sethi et al., 2013).

3.9 Theoretical framework

The ecological perspective was first introduced in the late 1970s by Urie Bronfenbrenner, who emphasized that the developing individual needs to be studied within the environment in which he/she lives. He described how the relationship between the individual and his/her social context is reciprocal and thus how the two affect each other. This perspective emerged as a critique of individual-based experiments conducted in the field of psychology in which the environment was not considered. He criticized the experiments for creating situations that were unfamiliar, artificial and short-lived, which he stated resulted in unusual behaviours that are difficult to generalize to other settings. According to Bronfenbrenner, the ecological environment is organized into a set of nested structures, each inside the next. The first, inner level is the immediate setting surrounding the developing person, such as the home or the classroom (microsystem). The mesosystem is a system of microsystems for an individual at a specific time in his/her life. Thus, this system describes the contacts that are established between
microsystems; e.g., communication between the parents and the teachers at school. The *exosystem* is the specific social structures that affect the individual and his/her surroundings, such as the neighbourhood. Finally, the *macrosystem* is the overarching institutional patterns of the culture or the subculture, such as the economic, social, educational, legal and political systems (Bronfenbrenner, 1979). The *chronosystem* was later added to the theory and describes the changes or consistency over time in both the characteristics of the person and the environment in which the person lives (Bronfenbrenner, 1994). To understand and possibly change behaviour, each of these systems and the interactions between them need to be examined (Bronfenbrenner, 1979).

3.10 Ecological model within a public-health framework

The ecological model is recognized as an essential element of public-health theory and practice and has also been used as a framework for preventing child abuse and bullying. However, the systems in Bronfenbrenner’s model have been reorganized and renamed to better fit the field of public health (Simmons-Morton et al., 2012). The World Report on Violence and Health (2002) conducted by the WHO applied an ecological framework to understand the complex nature of violence. The same model has also been applied by the Center for Disease Control and Prevention to develop prevention strategies against violence (http://www.cdc.gov/violenceprevention/overview/social-ecologicalmodel.html). This model includes four levels that may present risk or protective factors associated with exposure to violence and thereby capture the complex interplay among individual, relationship, community and societal factors. The model does not address bullying specifically, but a public health
approach has also been applied to this problem (Masiello, 2014). In alignment with Bronfenbrenner’s theory, the model explores the interaction between individual and contextual factors and considers violence as the result of multiple levels of influence on behaviour (Krug, Dahlberg, Mercy, Zwi, & Lozano, 2002). The ecological models used within public health can also be guided by other theories, models and conceptual frameworks (Simmons-Morton et al., 2012).

![Ecological model for understanding violence](image)

Socioecological theory is important when studying individuals exposed to abuse and bullying as previous research has found that such individuals are often exposed to victimization in multiple areas (Finkelhor, Ormrod, & Turner, 2007a). In addition, this theory allows us to investigate the interplay between the individual and his or her surroundings to identify possible push and pull factors that can contribute in either a positive or negative way to the individual’s development.

### 3.11 Summary of the background

The literature review in this thesis indicates that it may be useful to apply an ecological framework when studying the consequences of physical abuse, sexual abuse and bullying. Exposure to these types of abuse may on an individual level lead to impaired physical and mental health, poor academic achievement and marginalization in young adulthood. However, the outcomes may depend on the ecology in which the individual is nested. Research has shown that social support, a healthy school climate and high-school completion may attenuate this risk. Few epidemiological studies have investigated the long-term consequences of exposure to abuse and bullying in junior high school and subsequent marginalization from work and education. Even fewer studies have examined the possible pathways that may affect this relationship. The
outcomes associated with exposure may also be affected by the reciprocal relationship between
the macrosystem and the individual. Statistics from the OECD Better Life Index indicate that
there is a gap between the top 20% and bottom 20% of the adult population. The unemployment
rate is higher for individuals with mental health problems and lower for individuals with high
levels of education. Moreover, individuals who are unemployed and who have lower levels of
education and less income report poorer health. These are all factors associated with exposure to
abuse and bullying. Hence, a potential increase in exposure to abuse and bullying may affect
society as a whole in terms of socioeconomic costs and well-being. To reduce the potential risks
of exposure to abuse and bullying, it is important to identify possible protective factors or risk
factors in the individual’s ecology that may be changed. We know from previous research that
abuse and bullying are prevalent problems in our society and that many negative outcomes have
been associated with these types of exposure. However, there is a lack of research on adulthood
functioning and especially research that addresses the individual’s social environment. This
thesis explores the potential risks of exposure to abuse and bullying and identifies factors in
school and the individual’s immediate setting that may attenuate this possible risk.
4. OBJECTIVE AND RESEARCH QUESTIONS

4.1 General objective
The main objective of the thesis was to gain knowledge about the long-term consequences of exposure to physical abuse, sexual abuse and bullying in terms of subsequent marginalization from work and education. In addition, we investigated whether school-level factors in interplay with the exposure influence this association.

4.2 Research questions
Specific research questions were:

• Do adolescents exposed to physical abuse, sexual abuse or bullying (exposed) in junior high school perform worse academically compared with adolescents not exposed (nonexposed) to these types of abuse? Does the school climate have a stronger impact on academic achievement for the exposed adolescents versus the nonexposed adolescents? (Paper I)

• Is exposure to abuse and/or bullying in junior high school associated with subsequent marginalization from work and education in young adulthood? Does high-school completion have a mediating effect on this potential relationship? (Paper II)

• Is exposure to abuse and/or bullying in junior high school associated with receiving long-term welfare benefits in young adulthood? Does social support moderate this relationship? (Paper III)
5. DEFINITIONS OF CONCEPTS USED IN THE THESIS

5.1 Defining physical and sexual abuse

This thesis has applied the WHO definition of violence as a foundation for physical and sexual abuse (WHO, 2002). The WHO defines violence as: “the intentional use of physical force or power, threatened or actual, against oneself, another person, or against a group or community, that either results in or has a high likelihood of resulting in injury, death, psychological harm, maldevelopment, or deprivation” (WHO, 1948). The typology of violence (see Figure 1) describes important distinctions within the conceptualization of violence. It is important to describe these distinctions as one of the limitations in the research on abuse is the numerous classifications used to define the problem. The “use of physical force or power” includes neglect, physical, sexual and psychological abuse, suicide and other self-abusive acts. This thesis focuses on physical and sexual abuse. The WHO proposes three typologies, self-directed violence, interpersonal violence and collective violence. Physical and sexual abuse is defined as interpersonal violence as the violence is inflicted by another individual or by a small group of individuals. Furthermore, interpersonal violence is divided into two subgroups, family and intimate-partner violence (committed by a family member, usually occurring in the home) and community violence (committed by unrelated individuals, who may or may not know each other, usually occurring outside the home) (WHO, 1948). Both are included in our definition, as it is not known by whom the abuse was committed. The violence could have been committed by a family member or by someone who the individual was not related to.
The terms “violence” and “abuse” will be used for physical and sexual abuse throughout this thesis.

5.2 Defining bullying

Bullying researchers have struggled with the conceptualization and measurement of the term bullying (Felix, Sharkey, Green, Furlong, & Tanigawa, 2011; Greif & Furlong, 2006). However, despite the differences in the definitions applied, bullying is considered to be a subcategory of aggressive behaviour in which (1) the behaviour is intended to harm or disturb, (2) the behaviour occurs repeatedly over time, and (3) there is an imbalance of (physical or psychological) power. Bullying can be direct (i.e., an open attack) or indirect (i.e., social isolation and exclusion) and can be physical, verbal or relational (with the intention to damage relationships, such as when spreading rumours) (Furlong et al., 2004; Liu & Graves, 2011; Olweus, 1999). Bullying is more likely to occur in groups where the victims cannot escape, such as in a school setting (Smith, 1999). The three criteria for bullying (intentionality, repetitiveness and imbalance of power) have been debated (Masiello, 2014). Research has also shown that when no definition is stated in the questionnaire, the students rarely include these three criteria, but rather emphasize
negative actions. Younger children tend to focus on physical and verbal aggression while older students focus on relational aggression. It has also been reported that students who are given a definition report less victimization (Vaillancourt et al., 2008). In our questionnaire, bullying was limited to occurrences that took place at school or on the way to or from school. The respondents were asked about bullying, but were not provided a given definition of the term.

5.3 Terms used for physical abuse, sexual abuse and bullying
As bullying can be considered a form of peer abuse (Olweus, 1999), the terms used in this thesis to describe the combinations of the three types of exposure (to physical abuse, sexual abuse and bullying) are “abuse”, “multiple types of abuse” and “three types of abuse”. The term “life adversities” has also been applied for the three types of exposure. Life adversities include other adversities such as emotional abuse, divorce, a battered mother, an imprisoned household member and parents that are substance abusers or mentally ill (Anda et al., 2004). However, when used in this thesis, life adversities only refer to physical abuse, sexual abuse and bullying.

5.4 Defining work marginalization
Marginalization can be defined as being on the border of the labour market. The person is not fully integrated, but not permanently excluded from the labour market (Normann, Rønning, & Nørgaard, 2009). This thesis focuses on marginalization from the labour market and education. Normann et al. (2009) explained how work marginalization can be viewed from an individual perspective and from a collective perspective. The norms of society and the need to be able to work mean that most individuals will be integrated into the labour force. However, some people may voluntarily choose not to participate in the labour force.

In empirical research, the common source of data used to study marginalization has been information on unemployment, long-term absence and received social-welfare benefits. However, these measures do not capture individuals who are still in education. Thus, a new term was introduced to the field, NEET, which means “not in employment, education or training”. This terms refers to a diverse group, consisting of five sub-groups: (1) the traditional unemployed, (2) the unconnected who are not seeking employment or education but do not have
any incapacities to do so, (3) the unavailable who may have poor health or are disabled, (4) the possibility seekers who actively seek employment or training but are waiting for the right opportunity, and (5) voluntarily NEETs who are, for example, taking a year off to travel (Sletten & Hyggen, 2013). In this thesis (paper II), we chose to use the NEET group as well as short- and long-term social-welfare benefits groups as a hierarchal outcome to capture all young adults who are considered to be on the sideline of society (see section 6.6.1.2 for more information).

There are many possible cut-offs for marginalization and researchers have thus used different cut-off criteria for defining marginalization depending on their study objectives. For example, how long should a person be outside of work and education to be classified as marginalized? In terms of being unemployed, being a student or receiving a sickness benefit or social assistance, the common cut-off criteria have been 180 days or 6 months (De Ridder et al., 2012; Grebstad, 2012; Normann et al., 2009). Thus, a person who is either unemployed or who receives social assistance or benefits for 6 months or more is considered to be marginalized. In addition, Normann (2007) defined marginalization according to who earns less than the National Insurance Scheme basic amount ($22,000) (considered unemployed) and who are not registered as a student. The cut-off criteria for marginalization used in this thesis are largely based on this research (see section 6.6.1.2 for more information on the operationalization of marginalization).
6. MATERIALS AND METHODS

6.1 Study design and procedure
This thesis and the three related papers published are based on a prospective cohort study in which 14,063 individuals were followed up to 10 years after completing junior high school. The baseline data were taken from a large health survey (Youth Health Surveys) conducted in six counties (Oslo, Hedmark, Oppland, Nordland, Troms, and Finnmark) in Norway, and were linked with registry data. The project started in Oslo and Hedmark in 1999–2001 and was extended to include the four other counties in 2001–2004. The self-reported survey included a main questionnaire and a supplementary questionnaire, constituting four pages each, to give a total of eight pages (Appendix I). The main questionnaire was similar for all counties, while the supplementary questionnaire varied somewhat among counties. The survey was distributed to all 10th graders in the participating counties and was completed in the classroom in a session of two hours. A project assistant or the school nurse was present in the classroom to inform the students about the survey and to administer the questionnaires. The survey included a variety of measures relating to the youths’ mental health, well-being, use of health services, and exposure to violence, sexual abuse, and bullying. The parents received information about the study in the mail prior to the study, while the students were informed about the study in school (Appendix II). The students signed a consent form before participating in the survey (Appendix III). A survey, along with a consent form and a prestamped envelope, was left at school for each student who was not present. A more detailed description of the samples and procedures has been published elsewhere (Søgaard & Eide, 2005).

The three papers included in the thesis used different designs (see Table 3).

The first paper was cross-sectional and only used the Youth Health Survey data from Oslo. The predictor and outcome variables were thus measured at the same time. We only used data from the Youth Health Survey in this paper, as they were not yet linked with the registry data.

The second paper was longitudinal, using the predictor variable from the Youth Health Survey data and the outcome measure from the registry data for 2008. Only one year of follow-up data
was used because the registry data were not yet organized into the correct time measurements needed to run survival analyses. Five of the six counties were included in the analyses. The county Nordland was excluded as the cohort for this county did not have a sufficiently long follow-up time to measure the mediator (completed high school within 5 years) as the respondents in Nordland completed high school in 2007. (For more details regarding times for data collection, see section 6.2.)

The third and last paper was longitudinal and, as the register data were organized into correct time frames, survival analyses could be conducted. The participants were followed from the age of 18 years up to the age of 26 years, depending on the county they were from (see section 6.2). All six counties were included in the analyses.
Table 3
Overview of the study designs of the three papers included in the thesis

<table>
<thead>
<tr>
<th></th>
<th>Paper I</th>
<th>Paper II</th>
<th>Paper III</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Design</strong></td>
<td>Cross-sectional</td>
<td>Prospective cohort</td>
<td>Prospective cohort</td>
</tr>
<tr>
<td><strong>Outcome</strong></td>
<td>Academic achievement</td>
<td>Work participation</td>
<td>Long-term social benefits</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2008</td>
<td>2002-2010</td>
</tr>
<tr>
<td><strong>Mediator</strong></td>
<td></td>
<td>High-school completion</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>within five years</td>
<td></td>
</tr>
<tr>
<td><strong>Moderator</strong></td>
<td>School levels of social support and bullying</td>
<td></td>
<td>Social support</td>
</tr>
<tr>
<td><strong>Main Predictor</strong></td>
<td>Exposure to sexual abuse, physical abuse and bullying</td>
<td>Exposure to sexual abuse, physical abuse and bullying</td>
<td>Exposure to sexual abuse, physical abuse and bullying</td>
</tr>
<tr>
<td><strong>Data source</strong></td>
<td>Youth studies (Oslo county)</td>
<td>Youth studies (5 of 6 counties)</td>
<td>Youth studies (6/6 counties)</td>
</tr>
<tr>
<td></td>
<td>Registry data (FD-Trygd &amp; NUDB)</td>
<td>Registry data</td>
<td>Registry data</td>
</tr>
<tr>
<td><strong>Data description</strong></td>
<td>Self-reports</td>
<td>Self-reports</td>
<td>Self-reports</td>
</tr>
<tr>
<td></td>
<td>Register-based</td>
<td>Register-based</td>
<td>Register-based</td>
</tr>
</tbody>
</table>

6.2 Youth Health Survey
The Youth Health Survey questionnaire data were collected by the Norwegian Institute of Public Health during the spring, but the surveys were conducted at different time points in each of the counties:

- Oslo: 2000 & 2001,
- Hedmark and Oppland: 2001 & 2002,
- Troms, Tromsø city and Finnmark: 2001–2002 & 2003,
The total response rate was 86.5% of the invited students.

Figure 2
Overview of the timeline for the three papers included in the thesis

<table>
<thead>
<tr>
<th>TIME</th>
<th>Age 16</th>
<th>Age 18</th>
<th>Age 21</th>
<th>Age 22-26</th>
</tr>
</thead>
<tbody>
<tr>
<td>Last year of Junior High School (Paper I)</td>
<td>Start of follow-up (Paper III)</td>
<td>Completion of High School within 5 years (Paper II)</td>
<td>End of follow-up (paper III)</td>
<td></td>
</tr>
</tbody>
</table>

The Youth Health Survey was conducted in collaboration with the Norwegian Institute of Public Health, University of Oslo, Municipality of Oslo, University of Tromsø, Center for Health Research in the Sami Population and Department of Community Medicine at the University of Tromsø. All 10th graders, aged 15 or 16 years, in the participating counties were invited to participate in the survey and were asked to complete the survey in a two-hour class. The response rate varied 71%–90%. (For more details on the response rate, see Figure 4.)
6.3. Norwegian population registry data

6.3.1 Fd-Trygd (Historical Event Data Base)
FD-Trygd is a historical event data base managed by Statistics Norway. The data base provides information on each individual’s demographics, pension and benefits (disability benefit, rehabilitation allowance, maternity and sickness benefits and single-parent benefit, employment and job seeking allowance, social assistance and income). The data are collected from Statistics Norway, the Norwegian Labour and Welfare Organization (NAV), the Employment Directorate (Aetat) and the Taxation Office (Skattedirektoratet) (Akselsen, Lien, & Sivertstøl, 2007). The variables used from this database were registered social-welfare benefits (papers II and III): the sickness benefit, social assistance, unemployment benefit, rehabilitation allowance, temporary disability benefit, disability benefit and vocational rehabilitation allowance and income.

6.3.2 National Education Data Base (NUDB)
The NUDB contains information on each individual’s completed education, from lower secondary education to higher completed education (up to PhD level). The historical event database provides the researcher with an opportunity to investigate a person’s educational development through their lifespan (Vangen, 2007). The variables taken from this database were registered data on completion of high school within 5 years after junior high school and student registration (paper II).

6.3.3 Procedure for linking the registry data with Youth Health Survey data
All individuals residing in Norway are registered with a unique personal identification number, which was used to link the Youth Health Survey questionnaire data with Norwegian registry data from FD-Trygd and the NUDB.

Data for the years 2000–2010 were taken from FD-Trygd. The data files were recorded as life course data and came in two formats, either as day/month/year registrations or as yearly registrations. Each individual’s first and last dates of receiving a benefit were registered along with any changes that occurred while receiving the benefit. Thus, each person could have several events registered to their identification number. To link the data to the Youth Health Survey
dataset, the data had to be restructured so that the events were organized into one record per identification number. This was completed by organizing the information into one line in which events per year were registered according to the cut-off criteria. Once this was completed, the data could be merged into an SPSS file and linked to the Youth Health Survey data. The linking of the data took approximately a year as a result of incomplete data files that had to be reordered and restructured.
6.4 Study samples

6.4.1 Paper I

Paper I was based on data from the Oslo cohort sample. There were 8,404 10th-graders enrolled during the school years 1999–2001. Some students did not receive an invitation because they had either quit school or moved (88). Of the students who received an invitation (8,316), some refused to participate (127). Others were not present when the survey was distributed and did not fill out the re-sent survey (477) or did not complete the questionnaire (369). Of the invited students, 88.3% (N = 7,343) participated in the survey (see Figure 3). The sample cohort thus consisted of 7,343 10th-grade pupils aged 15 or 16 years from 56 schools in Oslo.

Fig. 3
Flowchart for the Oslo Cohort

| Students that did not participate because they either quit or moved during the school year | 88 |
| Students that did not want to participate | 127 |
| Students that was not present when the survey was distributed and did not respond later on | 477 |
| Students that did not answer at least one question in the questionnaires | 369 |

10th-graders enrolled in schools in Oslo in 1999-2001: 8,404
Total number of invited 10th graders to participate in survey: 8,316
Total number of participants: 7,343
6.4.2 Paper II

Paper II used data from five of the six counties (Figure 4). Of the 10th graders invited (N = 18,455) to participate in the Youth Health Survey, 15,966 (86.5%) students from the six counties participated, and 14,063 (88%) of the participants permitted the linking of data. One of the counties, Nordland (N = 2104), was excluded from the analyses because it did not have a follow-up time at five years (using follow-up data from 2008). A standard way of measuring high-school completion is to measure completion 5 years after completion of junior high school, as some students take longer than the three normative years to finish. Respondents who had died during the follow-up (N = 39), who had missing values on living status (N = 1), or who were on a disability pension (N = 45) were also removed from the analyses. The latter group was removed from the analyses because its members are considered to be permanently excluded from participating in work. We were interested in studying absence from work or education as a process, which entails a chance of inclusion (Normann, 2007). We also thoroughly investigated the diagnoses of those on a disability pension and found that most diagnoses were chronic illnesses such as medical syndromes with mental retardation. The sample cohort thus comprised 11,874 adolescents who were followed to young adulthood; Oslo accounted for 54.8% (n = 6536) of the sample, Hedmark 14.9% (n = 1779), Oppland 14.7% (n = 1747), Troms 10.8% (n = 1286) and Finnmark 4.8% (n = 571).

6.4.3 Paper III

Paper III used data from all six counties (Figure 4). The numbers of invited students, participating students and students who permitted the linking of data were the same as for paper II. However, not all respondents answered whether they had been exposed to abuse or bullying (n = 430). Thus, the sample comprised 13,633 individuals, giving a response rate of 73.9% of the invited students.
Fig. 4
Flowchart of Youth Health Survey and follow-up data

10th graders invited to Youth studies n= 18,455

Participants in the Youth studies n= 15,966 (86.5% of the invited)

Participants who accepted linkage of data n=14,063 (88% of the participants)

Participants included in 2008 n=11,874 (76.9% of the invited)

Participants without missing values on exposure n=13,633 (73.9% of the invited)
6.5 Measures

The Youth Health Survey data were self-reported with the exception of gender and parents’ educational level, which were registry data collected by the Norwegian Institute of Public Health from Statistics Norway. The follow-up data comprised registry data.

The measurements for the independent variables were developed by a group of representatives from the Norwegian Institute of Public Health, University of Oslo, Norwegian School of Sport Sciences, Oslo Municipality and National Health Screening Services. The final questionnaire was completed after a pilot study of 64 students in two 10th-grade classes from a county other than Oslo (Søgaard & Eide, 2005).

Table 4

Overview of variables used in the papers

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>PAPER I</th>
<th>PAPER II</th>
<th>PAPER III</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dependent Variables</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Academic achievement (high school grades)</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Work participation</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social welfare benefits</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Independent variables</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Violence (from peers, adults, or both)</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Sexual abuse</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Bullying</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Social support (classmate relationship and teacher support)</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Mediator</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Completed high school within 5 years</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Moderator</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social support (family, peer -, classmate -, teacher support)</td>
<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

*Note.* Sociodemographics were controlled in all three papers (see section 6.6.4 for more details).

6.6 Study variables

6.6.1 Dependent variables

6.6.1.1 Academic achievement (Paper I).

The respondents were asked to report their most recently recorded grades in four subjects: mathematics, written Norwegian, English and social sciences. The four grades were combined into one mean grade (ranging 1–6 with 6 being the highest grade). To include as many respondents as possible, mean grades were computed for all respondents who had reported at least one grade. The majority of the sample, 93% (6833), reported four grades, 1.4% (104)
reported three grades, 0.5% (35) reported two grades, 0.6% (43) reported one grade and 4.5% (328) of the respondents did not report any grade.

6.6.1.2 Work participation (Paper II)
The work participation variable was based on registry data from the two databases FD-Trygd and NUDB. To operationalize work participation to include all variations of absence from work and education, four mutually exclusive categories were created for the 2008 data in a hierarchical order as follows (Figure 5).

Group 0. Not receiving any type of benefit and either working or studying
Group 1. Income below the National Insurance Scheme basic amount ($22,000) and not a student and not receiving any benefits
Group 2. Receiving short-term benefits
Group 3. Receiving long-term benefits

Group 1: Individuals with income below the National Insurance Scheme basic amount ($22,000) and who are not a student and who do not receive any benefits including respondents who could not be found in the FD-Trygd or NUDB registers. Respondents were not registered as students, job seekers, or employers. Thus, this group was complex because it included people who had been out of work for a year, possibly for a variety of reasons. However, research has shown that being away from work for a year or more can have a later negative effect on a career (Raaum, Rogstad, Røed, & Westlie, 2009).

Group 2: Individuals receiving short-term benefits including individuals receiving welfare assistance for less than a year. The benefits included were the sickness benefit (>3 months), social assistance (>6 months), and the unemployment benefit (>6 months). The cut-offs were based on previous research conducted on work marginalization in Norway (Normann, 2007). The sickness benefit can be received for 52 weeks (if 100% unemployed), the unemployment benefit can be received for up to 104 weeks, while social assistance is meant to be temporary.
Group 3: Individuals receiving long-term benefits including individuals who had received welfare assistance for more than a year. This included the rehabilitation allowance, temporary disability benefit, and vocational rehabilitation allowance. These benefits can be received for up to 4 years.

Figure 5
Overview of outcome variables in paper II

<table>
<thead>
<tr>
<th>Work participation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Group 0:</strong> Not receiving any type of benefits and either working or studying</td>
</tr>
<tr>
<td><strong>Group 1</strong></td>
</tr>
<tr>
<td>- Income &lt; 22 000</td>
</tr>
<tr>
<td>- Not a student</td>
</tr>
<tr>
<td>- Not receiving any benefits</td>
</tr>
<tr>
<td><strong>Group 2:</strong> Short-term benefits:</td>
</tr>
<tr>
<td>- Sickness benefit, &gt; 3 mo.</td>
</tr>
<tr>
<td>- Social assistance, &gt; 6 mo.</td>
</tr>
<tr>
<td>- Unemployment, &gt; 6 mo.</td>
</tr>
<tr>
<td><strong>Group 3:</strong> Long-term benefits, &gt;1 year</td>
</tr>
<tr>
<td>- Rehabilitation allowance</td>
</tr>
<tr>
<td>- Temporary disability benefit</td>
</tr>
<tr>
<td>- Vocational rehabilitation allowance</td>
</tr>
</tbody>
</table>

6.6.1.3 Social-welfare benefits (Paper III)

The time that individuals received any form of social-welfare benefit was based on registry data from the FD-Trygd database. To be registered as receiving social-welfare benefits, different cut-off criteria were set for each of the social-welfare benefits. The social-welfare benefits included social assistance (at least 180 days in a year), the unemployment benefit (180 consecutive days in a year), the sickness benefit (at least 180 days 100% unemployed in a year), and the registered rehabilitation allowance, temporary disability benefit and vocational rehabilitation allowance (Figure 6). If a person met any of these criteria, he/she was registered with an event in the survival analysis. Individuals who emigrated, died or who did not receive any social benefit during the follow-up were censored at the end of the follow-up.
6.6.1.4 Marginalization variables used in papers II and III

The Norwegian welfare system is administered by the Norwegian Labour and Welfare Administration and provides citizens the right to health care, disability payments, pensions, and survivor benefits if needed. This allows individuals to receive help from the government when they are unable to work or study. However, most of the benefits require previous employment to receive the aid. Social assistance is the one benefit that does not require previous employment. It is possible to receive a rehabilitation allowance, vocational rehabilitation allowance or disability benefit without previous employment, but this usually applies to chronically ill populations. Table 5 describes the different types of benefits included in the thesis, along with the cut-off used for each of the benefits.
Table 5
Benefits included in the study, their definitions and the cut-off used in the analyses

<table>
<thead>
<tr>
<th>Social welfare benefits</th>
<th>Description</th>
<th>Cut-off used in analyses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sickness benefit</td>
<td>“Sickness benefits compensate for loss of income for employed members of the National Insurance Scheme who are occupationally disabled due to an illness or injury”</td>
<td>3 months (paper II) &gt;180 days (paper III)</td>
</tr>
<tr>
<td>Social assistance</td>
<td>“Financial assistance is intended to ensure that everyone has enough money to cover their basic subsistence costs. Financial assistance is intended to secure people’s income on a temporary basis and therefore aims to help you become financially independent”</td>
<td>&gt;180 days</td>
</tr>
<tr>
<td>Unemployed</td>
<td>“Unemployment benefits are a partial replacement for lost earnings. In order to receive unemployment benefits you must register with the Norwegian Labour and Welfare Administration (NAV) as a jobseeker and actually apply for work in addition to meeting the further requirements”</td>
<td>&gt;180 days</td>
</tr>
<tr>
<td>Rehabilitation allowance</td>
<td>“Rehabilitation allowance is provided when a person’s work ability is reduced by sickness or injury, but is under treatment with the purpose of returning to work”</td>
<td>&gt;1 year</td>
</tr>
<tr>
<td>Temporarily disability benefit</td>
<td>“Temporarily disability benefit is provided for chronically reduced work ability caused by sickness or injury, but with a possibility for improvement of sickness and work ability”</td>
<td>&gt;1 year</td>
</tr>
<tr>
<td>Disability benefit</td>
<td>“Disability pension may be relevant for those with permanently impaired earning capacity due to illness or injury”</td>
<td>&gt;1 year</td>
</tr>
<tr>
<td>Vocational rehabilitation allowance</td>
<td>“Occupational rehabilitation is an individualized measure that aims to improve your work capabilities and that provides a more extensive placement assistance and guidance than what the Norwegian Labour and Welfare Administration (NAV) offers. Through occupational rehabilitation measures, you can receive help in tackling problems that prevent you from participating in the labour market”</td>
<td>&gt;1 year</td>
</tr>
</tbody>
</table>

Note: All of the definitions are taken from the NAV (https://www.nav.no/English/English/Information+about+NAV%27s+services+and+benefits.155652.cms, 2012).

Income and student status
An individual can be considered to be participating in work if their income is higher than the National Insurance Scheme basic amount ($22,000). Thus, anyone earning below this amount can be considered unemployed (Normann, 2007). The student status file gives information about whether a person is registered as a student at a school, college or university. The student’s participation is registered on the 1st of October every year, independent of whether the student is
an active student or has passed an exam. Students abroad on exchange are included in this registration (Vangen, 2007).

### 6.6.1.5 Operationalization of marginalization

The measure of receiving social-welfare benefits was applied as an outcome measure in both papers II and III. However, three changes were made from the second to the third paper; specifically, changes were made to (1) the categorization of the welfare benefits, (2) the cut-off criteria for sickness leave and (3) the term describing the outcome.

1. In paper III, the survival analyses allowed for a dichotomous outcome variable. Thus, the benefits were gathered in one category and the NEET group was excluded, while the disability benefit was included. These changes were applied because the outcome of the study was social-welfare benefits and not work participation.

2. The cut-off criteria for the sickness benefit was changed from 3 months (paper II) to 6 months (paper III) as the latter criteria was in alignment with previous research conducted in Norway (De Ridder et al., 2012).

3. Paper II studied work participation (NEET group included) while paper III examined the receiving of long-term benefits. Long-term welfare benefits were described differently in papers II and III. As the outcome measure in paper III was dichotomous, the social-welfare benefits were considered long-term welfare benefits to ensure the reader that these were benefits received over an extended period.

### 6.6.2 Independent variables

Sexual abuse was assessed by one question asking the respondents whether they had experienced sexual abuse (e.g., indecent exposure, touching, or involuntary intercourse) within the past 12 months with a dichotomous response format (yes or no). Physical abuse was measured by asking the respondents whether they had been exposed to any violence (e.g., punching or kicking) within the past 12 months with the response options of never, yes by youths, yes by adults, or yes by both youths and adults. In Paper I, an exposure variable was created with eight responses: 1)
none, 2) exposed to sexual abuse, 3) exposed to violence from youths, 4) exposed to violence from adults, 5) exposed to violence from youths and sexual abuse, 6) exposed to violence from adults and sexual abuse, 7) exposed to violence from both youths and adults, and 8) exposed to violence from both youths and adults and sexual abuse.

Bullying in school was measured by one question that asked the respondents whether they had experienced problems with bullying in school or on the way to or from school during the past 12 months. The responses were 1) never, 2) sometimes, 3) about once a week, and 4) many times a week.

In paper II, abuse and bullying were combined. Thus, a variable that collapsed across the response options was created. The responses were 1) never exposed to bullying or abuse, 2) exposed to bullying, 3) exposed to violence, 4) exposed to sexual abuse, 5) exposed to violence and bullying, 6) exposed to sexual abuse and bullying, 7) exposed to violence and sexual abuse, and 8) exposed to violence, sexual abuse, and bullying.

In paper III, an exposure variable with fewer categories of response was created for interaction analyses. The categories were 1) never exposed to any abuse, 2) exposed to bullying “only”, 3) exposed to violence “only”, 4) exposed to sexual abuse “only”, and 5) exposed to 2–3 types of abuse (a combination of bullying and/or violence and/or sexual abuse).

School-level variables (Paper I). The mean values for bullying, peer support and teacher support were aggregated to test for associations at the school level. Mean scores were calculated for each school from all valid scores from respondents at the school for the individual scales. This means that each of the 56 schools was assigned a mean value where each of the students nested within the same school had the same value.

6.6.3 Mediator and moderator

High school completed within 5 years (mediator in Paper II)

High-school completion was obtained from the registry data on high-school completion within five years. The variable accounted only for students who had started high school. The students who never started high school were thereby excluded from the analyses.
Social support (moderator in Paper III)

School environment (Paper I)
Teacher support included four items: my teachers appreciate my opinions, my teachers appreciate me, my teachers help me with my subjects when I need help, and my teachers help me with my personal problems if needed. Cronbach’s alpha was 0.81. Classmate relationships included four items: I like my classmates, I have much in common with my classmates, I feel attached to my classmates, and my classmates value my opinions. Cronbach’s alpha was 0.83.

Family and friends
Family support included five items: when I think about my family, I would say that 1) I feel attached to my family, 2) my family takes me seriously, 3) my family values my opinions, 4) I mean a lot to my family, and 5) I can count on my family when I need help. Cronbach’s alpha for this scale was 0.86. Peer support included four items: when I think about my friends, I would say that 1) I feel closely attached to my friends, 2) my friends value my opinions, 3) I can help/support my friends, and 4) I can count on my friends when I need help. Cronbach’s alpha for this scale was 0.83.

Mean scores were calculated for each scale of four items for respondents who answered at least two items with the exception of the family support scale wherein at least three out of five items had to be answered for the respondent to be included. All items had a response format on a scale of 1 (strongly agree) to 4 (strongly disagree). The mean scores were reversed so that a score of 4 indicated strong perceived support.

6.6.4 Sociodemographic variables

Gender

Perceived financial situation was self-reported and related to whether family, in comparison with other families in Norway, has “poor”, “somewhat good”, “good” or “very good” finances.
Living situation was registered by asking who the respondent lived with: “mother and father”, “just mother”, “just father”, “the same amount with mother and father separately”, “mother or father and a new partner”, “foster parents” or “other”.

Parents’ birthplace was registered by asking whether the mother and father were born in Norway or in another country. If they were born in another country, the respondent was asked to list which country it was. This resulted in responses for 13 countries, which we recoded into three categories: Norway (at least one parent from Norway), Western countries (except Norway, with at least one of the parents being from Western Europe, North America or Australia) and non-Western countries (both parents being non-Western). This categorization is in agreement with Statistics Norway’s definition of Norwegian ethnicity where at least one of the parents needs to be Norwegian in order for the parents to be classified as of Norwegian ethnicity.

Parents’ marital status was reported by asking if the parents were “married”, “unmarried”, “divorced/separated”, “one or both dead” or “other”.

Parent’s employment was measured by asking the respondents whether their father and/or mother is currently working, with the employment responses being “full-time work”, “part-time work”, “unemployed/on welfare”, “stays at home”, “goes to school/studies” and “deceased”.

Parents’ education was collected from National Education registry data and categorized as “highest level of education” (more than 4 years), “high level of education” (up to 4 years), “high school”, “junior high school” or “unregistered”.

6.7 Statistical analyses
In paper I, linear regression was conducted to test the relationship between academic achievement and exposure to sexual abuse, violence and bullying and to test the associations of classmate relationships and teacher support with academic achievement. Multiply imputed data (200 imputed data sets) were fitted to the model. Missing imputation is regarded as a better alternative than having a large number of missing values. In each imputed data set, the missing values for the dependent variable are given an imputed value based on the variables included in
After conducting missing imputation, 7,015 respondents from the original sample of 7,343 individuals were included in the regression analyses. Multilevel modelling was conducted to investigate the associations of individual and contextual variables with students’ academic performance. The multilevel analysis thus has two levels of variance and not just one (on the individual level) like the case in a linear regression. This is one of the advantages of conducting multilevel analysis.

In paper II, proportional odds ordinal logistic regression analyses were conducted, and it was investigated whether the proportional odds assumption was reasonable. Ordinal logistic regression was used to assess the relationship between exposure and work participation and to test the possible mediating role of high-school completion. The follow-up year for the analyses was set to 2008. Thus, as seen in the figure below, there might be limitations in that we only knew the length of the received benefits and student status for 2008. As a consequence, some respondents might have just stopped receiving benefits before 2008 (see Figure 7, respondent 3). Others may have recently started to receive benefits in 2007, but not received benefits long enough to meet the cut-off criteria in 2008 (respondent 1), while some meet the cut off criteria in 2008 and are thus considered as having reduced work participation (respondent 2). Hence, not all individuals at risk will be captured in a one-year follow-up. However, this was accounted for in paper III, in which survival analyses were applied.

Figure 7.
Potential problems of a one-year follow-up


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In paper III, Kaplan–Meier analysis was employed to compare the times of receiving social benefits between the non-exposed and different exposure groups, using the whole cohort. Cox regression analysis was employed to test whether individuals exposed to abuse and bullying in junior high school had a higher likelihood of receiving welfare compared with the non-exposed adolescents. In addition, the analysis was employed to examine whether social support served as a protective factor against receiving social-welfare benefits in young adulthood among the exposed groups. Bootstrap analysis was conducted to test whether there was a significant difference between the hazards ratios for exposure in the unadjusted model and Model I when the social support scales were included.

Other analyses conducted (papers I–III) were chi-squared tests and analysis of variance. All the regression analyses controlled for gender, age, perceived financial situation, living situation, and parents’ birthplace, marital status, educational level (only in papers II and III), and employment. (See papers I–III for more details.)

The univariate regression analyses, imputation (paper I), Cox regression analyses, bootstrapping and testing of the proportional hazard assumption (paper III) used the R (The R Foundation for Statistical Computing, Vienna, Austria), rms, Hmisc and boot packages, while PASW Statistics 18 (formerly SPSS Statistics 18) was used for multilevel modelling (paper I), ordinal regression analyses (paper II) and all descriptive analyses (papers I–III). (See papers I–III for more details on the statistical analysis.)

6.8 Ethics

There are two parts to this section: the ethics that apply to the Youth Health Survey conducted by the Norwegian Institute of Public Health and the ethics that apply to the linking of registry data.

6.8.1 Ethics for the Youth Health Survey

The basic principles of the Declaration of Helsinki were created to respect the individual and his/her rights, to assess risks and benefits (with the individuals’ welfare having precedence over the interests of science and society) and to gain informed consent from participants. These principles were applied in this study.
6.8.2 Respect of the individual and his/her rights

The participants and their parents received written information regarding the survey in the mail prior to completing the questionnaire. They were informed about who were responsible for the survey, the purpose and the content of the survey, and how the survey would be conducted and how the data would be used. Participation was voluntary and the participant could withdraw at any point. All data from the survey were treated with confidentiality and the data used in the research were made anonymous.

6.8.3 Assessment of risks and benefits

In any research project, it is important to evaluate whether the benefits of the research have precedence over the risk factors associated with the project. The risk factors of this project include problems relating to completing the survey. The survey was completed in the classroom. This is not a private arena and students can easily view the answers of other students. This can lead to stress for the participant and possible underreporting in regards to the trauma-related questions.

6.8.4 Informed consent

Participation was voluntary and required the signing of informed-consent forms by the students or parents if the student was younger than 15 years. A survey, along with a consent form and a prestamped envelope, was left at school for each of the students who were not present (Søgaard & Eide, 2005). The study was evaluated by the Regional Committee for Medical Research Ethics and was approved by the Norwegian Data Inspectorate and the local school authorities.

6.8.5 Ethics for the linking of registry data to the Youth Health Survey data (data used in dissertation)

On the signed informed-consent forms given previous to conducting the Youth Health Survey, the participants were asked to approve that the data could be linked to other registries. The data were made anonymous, and we thus did not have access to any of the respondents’ identification when we linked the Youth Health Survey data to the registry data. The participants are still able to withdraw from the study at any point as they can contact The Norwegian Institute of Public Health (owner of the data) to have their information withdrawn from the research. Approval to use and link the registry data to the Youth Health Survey data and application of additional
variables was collected from the Norwegian Institute of Public Health, the Ministry of Education and Research, the Norwegian Labour and Welfare Service (NAV), the Norwegian Tax Administration, and Statistics Norway.

One risk factor associated with our part of the study is the risk of stigmatization of groups. Our findings regarding the consequences of violence, sexual abuse and bullying might lead to stigmatization of an exposed group. This risk factor needs to be evaluated in relation to the benefits gained from this project. The findings in our study are of great value to society as they provide empirical evidence on the serious long-term consequences of these types of abuse and thereby lead to preventative efforts in school that in turn can benefit the exposed group. In addition, identifying individual as well as school factors that can reduce high-school dropout and marginalization is of great value to society. These are important findings for a society that emphasizes egalitarian principles and strives to include all citizens. Finally, using existing data, the study took advantage of available research resources and was cost-effective. In summary, there is no direct risk or benefits for the study participants, but knowledge from this investigation may lead to efforts for preventing marginalization from work and education. Thus, the results may in the long-term have a personal effect on health, economic, and social disparities. Epidemiological studies are normally associated with low risk relative to the benefits (in terms of increased knowledge) gained, which was also true for this project.
7. RESULTS

Synopsis of Papers I–III

7.1 Paper I: Violence, bullying and academic achievement: A study of 15-year-old adolescents and their school environment

Objectives: The study investigated academic achievement among adolescents exposed to violence, sexual abuse and bullying. Moreover, we sought to determine the individual and contextual influence of the adolescents’ school environment in terms of bullying, classmate relationships and teacher support on academic achievement. Finally, we wished to assess whether the school-level influence is different for the adolescents exposed to violence and sexual abuse versus the adolescents not exposed to these forms of abuse.

Methods: This was a cross-sectional study of a sample of 7,343 adolescents between the ages of 15 and 16 years from 56 schools in Oslo, Norway. We investigated associations between violence, sexual abuse, bullying, classmate relationships, teacher support and academic achievement. Linear regression was used to investigate associations on the individual level. Multilevel analyses were conducted to test for school-level differences while controlling for both individual and contextual factors.

Results: On the individual level, all combinations of violence and sexual abuse categories were significantly associated with lower grades. This was also true for bullying, while teacher support resulted in better grades. At the school level, the analysis showed that students in schools with higher levels of bullying performed worse academically. Each unit of increment in bullying in school corresponded to an average 0.98-point decrease in grades (p < 0.01) when we controlled for sociodemographic characteristics. The association remained significant when the model was tested separately for the non-bullied students, with a small reduction in the coefficient value (–.84, p < 0.01). No overall significance was found for the interaction between the school environment and adolescent exposure to violence, indicating that the school environment affects all students.

Conclusion: Factors on both levels can contribute to reduced grades. This stresses the need to investigate individual and contextual factors simultaneously when examining academic achievement. Our results indicated that students attending schools with higher levels of bullying may perform worse in school. This was true for all students regardless of previous exposure to

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violence and sexual abuse. This emphasizes the need for preventive efforts that focus not only on vulnerable groups but on all students and the school context.

7.2 Paper II: Long-term effects of exposure to violence, sexual abuse and bullying in high school

Objectives: The study investigated whether exposure to violence, sexual abuse, or bullying is associated with later work participation and whether high-school completion has a potential mediating role.

Methods: Self-reported high-school questionnaire data were linked to unique prospective registry data for eight consecutive years on 11,874 individuals’ demographics, educational progress, employment activity and social benefits. Ordinal logistic regression was used to investigate the associations between exposure to single as well as multiple forms of victimization and later work participation, using high school completion within 5 years as a mediator.

Results: The analysis showed that violence and/or bullying at 15 years of age predicted negative work participation outcomes eight years later independent of high-school completion and other relevant factors.

Conclusion: Work participation may be predicted by factors that are present in early life. Although an increasing educational level may have some preventive effect, these results indicate that prevention efforts should be initiated at an early age and should target adverse life experiences.
7.3 Paper III: A prospective study of the potential moderating role of social support in preventing marginalization among individuals exposed to life adversities

Objectives: The long-term consequences of abuse and bullying are considered to be major public health problems, both on individual and societal levels. However, large-scale epidemiological studies focusing both on abuse and bullying are lacking, and few studies have examined later functioning in adulthood in terms of reduced work participation and the receiving of welfare benefits. This prospective study investigated the enduring consequences of exposure to abuse and bullying in junior high school and receiving long-term social-welfare benefits in young adulthood. In addition, the potential moderating role of social support was explored.

Methods: Self-reported junior high-school questionnaire data were linked to registry data from 18 years of age and up to eight consecutive years on the receiving of welfare benefits for 13,633 individuals. Cox regression analyses were applied to test the relationship between exposure to life adversities and the receiving of welfare in addition to testing the potential moderating role of social support.

Results: The analysis showed that individuals exposed to abuse and bullying had an increased risk of receiving social-welfare benefits compared with individuals not exposed to these types of abuse. A cumulative effect of abuse could be observed in which multiple types of abuse led to a higher risk of receiving welfare benefits (HR: 1.47, C.I:1.26, 1.72; <.001) compared with single types of abuse and no abuse. The findings on the potential moderating role of social support were mixed, depending on the type of social support. Family support and classmate relationships were protective in reducing the risk of receiving welfare, while peer support and teacher support showed inconsistent patterns.

Conclusion: Exposure to abuse and bullying in junior high school increases the risk of receiving welfare benefits in young adulthood. Family support and good classmate relationships reduce this risk. These results are promising in terms of the prevention of long-term negative consequences of abuse and bullying.
8. DISCUSSION

8.1 Discussion of main results

A large amount of research has documented the negative consequences of physical abuse, sexual abuse and bullying in terms of mental and somatic health problems and school functioning. However, little is known about the long-term consequences of exposure in terms of how these individuals manage student life and employment in young adulthood. This study examined the association between exposure to violence and bullying in junior high school and academic performance and subsequent marginalization from the labour market in young adulthood. The findings show that adolescents exposed to bullying and abuse had greater likelihood of performing worse academically, dropping out of high school and struggling with work integration as young adults compared with their non-exposed classmates. In the following sections, some of the main themes that emerged in the three papers will be discussed.

8.1.2 Individuals exposed to abuse and bullying performed worse academically in junior high school compared with their non-exposed peers

In paper I, we found that students who had been exposed to physical abuse, sexual abuse and bullying (exposed) in the 10th grade performed worse academically than their peers who had not been exposed to these types of abuse (nonexposed). This result has also been found in other countries (Crozier & Barth, 2005; Hoffman-Plotkin & Twentyman, 1984; Juvonen et al., 2011; Kendall-Tackett & Eckenrode, 1996; Konishi, Hymel, Zumbo, & Zhen, 2010; Leiter & Johnsen, 1994; Perez & Widom, 1994; Rothon et al., 2011; Slade & Wissow, 2007). However, this study contributed new knowledge in terms of studying different combinations of individual exposures and their association with academic achievement. Many studies have treated abuse as a unidimensional phenomenon and thereby ignored the fact that the individual may have been exposed to multiple types of maltreatment (Arata, Langhinrichsen-Rohling, Bowers, & O’Brien, 2007; Finkelhor et al., 2007a; Lau et al., 2005; Romano, Bell, & Billette, 2011). For example, it was observed in our study that exposure to physical abuse from adults in combination with sexual abuse had the strongest negative association with academic achievement. Moreover, exposure to multiple versus single types of abuse resulted in poorer grades (see section 8.1.7 for more details). These findings emphasize the importance of specifying the type as well as the number of different types of abuse when examining the association with academic performance.
Research on the different types of abuse and their relation to academic achievement has been mixed (Crozier & Barth, 2005; Kendall-Tackett & Eckenrode, 1996; Pears et al., 2008; Perez & Widom, 1994). For example, in a study of maltreated preschool-aged foster children, Pears et al. (2008) found that neglect and/or physical abuse were related to lower cognitive functioning, while the internalizing of problems was greatest among individuals exposed to physical and/or sexual abuse. Many abused individuals have been exposed to multiple types of abuse and bullying, and the different combinations may therefore lead to different problems in adjustment. Other studies have found no such difference between the type of abuse and academic performance (Crozier & Barth, 2005; Leiter & Johnsen, 1994). In our study, all types of abuse were related to impaired academic achievement. However, one of the groups performed worse academically than the other groups. This may be an indication of the severity of the abuse, as research has shown that closer proximity to the abuser and repeated abuse has a more severe impact on the victim (Killen, 2009; Manly, Cicchetti, & Barnett, 1994).

8.1.3 Academic impairment among students exposed to abuse and bullying continues through to high school

The negative educational pattern for the exposed adolescents continued through to high school as the findings of paper II showed that victims of both abuse and bullying had a higher likelihood of dropping out of high school compared with the nonexposed students. Impaired academic achievement and dropping out from high school may be indicators of poor social integration in school. Qualitative research reports of marginalized youth have shown that reasons for failing in school include neglect in childhood without problems being recognized by other adults (Olsen & Jentoft, 2013), unstable homes, problems with socializing with peers, low self-esteem and low confidence (Follesø, 2010; Görlich et al., 2011). A study by Natland and Rasmussen (2012) of seven interviewed young adults aged 17–24 years showed that private problems outside of school contributed to the decision to drop out of school. The subjects felt invisible and had a hard time managing school because they were dealing with personal problems. Although these studies did not study violence and bullying specifically, they indicate that unstable homes, personal problems and problems with social relationships may lead to problems with integrating in school and thus poor academic outcomes or dropping out of high school. This is in alignment with theory and quantitative research that suggest that abuse may result in a lack of support at home,
disruptive behaviour at school, poor self-esteem and low self-efficacy, which in turn may affect the individual’s academic performance (Leiter & Johnsen, 1994). These causes may help explain why individuals exposed to abuse and bullying in our study performed worse academically and were more likely to drop out of school than the nonexposed adolescents.

8.1.4 Bullying and abuse as predictive factors of work marginalization in young adulthood

One of the main goals of our study was to investigate whether the negative consequences of exposure to abuse and bullying during adolescence continue beyond high school. Our findings indicated that the negative trend continued beyond high school as the exposed students had twice the risk of reduced work participation compared with their nonexposed classmates. These results were confirmed in paper III, in which the exposed students were followed for eight consecutive years, and showed an increased risk of receiving social-welfare benefits at ages 18–26 years. There has been scarce research on the relationship between exposure in adolescence and work impairment during young adulthood, and no studies that the author is aware of have focused on the combination of exposure to physical abuse, sexual abuse and bullying. Our study made an important contribution to the field by addressing some of the previous research’s limitations using prospective data, including the individual’s sociodemographic data at the time of the abuse, and using objective measures of work participation. Our results indicate that labour-market skills are shaped at an early age and that individuals exposed to abuse and bullying may struggle with work integration in young adulthood. This was partly confirmed in a recent study by Wolke, Copeland, Angold, and Costello (2013) that showed that victims of childhood bullying had an increased risk of low wealth and job problems in adulthood, along with poor health and social relationship outcomes, despite controlling for family hardship (including maltreatment) and childhood psychiatric disorders. The results showed that victims of bullying had about a twofold risk of being dismissed from a job or quitting multiple jobs compared with non-bullied individuals. In addition, they were more likely to struggle with poverty and have poor financial management. Another recent study by Schüssler-Fiorenza Rose, Xie, and Stineman (2014) studying the relationship between ACEs and self-reported disabilities in adult life found a strong graded relationship between ACEs and self-reported disability in adulthood, despite adjusting for potentially mediating physical and mental health conditions. Although that study only focused on disability, it confirms the possible link between exposure to abuse (along
with other adversities) and its independent effect on later work impairment in terms of disability. Still, no study to date that the author is aware of has studied the combined effect of physical abuse, sexual abuse, bullying and labour integration. Our study also showed that abuse and bullying may have an independent effect on work impairment in that the association remained strong despite controlling for high-school completion. However, the underlying mechanisms of the relationship between exposure and marginalization are poorly understood. Investigating the individual’s social ecology may enhance our understanding of the complexity of this problem. Our literature review revealed that in addition to educational achievement, school climate and social support may serve as potential pathways between exposure to abuse and/or bullying and marginalization. This was also explored in our study. Ecological theory emphasizes that to understand and possibly change behaviour, the environment in which the individual is nested needs to be examined (Bronfenbrenner, 1979). This inspired us to study possible push and pull factors that may affect the relationship between exposure to violence and bullying and marginalization.

8.1.5 Push and pull mechanisms of social support

In paper III, social support was examined as a protective factor both in school (teacher support and classmate relationships) and in the person’s immediate setting (family and peer support). We were interested in whether these sources of social support would moderate the relationship between exposure to abuse and bullying and the risk of receiving social-welfare benefits. The initial analyses did show that social support moderated the relationship between exposure and being marginalized. However, when we looked at the interactions between social support and exposure, the results were mixed. Although none of the interactions were significant, the overall interaction model was significant, which allowed us to discuss possible trends. It was observed that both family support and classmate relationships served as push factors for marginalization, while the results for peer and teacher support were inconsistent. There has not been a great distinction in the literature between the sources of social support (Malecki & Demaray, 2003; Tardy, 1985) and the studies looking at different sources of support have predominantly studied support from parents/family and peers. Research distinguishing between classmate relationships and peer support is scarce. In our study, peer support could include friendships outside of school and the classroom while classmate relationships were limited to the connections the respondents
had with his/her classmates. Malecki and Demaray (2003) emphasized the importance of distinguishing between the sources of support, as the types of support (informational, emotional, appraisal and instrumental) and the outcome may differ depending on the source of support. Their findings show that support from parents was mostly emotional and informational and contributed to the student’s adjustment. Teacher support was mostly informational and emotional, and classmates and friends provided most of the instrumental support. Their research stresses the complexities of social support and how each source of support may be associated with different outcomes. This is in alignment with our study. Family support and classmate relationships have been found to increase the sense of school connectedness and to contribute to higher self-esteem, psychological well-being and healthy relationships (Bolger & Patterson, 2003; De Ridder et al., 2012; Gallagher, 2012; Sapouna & Wolke, 2013; Thompson, Flood, & Goodwin, 2006; Wentzel, 1998). This may improve the person’s overall health and well-being and thus reduce the risk of receiving social welfare. However, there are mixed results in the literature for peer support in that belonging to a deviant peer group may have negative behavioural effects, such as substance abuse (Cohen et al., 2000; Thoits, 2011). Teacher support on the other hand has mostly been associated with positive outcomes (Maldonado-Carreño & Votruba-Drzal, 2011; Wentzel, 1998; Wentzel, Battle, Russell, & Looney, 2010). However, it may be that the social environment promoted by the teacher rather than the teacher support itself is reflected in the classmate relationships.

In summary, our results stress the importance of looking at different sources of social support in relation to the outcome studied. Moreover, it highlights the significance of studying the person’s environment as social support may serve as a protective as well as a risk (peer support) factor for exposed groups and subsequent marginalization.

8.1.6 Bystander perspective: the school climate may affect all

Paper I studied the school climate in terms of the level of bullying in a school and social support from teachers and classmates and their associations with academic achievement. In addition, we studied whether the influence of the school climate was different for the exposed and non-exposed adolescents. At the individual level, we found that teacher support was associated with
improved grades for all students. This emphasizes the importance of a well-established student–
teacher relationship to academic performance.

Although research on physical abuse, sexual abuse and bullying acknowledges an ecological
approach, few studies have examined the influence of school-level variables on individual
grades. Our results showed that bullying at the school level affects each student’s individual
grade, independent of whether they are bullied. These findings illustrate that bullying is a group
phenomenon that not only affects the individuals directly involved but also the bystanders. One
of the motivations for bullying behaviour is to achieve a higher status or powerful position in the
peer group. Bystanders may affect the bullying behaviour either by reinforcing the bully and
thereby encouraging the behaviour or by defending the victim and thereby making the bully’s
attempt for a more powerful position unsuccessful. Thus, the bystanders play a key role in the
maintenance of the level of bullying in a school (Kärnä et al., 2011). We did not find, as
predicted, that the exposed students’ grades would be more affected by the school environment,
in terms of school-level bullying, teacher support and classmate relationships, compared with the
nonexposed students. Instead, these results illustrate how bullying may create an unhealthy and
insecure school climate that affects all students and not just the vulnerable students.

### 8.1.7 Exposure to the combination of abuse and bullying

A theme that emerged in all three articles is the dose response of multiple types of abuse on the
different outcomes in the study. In paper I, adolescents who reported exposure to two or three
categories of violence had lower grades than those exposed to only one type of violence. In paper
II, the chances of dropping out of high school increased with the amount of abuse to which a
person had been exposed. Moreover, in the unadjusted analyses, a dose response relationship was
observed in which exposure to three types of abuse posed the highest risk of reduced work
participation. However, the dose response relationship disappeared when we controlled for other
factors known to affect unemployment, such as the perceived financial situation, living situation,
and parents’ marital status, education and employment. These results can be seen in light of
social ecological theory (Belsky, 1980; Swenson & Chaffin, 2006) where multiple forms of
victimization are related to more disadvantaged sociodemographics (Turner, Finkelhor, &
Ormrod, 2006), which in turn may be associated with a higher risk of unemployment as
confirmed in our study. A cumulative effect of exposure could also be observed in paper III,
where multiple types of abuse resulted in a higher likelihood of receiving long-term social-welfare benefits compared with single types of abuse. Other research has also found more severe effects of multiple types of abuse compared with single types of abuse (Finkelhor et al., 2007a; Lau et al., 2005; Pears et al., 2008). However, our study is unique in that it studied the cumulative effect of physical abuse, sexual abuse and bullying. Finkelhor et al. (2007a) listed different explanations as to why multiple types of abuse may lead to more severe outcomes. For example, multiple victimization involves more people and environments that are associated with traumatic reminders that interfere with normal coping. Moreover, after a certain threshold of victimization, a child’s defensive coping may become generalized to each of the child’s interpersonal contexts. In addition, the self-blame and negative attribution related to victimization trauma may be harder to resist with exposure to victimization from multiple sources. Finally, multiple victimization may be a sign of poorly supervised and socially isolated children, who may be more likely to be unprotected targets, have poor social interactional skills or have a variety of pre-existing psychological problems.

**8.1.8 Integrating the field of abuse and bullying**

Although there are studies that have examined multiple types of abuse, few studies have investigated the combined effect of physical abuse, sexual abuse and bullying. These forms of abuse have in large been studied in two separate research fields and within two separate research traditions. A surprising finding was the strong associations of bullying and marginalization found in both papers II and III after the violence categories and bullying were combined. In both papers, the group exposed to bullying had the highest risk of marginalization after the group exposed to multiple types of abuse. There is a lack of longitudinal studies on the effects of bullying, especially on adulthood functioning in terms of work impairment. Our study stresses the long-term consequences of bullying and how bullying should be addressed with the same seriousness as other types of abuse. These results were confirmed by the recent study of Wolke et al. (2013) in which the bully’s victims had a higher likelihood of poverty and job problems despite controlling for previous maltreatment, other family hardships and childhood psychiatric disorders, emphasizing the strong independent effect of bullying. In addition, our study shows that among the students who were bullied, about 40% had experienced another type of abuse,
compared with about 20% of the non-bullied students. These numbers illustrate that abuse and bullying often co-occur and that both types of exposure should be considered when studying abuse.

8.1.9 Studying abuse and bullying within an ecologic framework
The ecological framework helped us formulate the research questions for the study and interpret the findings. The ecological perspective allowed us to look beyond the individual and direct towards the individuals’ environment. Most research on exposure to bullying and abuse has focused on the individual predictors of school functioning and marginalization rather than the social context. Our study examined individual predictors in terms of physical abuse, sexual abuse, bullying and sociodemographics and their interrelationship with environmental predictors such as the school climate and social support. In paper I, it was observed that bullying at the school level was negatively associated with the individual’s academic performance, while paper III illustrated the potential protective role of classmate relationships and family support against marginalization and the risk factor of peer support for marginalization. These findings justified applying an ecological approach in that the predictors’ association with the outcomes was attenuated by the school climate and the person’s social support.

8.2 Limitations
The two types of errors that are found in epidemiological studies are random error and systematic error. A simple explanation to distinguish the two is that random errors can be reduced to zero by increasing the size of the study, while the systematic error is not affected by the size of the study (Rothman, 2002). In the following, I will discuss how these errors relate to this study.

8.2.1 Precision (lack of random error)
Random error is variability in the data that we cannot explain and our goal is to obtain as accurate results as possible with as little error as possible (Rothman, 2002). The precision of the estimate can be determined using the confidence interval (CI), where a wide confidence interval indicates low precision and a narrow confidence interval indicates high precision. A confidence interval of 95% was used in all the analyses. The amount of error in the estimation is less for a
larger sample size. Our study was fairly large, including about 7000 participants in the first paper and about 12,000 participants in the second and third papers. The amount of error in the estimation also depends on the proportions of exposed and unexposed and the prevalence of the outcome. In our study, some of the exposure groups had a small number of participants; e.g., in paper I, 18 adolescents were exposed to violence from adults and sexual abuse and 36 were exposed to violence from both youth and adults and sexual abuse. This may lead to less accurate measurements, as revealed by their wide confidence intervals. This was taken into account in papers II and III by collapsing some of the exposure categories, and thereby increasing their sizes. A large proportion of participants were registered with the outcomes (academic achievement, work impairment and receiving social-welfare benefits) in all three papers, and the size of the marginalization groups were thus not a problem.

### 8.2.2 Validity (lack of systematic error)

Systematic error or bias is any systematic error in a study, including selection bias, information bias, or confounding (Rothman, 2002).

#### 8.2.2.1 Selection bias

Selection bias includes errors that are related to selection of the respondents and factors that affect study participation. Does the association between exposure to violence and/or bullying and marginalization differ for those who participated in the study and those who did not participate in the study? Our study is a prospective cohort study in which the study subjects were selected from school registers if they attended 10th grade in the respective municipalities. However, not all students participated (26.1%) because they either quit school or moved during the school year, or did not participate because they did not want to or were not present when the survey was distributed and did not respond later on. Others were not included as they did not answer at least one question in the questionnaire. Furthermore, 12% did not permit the linking of the registry data and were thus excluded from the analyses. Thus, this study may be subjected to selection bias. Studies have shown that attrition may be due to several factors, but most often, the most disadvantaged are lost (Gustavson, von Soest, Karevold, & Røysamb, 2012). Students that were not present at school when the questionnaire was completed may have been early dropouts or away from school because of exposure to violence, bullying or other health-related reasons. This
group along with those who refused to participate or permit the linking of data may be vulnerable groups that we did not include in this study. This may lead to an underestimation of the associations found in this study. However, the response rate was still high (73.9%) compared with other similar population studies.

8.2.2.2 Information bias
Information error occurs when the information collected about a respondent is wrong. The misclassification of subjects can be either differential or nondifferential. The misclassification is nondifferential if the probability for error is the same for all respondents and the misclassification does not depend on a person’s status for the other variables (exposure or outcome). However, if the misclassification is different for those with and without the outcome or exposure, it is differential. In our study, an example of a differential misclassification would be if the violence or bullying reported was misclassified differently according to the person’s status for marginalization, or marginalization was misclassified differently according to the person’s exposure status. A common type of differential misclassification is recall bias when the respondent is asked about an event a long time after it has occurred. This is a common problem in studies on exposures such as violence, in which the collection of retrospective data can result in recall bias as the respondents may not have a clear memory of the abuse. However, our exposure data were for the past 12 months and can thus be considered to be recent reports of abuse, which may be less susceptible to recall bias. Still, as we do not have measures of lifetime abuse, we may have false negative responses. This means that the adolescence who had been exposed to abuse or bullying previous to the 12 months are not included, but they still may have a higher risk of marginalization compared with the nonexposed adolescents.

Main exposures
Exposure to violence and exposure to bullying were taken as the main exposures in all three papers. It was up to the respondents to interpret these questions as no definitions of the exposures were given (see section 6.6.2 for more details). This may have led to different interpretations of the questions, which may have resulted in misclassification of the different types of abuse. Previous studies have shown that the use of specific, behaviourally formulated questions reduces false negative responses and obtains higher prevalence rates compared with labelling questions,
especially when dealing with sensitive and stigmatized issues, such as rape (Harned, 2004). The use of simple questions might therefore have led to an underestimation of the exposure. This in turn may have affected the relationships with the outcomes as exposed adolescents have a higher likelihood of marginalization compared with non-exposed adolescents. It can therefore be considered a differential misclassification.

The categorizations and combinations of the violence and bullying categories were treated differently in each paper. In paper I, the bullying experiences were measured separately from violence and the frequency of experiences was classified as “never”, “sometimes”, “about once a week” and “many times a week”. As the categories were not specified, it may have been hard for the respondent to choose between “about once a week” and “sometimes”. Thus, the majority making this selection might have chosen “sometimes” (n = 829) rather than “about once a week” (n = 98). This is consistent with the association with the outcome, as there was not a large difference in academic achievement between the two categories. The association with the outcome might have been stronger if the two categories were combined, but because this interpretation is uncertain, it was avoided. In papers II and III, bullying was combined with the violence categories (see section 6.6.2 for more details). This might have led to less nuanced interpretation of the types of exposures and their effect on the outcome.

Another issue may be the counting of the number of events. As two phenomena, such as violence and bullying, may occur in the same situation, it is uncertain whether respondents who answered affirmatively to both questions actually had experienced one or two incidents.

The variables for social support were treated as continuous variables to avoid misclassifications and Chronbach’s alpha was high for all the scales.

Outcome measures

Academic achievement was used as an outcome in paper I while marginalization in terms of work impairment (paper II) and receiving long-term welfare benefits (paper III) were used in papers II and III.
Academic achievement was self-reported. We do not know how accurate the subjects were in reporting their grades. Thus, this might result in a nondifferential misclassification. However, sensitivity analyses have been conducted where the self-reported grades were compared with the school registered grades, and no major differences were found. Furthermore, the variable was treated as being continuous, thereby avoiding categorization of the grades (such as “good”, “average” or “poor” grades) and probably reducing the amount of misclassification.

FD-Trygd and the NUDB were used as sources for the outcome measurements in papers II and III. These are both recognized as reliable sources with few missing data. However, for some of the registry data, mistakes in reporting may occur. Statistics Norway runs multiple controls on the identities of births and the dates of received benefits and general consistency controls to minimize possible errors. (http://www.ssb.no/a/mikrodata/datasamlinger/fdtrygd.html). In addition, error might have occurred in the linking of data as many data files were used and the linking process was complex. Multiple checks were conducted to avoid this, but the process might still have been susceptible to errors. A problem with operationalize marginalization is separating involuntary from voluntary marginalization as some individuals might have other preferences and may therefore stay outside the labour market for shorter or longer periods of time voluntarily. However, separating the two can be hard to do in research (T. M. Normann, 2007a). This was also true in this thesis; the two situations were not separated as there was no relevant information in the dataset. This may lead to a false positive where individuals are wrongly labelled as marginalized.

The operationalization of the marginalization categories may also be vulnerable to misclassification. The different social-welfare benefits were classified with various cut-off criteria (see section 6.6.1.4 for more details). For example, a study subject had to be unemployed for 6 consecutive months or more in a year to be registered as unemployed. If a person was registered as unemployed for 5 1/2 months, the person would not be considered marginalized. In paper II, in which one year of follow-up was used (2008), this was a greater problem as the person could, for example, have been unemployed for 9 months in 2007 and only 2 months in 2008 and would therefore not have qualified as marginalized. This could lead to an underrepresentation of the number of marginalized respondents in the dataset. This can be
considered a nondifferential misclassification, as it presumably is independent of other study variables. Sensitivity analyses of the sickness benefit, unemployment and social assistance were conducted with different cut-off criteria (3, 6 and 9 months). The results showed that there was no great variation in the reference group (not marginalized) of the outcome variable (paper II), meaning that although the cut-offs differed, the respondents “moved between” the marginalized groups. Thus, we conclude that it is unlikely that the cut-off chosen would strongly affect the results.

8.2.2.3 Confounding
Confounding is an important factor in epidemiological studies. Studying individuals nested within a social context is complex and many different factors may contribute to the outcome of the study. Confounding is defined as the mixing of the effect of the exposure with the effect of another variable, leading to a bias (Rothman, 2002). This can lead to an overestimation or underestimation of an effect or change the apparent direction of an effect (Rothman, 2002). Randomized trials are seen as a golden standard that avoids confounding as the groups that are being compared have similar characteristics, apart from random fluctuations, of all possible confounders. However, in observational studies of violence and bullying, this obviously cannot be achieved because of ethical considerations. In cohort studies, at least some confounders are usually statistically controlled for or held constant while the variables of interest vary. In our study, the main confounders that were adjusted for were sociodemographics. A person’s sociodemographics are known to associate with both academic achievement and marginalization as well as with exposure to abuse and bullying. Thus, we controlled for the person’s gender, perceived family situation, living situation, and parents’ marital status, employment and education. The adjustment did not substantially attenuate the associations between the main exposure variables and the outcomes in any of the papers. One exception was in paper II where the adjustment for sociodemographics attenuated the dose response effect of three types of abuse and work impairment. This suggests that being exposed to multiple types of abuse is highly associated with more disadvantaged sociodemographics, which in turn may affect work impairment. However, despite adjusting for sociodemographics as possible confounders, other confounding factors that were not accounted for in the study may have been present.
The variables chosen for each paper were based on previous theories and empirical research. In all three papers, a potential confounder may have been mental health. It has been argued that poor mental health may lead to victimization (such as bullying), which in turn may negatively affect academic achievement and the risk of marginalization. Other factors that are known to associate with academic achievement (paper I) and that were not included in our questionnaire are intelligence, the quality of teachers, parental help and the quality of the school. These factors were not available in the questionnaire and could therefore not be adjusted for.

In papers II and III, only sociodemographics were controlled for while high-school completion and social support were used as the mediator and moderator respectively. High-school completion did not attenuate the relationship between exposure and marginalization and the results for social support were mixed, depending on the type of social support. Other factors that have been suggested to associate with marginalization are poor interpersonal skills, emotional distress, frequent somatic symptoms, and substance abuse (Anda et al., 2004; Liu et al., 2012; Macmillan & Hagan, 2004; Varhama & Björkqvist, 2005; Zielinski, 2009). In alignment with social ecological theory (Bronfenbrenner, 1979), environmental factors, such as the family’s network and the surrounding neighbourhood, may also be factors contributing to later marginalization. In addition, the study did not include lifetime abuse or other types of adversities such as psychological violence, neglect, somatic health and substance abuse. These are all factors that may be associated with the predictor as well as the outcomes of our study and can thus be considered to be possible confounders. Our work is an observational study in which we have tried to statistically control for potential confounders, although we are aware that other confounders may exist.

Other methodological factors to consider in the evaluation of a study are external validity and causality.

8.2.3 External validity (generalizability)
To what extent can we generalize our research findings to other individuals and other contexts? The level of violence and bullying as well as school climate and marginalization will likely vary significantly across cultures and subcultures. Thus, one has to be careful about cross-cultural
generalizations, especially in regards to prevalence estimates. However, the associations between variables may be less susceptible to cultural differences. In the findings of the results, the associations between variables rather than the prevalence estimates have therefore been emphasized. In paper I, only one of the six municipalities was used and the outcome of interest was academic achievement. As all 10th graders in Oslo were invited to participate, the results can be considered fairly representative of adolescents in this municipality. The association between exposure to violence and bullying and academic achievement has also been found in the United States (Crozier & Barth, 2005; Juvonen et al., 2011; Leiter & Johnsen, 1997; Veltman & Browne, 2001), indicating that the associations may be generalized to other similar populations. However, as mentioned previously, other contextual factors such as the level of violence and bullying in the community, quality of the teacher and the school climate may affect the strength of this association.

The registry data on social-welfare benefits are unique to Norway and other Scandinavian countries, but the results may be important for understanding marginalization in other countries. The use of registry data is one way of measuring marginalization. The measurement can also be made through surveys that include self-reports on social welfare, student status, income and unemployment. The associations between the variables (exposure to violence and/or bullying and marginalization and possible mediating or moderating effects) can therefore apply to other individuals and contexts. There might be geographical differences in terms of exposure in Norway. However, it is less likely that these differences will affect the associations between the variables in the study (i.e., associations between exposure and marginalization).

We consider the samples used in papers I and II to be fairly representative of Norway as five or six municipalities from different parts of the country were represented, although we realize that there may be geographical differences within Norway.

8.2.4 Causality

Causation or causality can be defined as one event bringing about another event (Rothman, 2002). This thesis is an observational study that applied both cross-sectional data (paper I) and longitudinal data (papers II and III). Causality could not be determined when using cross-sectional data as the timing of the exposure and that of the outcome were the same. Hence, one
cannot conclude that the outcome was a consequence of the exposure, and only correlations could be determined. For example, poor academic performance may lead to bullying rather than bullying leading to poor academic achievement. However, when using longitudinal data, the time of the relationship at least excludes reverse causation in many cases. The exposure is registered in a healthy population at an earlier time than the outcome. In our study, this means that work marginalization could not have occurred at the same time as the exposure was measured. For example, marginalization in young adulthood cannot lead to bullying victimization in adolescence. However, a common causal factor cannot be excluded even in longitudinal data. Thus, although exposure to abuse and bullying predicted marginalization in our study, we cannot know if it is the independent effect of the predictor variables that constitute this association or if these variables are an indication of something else, such as mental health.

In summary, our study is limited by systematic and random errors. However, a strength of the study is the large sample size that can be considered fairly representative of Norway and the associations between the variables in our study may still apply to other individuals and contexts. The reporting of recent events instead of lifetime events may have reduced recall bias. In addition, the use of registry data provided an extraordinary opportunity to conduct a longitudinal study without burdening the study subjects and to avoid biases associated with self-reported data. The longitudinal design allowed us to predict the direction of the relationships in the study. Finally, this study is one of the first to investigate the combined influence of exposure to bullying and violence during adolescence on later work participation using objective measures of work participation, in addition to exploring possible pathways of this relationship, such as high-school completion and social support.
9. IMPLICATIONS

Before discussing possible implications, it is important to emphasize that this is an epidemiological study examining trends in groups and not individual stories, although being aware that this is a heterogenic group. Thus, the preventive efforts and implications suggested here are directed towards 10th graders at the population level. Moreover, this is an observational study and it can therefore not determine what kind of interventions will work. However, it can point to important areas that future efforts may be directed towards.

A public health approach to a health problem may involve five steps: (1) defining the health problem, (2) identifying the risk factors associated with the problem, (3) developing and testing community-level interventions to control or prevent the cause of the problem, (4) implementing interventions to improve the health of the population, and (5) monitoring those interventions to assess their effectiveness (Schneider, 2013). This study contributed to the first and second steps of this approach. The literature review showed that both abuse and bullying are well-established health problems and that multiple negative outcomes have been associated with the problems. Our study contributed to this literature by stressing that impaired academic achievement, dropping out from high school and work marginalization are outcomes associated with exposure to abuse and bullying. Keeping in mind the reservations listed in the previous chapter, I will now suggest implications based on the findings of our study. These suggestions may assist with the next step in the public-health approach, which is to develop and test interventions that can control or prevent the cause of the problem.

• In regards to school functioning, we found that individuals exposed to violence and bullying had impaired academic performance in junior high school as well as a higher likelihood of dropping out of high school compared with their nonexposed peers. This may indicate that this group needs interventions to manage their school work. There is not one single solution as the consequences of abuse are related to both internalizing (low self-esteem and low self-efficacy) and externalizing issues (withdrawn or anti-social behaviour). Thus, the interventions need to address this complexity by targeting multiple aspects of the individual. Moreover, the individual problems need to be seen in relation to the context in which the person is nested.
We found that the social climate played an important role in that the level of bullying in a school was associated with the individual grades of all the students. This suggests that bullying is a group phenomenon and calls for interventions that include bystanders. Research on bystanders indicates that they play a crucial role in maintaining or limiting the level of bullying in a school. Thus, bullying prevention efforts need to focus more on the bystanders and how they can help change the bullying climate in a school. Finland has been at the forefront in developing prevention programs that include bystanders. KiVa is a program that is based on the idea that the reactions of the bystanders when witnessing bullying is crucial for either maintaining or eliminating bullying (Salmivalli & Poskiparta, 2012). Rather than addressing individual predictors of bullying, the goal is to affect the behaviours of classmates by supporting the victims and thereby reducing the social rewards that the bullies gain and consequently their motivation to bully. Evaluations of the program, in terms of randomized control designs, have shown a significant reduction in bullying, specifically at the primary-school level. In addition, they have shown other effects, such as increased school satisfaction, academic motivation and academic performance as well as a reduction in internalizing problems and increased empathy and self-efficacy to defend victimized peers (Salmivalli & Poskiparta, 2012). This prevention program exemplifies the importance of emphasizing the ecology of the individual and its reciprocal interrelationship with the social context. The school climate can change individual behaviour in terms of bullying and victimization as well as internalizing outcomes associated with this. The individual may change the school climate by defending the victim rather than reinforcing the bullying behaviour and thereby reducing the level of bullying in a school. The majority of studies on bullying have focused on its individual rather than contextual consequences. Therefore, more studies need to explore the reciprocal relationship between individual predictors and the social context and its association with academic achievement. A problem with developing interventions of bullying is that it may be hard to identify the victims as they often do not report the harassment (Salmivalli & Poskiparta, 2012). This is also a general problem in studies on abuse, which brings us to the next point.
• How do we identify and help the victimized students? Our findings show that the effects of exposure last into young adulthood and that physical abuse, sexual abuse and bullying all predict work marginalization in young adulthood. This emphasizes the importance of detecting the abuse at an early age so that the negative consequences associated with the abuse may be reduced. A recent population study conducted by Thoresen and Hjemdal (2014) showed that 5% of boys and girls experience severe parental violence, and one out of 15 girls are either sexually abused before the age or 13 and/or raped before the age of 18. Only 11% of adult women who had experienced rape had ever reported it and about one-third of the women had not told anyone about the abuse before they were asked about it in the survey. This indicates that that many people go through school without disclosing abuse. Future research needs to develop systematic ways of surveying populations so that abuse can be detected at an early stage and interventions can be implemented to reduce the potential negative outcomes associated with the abuse. Moreover, our study only addressed work marginalization in young adulthood. It would be interesting to study the long-term effects through the life span to examine if marginalization endures in later stages of life. This can be done using Scandinavian registry data to track individuals for longer periods of time, without burdening the respondents.

• In regards to potential pathways between the exposure to abuse and bullying and subsequent marginalization, we found that high-school completion did not attenuate the risk of marginalization, while family support and good classmate relationships did. These findings suggest that other pathways in addition to education, such as social support, need to be explored when studying marginalization. Other pathways that may be studied are mental health, somatic health and exposure to other life adversities. These factors have all been shown to relate to both abuse and work impairment and thus deserve more attention. It would be especially interesting to study other types of life adversities in relation to physical abuse, sexual abuse and bullying as exposure to multiple types of abuse in our study had the most severe outcomes. In addition, we found that bullying often co-occurs with other major life adversities, and research has shown that it is common to be exposed to multiple rather than single types of abuse. Our study also showed different effects of
social support depending on the source of support, as peer support was associated with an increased risk of marginalization. This demonstrates the importance of studying the different sources of social support and how the source relates to the outcome.

- Finally, we were only able to measure the influence of the school level in relation to individual predictors. Thus, future research needs to explore the different ecological levels (i.e., micro, meso, exo, and macro systems) and how they relate to abuse, bullying and subsequent marginalization. For example, it would be interesting to investigate the impact of the individuals’ neighbourhoods and whether exposed individuals living in more disadvantaged communities have a higher risk of marginalization than exposed individuals living in more privileged communities. Additionally, studies on how the different levels interact are of importance. For example, how does communication between the schools and parents affect the outcomes of exposure to abuse and bullying? Moreover, international cross-cultural studies comparing macro-level influences on bullying and violence, such as legislation, governmental policies, attitudes, crime rates and the sense of community, could be of interest in comparing how structural factors affect the risk of marginalization among individuals exposed to abuse and bullying. Such research could use registry data in combination with population surveys.

Many governmental programs have already been implemented to combat the negative consequences of violence and bullying in Norway as well as marginalization among young adults. A report conducted by Halvorsen, Hansen, and Tägtström (2012) stated that, among the most successful initiatives implemented to combat youth unemployment and dropping out from high school, were intersectional and interdisciplinary efforts made among schools, labour market services and health and social services. This confirms that more complex efforts are needed. However, no efforts that the author is aware of have specifically addressed exposure to physical abuse, sexual abuse, and bullying and subsequent marginalization. The implications listed here may contribute to the development of community-level interventions to be implemented and assessed, which in turn may improve the health and well-being of individuals exposed to abuse and bullying.
10. CONCLUSION
The main objective of this thesis was to gain knowledge about the long-term consequences of exposure to violence and bullying in terms of subsequent marginalization from work and education. In addition, it was investigated whether school-level factors in interplay with the exposure influenced this association. More specifically, three sets of research questions that we sought answers to in papers I–III were presented. The questions are answered according to the findings of the three papers.

• Adolescents exposed to violence or bullying (exposed) in junior high school performed worse academically than adolescents not exposed (nonexposed) to these types of abuse. The school climate did not have a stronger impact on the academic achievement of the exposed adolescents versus the nonexposed adolescents as the school level of bullying affected all students. (Paper I)

• Exposure to violence and/or bullying in junior high school was associated with subsequent marginalization from work and education in young adulthood. High-school completion had a weak but not significant mediating effect on this potential relationship. (Paper II)

• Exposure to violence and/or bullying in junior high school was associated with receiving long-term welfare benefits in young adulthood. Social support partially moderated this relationship. (Paper III)
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## Errata

**Acronyms for type of corrections:**
- Cor.- Correction of language.
- Add.- Added text.
- Rem.- Removed text.

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A prospective study of the potential moderating role of social support in preventing marginalization among individuals exposed to life adversities

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Abstract

The long term consequences of abuse and bullying are considered to be major public health problems, both at the individual and the societal level. However, prospective epidemiological studies focusing both on abuse and bullying are lacking, and few studies have examined functioning in adulthood in terms of welfare benefit usage. This study investigates the consequences of exposure to abuse and bullying in junior high school, as measured by receiving long-term social welfare benefits in young adulthood. In addition it explores the potential moderating role of social support. Self-reported data from 13,633 junior high school students were linked to registry data on their welfare benefit usage from the age of 18 and for eight consecutive years. Cox regression analyses were applied to test the relationship between exposure to life adversities and welfare usage, and the potential moderating role of social support. The analyses showed that individuals exposed to abuse and bullying had an increased likelihood of receiving social-welfare benefits compared with individuals not exposed to these types of abuse. Exposure to multiple types of abuse led to a higher likelihood of using welfare benefits compared with single types of abuse and no abuse. The findings on the potential moderating role of social support were mixed, depending on the type of social support. Family support and classmate relationships were protective in reducing the likelihood of welfare usage, whereas peer – and teacher support showed inconsistent patterns. These results are promising in terms of preventing the long-term negative consequences of abuse and bullying.

Keywords: Abuse, Bullying, Longitudinal, Social Support, Welfare usage, Marginalization
Introduction

Exposure to physical abuse, sexual abuse and bullying are considered to be major public health problems (Gellert et al. 2010). Although the severe long-term physical and psychological health consequences have been documented (Annerbäck et al. 2012; Chartier et al. 2010; Felitti et al. 1998; Finkelhor et al. 2007; Copeland et al. 2013; Zwierzynska et al. 2004; Arseneault et al. 2010; Allison et al. 2009) few epidemiological studies have focused on the long-term consequences of abuse and bullying during adolescence and functioning in adulthood, in terms of reduced work participation and welfare usage (Strøm et al. 2013). Even less attention has been given to potential protective factors, such as social support, in preventing later marginalization among vulnerable youth.

Employment is a crucial part of our daily lives. It provides income, skill acquisition, social connections, contributes to one’s self-identity and health, and adds structure to the day (Ross and Mirowsky 1995; Caspi et al. 1998; Tam et al. 2003). Marginalization, however, such as unemployment and welfare usage, can be defined as a process by which a person is on the “sidelines” of society, moving towards social exclusion while still having a chance of inclusion (Hyggen and Hammer 2013; Normann 2007). Marginalization may have negative consequences both for the individual and society. At the individual level, marginalization may lead to or exacerbate mental and physical health problems, while at the societal level it may lead to loss of work productivity, loss of income revenue and taxes, and increased expenses in terms of welfare benefits and health-care usage (Hyggen and Hammer 2013; Ttofi and Farrington 2012; Rasmussen et al. 2010). It is therefore a public health problem that needs to be addressed further.

The few studies that have examined functioning in adulthood and reduced work participation found that individuals who experienced childhood sexual abuse, physical abuse, or both, have a higher likelihood of receiving social welfare benefits (Smith 2005). They also have an increased risk of being fired (Sansone et al. 2012), unemployment, poverty and Medicaid usage (Zielinski 2009), work impairment (Anda et al. 2004), and income deficits (Mersky and Topitzes 2010). However, these studies were limited by their use of cross-sectional and retrospective designs, a lack of sociodemographic variables, and their reliance on self-reported work performance/status. Some of the studies were also limited to low income or to small clinical samples (Sansone et al. 2012; Mersky and Topitzes 2010; Smith 2005). To the authors’ knowledge, only three previous studies have been conducted on bullying and reduced work participation. Two studies used small clinical samples, while the third used...
prospective data to document the relationship between bully victimization and work related outcomes, including: (a) unemployment; (b) having a greater number of different jobs; (c) being paid under the table; (d) having difficulties keeping jobs; and (e) having been fired (Varhama and Björkqvist 2005; Sansone et al. 2013; Wolke et al. 2013). The authors are aware of only one study that focused on both abuse and bullying and later work participation (Strøm et al. 2013). This study found that exposure to violence and bullying increased the odds of lower work participation, independent of whether the individuals completed high school.

Social support has been found to have a buffering effect for individuals exposed to life adversities, such as physical abuse, sexual abuse and bullying (Sheldon Cohen and Wills 1985), protecting them from the potential negative health effects of stressful events (Sheldon, Cohen et al. 2000). Social support may also have a main effect in that it is beneficial to health and longevity, regardless of the stress to which a person is exposed (Thoits 2011). Social support encompasses several aspects of social interaction, and an important conceptual distinction is made between received and perceived support. Sheldon Cohen and Wills (1985) found that the belief that support is available is more important for health and adjustment than actually received support. Previous research has shown both mediating and moderating effects of perceived social support on the relationship between abuse and a range of outcomes, including psychopathology (Sperry and Widom 2013; Muller and Lemieux 2000; Wilson and Scarpa 2013) and developmental outcomes (Pepin and Banyard 2006; Runtz and Schallow 1997). Similar buffering effects of social support have also been found for bullying and mental health outcomes (Davidson and Demaray 2007; Holt and Espelage 2007; Rigby 2000), student adjustment (Demaray et al. 2005) and well-being (Flaspohler et al. 2009). However, social support may not always have a positive effect in that it may involve modeling risky behaviors by one’s social network, which, in turn, may negatively affect health (Thoits 2011; Gifford-Smith and Brownell 2003). The last example reflects some of the complexities of social support.

Lack of social capital or social ties has also been found to make youth vulnerable to unemployment (Caspi et al. 1998), yet only a scarce amount of research has looked at the protective role of social support on later work-participation outcomes for individuals exposed to life adversities. However, one study on work participation found that social support was a protective pathway in the relationship between life adversities and unemployment, while another found that interpersonal problems were a risk factor for work impairment (Liu et al. 2012; Anda et al. 2004).
The Current Study

In summary, previous research indicates that there is an association between life adversities and later work impairment, and that social support may serve as a protective factor. In this study we address some of the methodological limitations of previous research by prospectively investigating the potential, long-term consequences of sexual abuse, physical abuse, and bullying—separately and in combination—on receiving long-term social welfare benefits (Aim 1). Furthermore, we explore whether social support moderates this relationship (Aim 2). The unique dataset, which combined questionnaire and registry data with a high response rate, allowed us to follow a general population of 13,633 15-year-olds from completion of high school into young adulthood, using objective measures of welfare usage.

Methods

Procedure

The baseline data are from a large health survey (The Youth Studies) conducted in six counties (Oslo, Hedmark, Oppland, Nordland, Troms, and Finnmark) in Norway from 1999 to 2004 by the Norwegian Institute of Public Health and the University of Oslo. The self-report survey was distributed to all the 10th graders in the participating counties, who completed it in the classroom. The participation was voluntary and based on signed informed consent (Søgaard and Eide 2005).

All individuals residing in Norway are registered with a unique personal identification number, which was used to link the questionnaire data with Norwegian registry data from the Historical Event Data Base (FD-Trygd). The FD-Trygd database is managed by Statistics Norway and provides information about the Norwegian citizens’ received social welfare benefits. This procedure resulted in a dataset that was used to relate the questionnaire responses for each individual at age 15–16 years to information about their social benefits from 18 years of age until February 2010. Because the data were collected at different time points for each county (from 1999 to 2004), the follow-up time ranged between 4 and 8 years. The participants signed an informed consent form at baseline indicating their acceptance of the linkage of survey data to the registry data. The study was approved by the Regional Committee for Medical and Health Research Ethics and by the Norwegian Data Inspectorate.
Participants

All registered 10th graders in the six counties were invited (N=18,455) to participate in the baseline studies. Of the invited students, 15,966 (87%) participated and 14,063 (88%) agreed to linking the data. Not all respondents answered whether they had been exposed to abuse or bullying (n=430). Thus, the sample comprised 13,633 individuals, which constitutes a response rate of 73.9% of the invited students.

Measures

Dependent variable. “Time to receiving any form of social welfare benefits” was based on registry data from the FD-Trygd database. In order to be registered as receiving social welfare benefits, different cut-off criteria were set for each of the benefits. The social welfare benefits included social assistance (at least 180 days in a year), unemployment (180 consecutive days in a year), sickness benefits (at least 180 days of 100% unemployment in a year), and a registered rehabilitation allowance, a temporary disability benefit and a vocational rehabilitation allowance. If a person met any of these criteria, he/she was registered with an event in the survival analysis. More detailed information about the social welfare benefits can be found elsewhere (Strøm et al. 2013). Individuals who emigrated, died, or who did not receive any social benefits during follow-up were censored at the end of the follow-up.

Independent variables. Sexual abuse was measured by asking the respondents one question: whether they had experienced sexual abuse within the past 12 months (e.g., indecent exposure, touching, involuntary intercourse), with a dichotomous response format (yes or no). Physical abuse/violence was measured by asking the respondents whether they had been exposed to any violence within the past 12 months (e.g., had been punched, kicked or similar events), with the response options of never, yes by youths, yes by adults, or yes by both youths and adults. Bullying in school was measured by asking the respondents one question: whether they had experienced problems with bullying in school, or on the way to or from school during the past 12 months. The response format was: never (1), sometimes (2), about once a week (3), and many times a week (4). To investigate the association between the outcome variable and each type of abuse separately and in combination, a variable was created that collapsed across the response options. Thus, the categories were: 1) Not exposed to any abuse; 2) Exposed to bullying “only”; 3)
Exposed to violence “only”; 4) Exposed to sexual abuse “only”; and 5) Exposed to 2–3 types of abuse (a combination of bullying and/or violence and/or sexual abuse).

*Sociodemographic variables.* Each respondent’s gender, age, perceived financial situation, living situation, parents’ birthplace, marital status, educational level and employment at baseline were included in the models to adjust for sociodemographic differences.

*Moderators*

*Teacher support* included four items: my teachers appreciate my opinions; my teachers appreciate me; my teachers help me with my subjects when I need it; and, my teachers help me with my personal problems if needed. Cronbach’s alpha was 0.81.

*Classmate relationships* included four items: I like my classmates; I have lots in common with my classmates; I feel attached to my classmates; and, my classmates value my opinions. Cronbach’s alpha was 0.83.

*Family support* included five items: When you think about your family, would you say that: I feel attached to my family; my family takes me seriously; my family values my opinions; I mean a lot to my family; and, I can count on my family when I need help. The Cronbach’s alpha for this scale was 0.86.

*Peer support* included four items: When you think about your friends, would you say that: I feel closely attached to my friends; my friends value my opinions; I can help/support my friends; and, I can count on my friends when I need help. The Cronbach’s alpha for this scale was 0.83.

Mean scores were calculated for each scale of four items from respondents who answered at least two items. For the family support scale, 3 of the 5 items had to be answered to be included. All items had a response format on a scale of 1 (strongly agree) to 4 (strongly disagree). The mean scores were reversed so that a score of 4 indicated strong perceived support.
Statistical methods

Chi square tests were used to examine associations between exposure to abuse, bullying and demographics. ANOVA was used to compare social support for the exposed and non-exposed. Kaplan–Meier analyses were used to compare the time to receiving social benefits for the non-exposed and the different exposure groups, using the whole cohort. Cox regression was used to test relationships of abuse and bullying in junior high school with welfare usage and also to examine whether social support served as a protective factor against receiving social welfare benefits in young adulthood among those exposed. First, univariate relationships between exposure and time to receiving social welfare benefits were tested. This was followed by hierarchical Cox regression, in which exposure to abuse and bullying, peer support, family support, teacher support and classmate relationships were first (Model I), followed by sociodemographic characteristics (Model II). Bootstrap analysis was conducted to test for significant differences between the hazards ratios for exposure in unadjusted analyses and Model I. In Model III, interactions between exposure and the social support scales were included. Model III was also used to study the effect of each social-support scale within each of the exposure groups. Missing data from the included variables in the model were removed from the Cox regression analyses. In all Cox regression analyses, ties were handled by the Efron procedure. The proportional hazard assumption was checked as described in Therneau and Grambsch (2000), using smoothed plots of Schoenfeld residuals, including confidence intervals for the social support and exposure variables, when necessary. In case of significant deviations from the proportional hazard assumption, separate analyses were conducted within two time-periods determined from inspection of the plots of the Schoenfeld residuals intervals (< 2 years and ≥ 2 years). The R (The R Foundation for Statistical Computing, Vienna, Austria) packages rms and boot were used for Cox regression, bootstrapping and testing the proportional hazard assumption. PASW Statistics 18 (formerly SPSS Statistics 18, IBM) was used for all other analyses.

Results

Demographics

The respondents were 15 years old at baseline, 18 years old when the follow-up started, and 22–26 years old at the end of follow-up. Overall, the individuals exposed to abuse reported somewhat more disadvantageous sociodemographic characteristics compared with the individuals not exposed to abuse (Table I). However, the major
trends remained the same for both groups. The majority of the respondents reported a somewhat good or good financial situation. Most had Norwegian parents who were married, and more than half of the sample lived with both parents, although a substantial proportion had divorced parents. Most of the adolescents had a father who worked full-time and a mother who worked either part-time or full-time. Finally, the majority of the parents had completed high school as their highest level of education, and about one third of the parents had some higher education (i.e., completed at least 16 years of education).

Table I about here

Prevalence of exposure to life adversities and welfare usage

Most of the respondents were not exposed to any abuse (n=9,551, 70.1%). The most frequent type of abuse was violence only (n=1,793, 13.2%), followed by bullying only (n=1,141, 8.4%), 2–3 types of abuse (n=902, 6.6%) and sexual abuse only (n=246, 1.8%). More than half (n=282, 53.4%) of all the individuals exposed to sexual abuse (n=528) had also been exposed to another type of abuse.

Of the total sample, 16.7% (2,273) received some form of welfare benefits, while the rest of the sample was not registered as having an event during the follow-up period (n=11,303). Individuals who were not exposed to abuse in junior high school had a lower likelihood (n=1,324, 13.9%) of receiving welfare benefits compared with the individuals exposed to abuse (Figure I). Individuals exposed to 2–3 types of abuse (any combination of bullying, violence or sexual abuse) had the highest risk (n=262, 29%) of receiving social welfare benefits, followed by individuals exposed to bullying only (n=279, 24.5%), violence only (n=366, 20.4%) and sexual abuse only (n=42, 17.1%).

Figure I about here

Exposure to life adversities and social support

The exposed group reported lower levels of social support compared with the non-exposed group. However, levels of perceived peer support and family support were generally high, with a mean level above 3 on a scale from 1 to 4, where 4 shows high support. Teacher and classmate relationships had a somewhat lower rating with a mean below 3 for the exposed group and 3 for the non-exposed group. The social support scales were moderately but
significantly correlated with each other, with the highest correlation being between classmate relationships and teacher support ($r = .455$, $p < .001$).

**Aim 1: Relationships between exposure to abuse and bullying in junior high school and later usage of long-term social welfare benefits.**

The first column of Table II displays the results of the univariate Cox regression analyses of the likelihood of receiving long-term social welfare benefits for each of the exposed groups compared with the non-exposed group. All of the exposed groups, except the sexual abuse only group, had a higher likelihood of receiving long-term social welfare benefits compared with the non-exposed adolescents. Individuals exposed to 2–3 types of abuse had twice the hazard of receiving benefits, followed by individuals exposed to bullying only, who had a 90% higher hazard of receiving benefits compared with the non-exposed individuals.

**Aim 2: Social support as a moderator between exposure to abuse and bullying in junior high school and later usage of long-term social welfare benefits.**

In Model 1 (Table II), when the social support scales were added to the model, the pattern remained the same, but a reduction in the hazard ratios was observed. The HR for bullied youth was reduced by 24% (reduction from HR 1.90 to 1.66), and there was a similar reduction by 17% for victims of violence, and by 60% for individuals exposed to 2–3 types of abuse. The bootstrap analyses showed that bullying only (HR ratio 1.66/1.90=.87, CI:.84--.91), violence only (HR ratio 1.35/1.52=.89, CI:.86--.91) and 2–3 types of abuse (HR ratio 1.66/2.26=.74, CI:.69--.78) significantly reduced the HR of receiving benefits when social support was added to the model. The hazard ratios were further reduced for each of the significant exposure categories when sociodemographic data were added to the model (Model II). In Model III, the interactions between the four social support scales and exposure were significant ($\chi^2 (16) = 28.19$, $p = .030$). However, when each interaction was examined individually, only the interaction between peer support and exposure was close to statistical significance ($p = .056$).

**Table II about here**

To explore the findings presented in Table II further, we examined the effect of each type of social support within each of the exposure groups (Table III). The analysis showed that family support and classmate relationships...
led to a reduced likelihood of receiving long-term social welfare benefits, in that the hazards ratios within each of the exposure groups were below 1. The results for teacher support showed the same pattern, with the exception of teacher support within the sexual abuse only group. Finally, peer support showed an inconsistent pattern, in which victims of bullying only, violence only and individuals exposed to two or more types of abuse had an increased risk of receiving benefits at higher levels of peer support.

*Table III about here*

**Testing the proportional hazard assumption**

The tests of the proportional hazard assumption indicated global deviations and significant deviations for some of the predictors in the univariate model and in Models I and II (see Appendix). Because of the statistically significant deviations from the proportional hazard assumption, especially for violence only and 2–3 types of abuse, separate analyses were conducted within different time intervals (< 2 years and ≥ 2 years). These analyses showed that compared with the non-exposed individuals, the individuals exposed to abuse and bullying had a higher likelihood of receiving long-term welfare benefits during the two first years of follow-up and that the likelihood decreased somewhat after 2 years. Therefore, the corresponding hazard ratios (HRs) from these analyses are likely to be conservative estimates. Table IV shows the hazard ratios for exposure in Model I in separate analyses, wherein the two time-periods were included. The table shows that the sexual abuse only group, compared with the no exposure group, had a higher likelihood of receiving benefits during the first two years of follow-up, but that this effect was no longer significant afterwards. Individuals exposed to bullying only, violence only and 2–3 types of abuse were likely to receive benefits throughout the follow-up period, although the likelihood was somewhat reduced after two years.

*Table IV about here*

**Discussion**

The negative consequences of exposure to bullying and abuse have been well documented. Our study adds to this literature by prospectively investigating their long-term consequences in terms of later use of welfare benefits in a large sample, using a unique data registry. The study’s first aim was to prospectively investigate whether abused
and bullied adolescents had a higher likelihood of receiving long-term social welfare benefits compared with the non-abused adolescents. Our results confirmed this expectation, indicating that individuals who have been abused or bullied are more vulnerable to struggles with work participation in young adulthood, which aligns with previous research findings (Sansone et al. 2012, 2013; Smith 2005; Mersky and Topitzes 2010; Anda et al. 2004; Varhama and Björkqvist 2005; Zielinski 2009; Wolke et al. 2013). This outcome remained true after controlling for other factors known to have an impact on receiving welfare benefits, such as parents’ employment, education and living situation (Hammer 2007). The likelihood was highest during the first two years after high school and decreased over time. The first years after high school mark a crucial developmental period from adolescence to adulthood. It is a time when many adolescents leave their parents’ home to become established on their own, finding their identity and deciding the direction of their life path (Hyggen and Hammer 2013). Research has shown that this period is associated with the highest risk of marginalization (Sletten and Hyggen 2013), which may explain why the HRs of receiving long-term welfare benefits was stronger earlier in the follow-up period. As reported by previous research, individuals who are exposed to abuse or bullying have an increased likelihood of having poor health and difficulties with social relationships, making them more vulnerable during the transition from adolescence to adulthood.

Furthermore, a cumulative effect of exposure was observed in our sample, in which individuals exposed to multiple types of abuse had a higher likelihood of receiving long-term welfare benefits compared with the other groups that were studied. This agrees with previous research indicating that individuals exposed to more than one type of abuse have more severe health effects compared with individuals exposed to one type of abuse (Annerbäck et al. 2012; Chartier et al. 2010; Felitti Md et al. 1998; Finkelhor et al. 2007). Among the single exposure groups, individuals exposed to bullying showed the highest and most consistent likelihood of receiving welfare benefits throughout the study period. This emphasizes the severe long-term consequences of bullying and why it should be regarded as seriously as other forms of abuse. Individuals exposed to sexual abuse only were likely to receive social welfare benefits during the first two years after high school, but the likelihood decreased as time went by. This can be explained by the small percentage of individuals being exposed to sexual abuse only. More than half of the individuals exposed to sexual abuse had also been exposed to another type of abuse. Thus, the sexual abuse only group may differ from the groups found in clinical studies. This does not mean that exposure to sexual abuse has less severe consequences than other types of exposures, but rather that sexual abuse victims have a higher likelihood
of being exposed to other life adversities, and that this cumulative effect may have a severe impact, such as a higher likelihood of welfare dependency.

The second aim of the study was to test whether social support would moderate the relationship between abuse/bullying and the likelihood of receiving long-term social welfare benefits. Although a large volume of research has documented the positive effect of social support, few studies have attempted to explain the possible pathways that may protect abused or bullied adolescents from later marginalization. However, some studies have stressed the importance of social relationships for vulnerable groups: (a) as a protective factor in preventing later unemployment, and (b) as a risk factor for work impairment if one has relationship problems (Liu et al. 2012; Anda et al. 2004). Our results partly support these findings. The initial analyses showed that social support moderated the reduction of the likelihood of receiving social welfare benefits for individuals exposed to violence, bullying and multiple types of abuse. However, the results were mixed when we investigated the interaction between social support and abuse and bullying. Family support and positive classmate relationships served as a protective factor for all the exposure groups, which is consistent with findings that show there are positive benefits associated with having these relationships. Both family support and positive classmate relationships may contribute to higher self-esteem, psychological well-being, healthy relationships and school connectedness (Bolger and Patterson 2003; De Ridder et al. 2012; Gallagher 2012; Sapouna and Wolke 2013; Wentzel 1998; Thompson et al. 2006) which, in turn, may improve overall health and reduce the need for social welfare. It has also been shown that family and social networks are important for work integration, with respect to establishing contacts in the labor market and getting information about potential jobs (Tovatt 2013; Sletten and Hyggen 2013). However, these mechanisms are not well understood and need to be investigated further.

Moreover, our result found an inconsistent pattern of peer support. This may be explained by the fact that abused and bullied adolescents may have a higher likelihood of displaying antisocial behavior (C. A. Smith et al. 2005). They may therefore socialize with peers who model external and risky behavior which, in turn, may lead to negative rather than positive outcomes (Thoits 2011; Gifford-Smith and Brownell 2003; Bender 2010; Gifford-Smith and Brownell). Also, some of the bullying research has shown that friendship alone cannot protect the individual from some of the negative consequences of bullying, but having less friends can lead to lower levels of delinquency (Sapouna and Wolke 2013; Rothon et al. 2011; Pouwelse et al. 2011). A possible explanation for the
small effect of teacher support in the current study may be that the social environment promoted by the teacher is reflected in the classmate relationships, rather than in teacher support itself. These findings emphasize the importance of studying each type of social support separately to determine their individual effects on exposure and receiving social welfare benefits.

Strengths and limitations

The baseline data were self-reported and no other data were gathered from other potential informants, such as parents or teachers. The measures had some weaknesses in that: (a) the severity or chronicity of the exposure was not specified; (b) it was not reported who committed the abuse (other than adults or youths for physical abuse); and, (c) the abuse was limited to physical and sexual abuse. As the different bullying roles were not specified, the victim could have been a bully and/or a victim. Furthermore, the two phenomena may occur in the same situation, such as physical abuse and bullying; therefore, it is uncertain whether respondents who answered affirmatively to both questions experienced one or two incidents.

The registry database was of good quality with few missing data. However, the prevalence of social welfare dependency may vary somewhat according to the cut-offs imposed for the duration of welfare benefits. The cut offs were set to only include long-term welfare usage, and similar cut-offs to those used in other studies were applied (De Ridder et al. 2012; Normann 2007). Not all individuals who receive some form of social welfare benefits are likely to be marginalized and they may return to work. However, this may depend on the type of social welfare benefit received. Research has also shown that the likelihood of recurring welfare usage is greater among individuals who have previously received benefits or been out of work for a longer period of time (Raaum et al. 2009; Hyggen and Hammer 2013).

Although attrition cannot be excluded, we believe that the high response rate (73.9%) of the invited 10th graders constitutes a large representative sample. This is an important strength of the study, in addition to its longitudinal design. The registry data allowed us to follow a large group of adolescents and their welfare usage for up to eight consecutive years. These data are unique to the Scandinavian countries and provide an extraordinary opportunity to conduct longitudinal studies without burdening the respondents. The current sample was gathered from six counties in Norway and is therefore considered to be fairly representative of the country. In addition, linking the registry data to the questionnaire data allowed us to investigate recent reports of abuse (within the past 12
months), rather than using retrospective data, which can result in recall bias (Wegman and Stetler 2009). The self-reported questionnaire also allowed us to investigate perceived social support, which is a valuable asset when studying its effects (Sheldon Cohen and Wills 1985). To our knowledge, this study is the first to investigate the combined influence of exposure to physical abuse, sexual abuse, and bullying during adolescence and later welfare usage, in addition to looking at social support as a possible protective pathway in preventing later marginalization.

**Implications**

This study demonstrates the serious negative long-term consequences of exposure to abuse and bullying. Thus, preventive efforts in schools to help individuals exposed to abuse and bullying should be emphasized. More research on the interrelationship between the consequences of both abuse and bullying are needed, so that comprehensive preventive efforts focusing on multiple types of life adversities can be developed.

Furthermore, this study points to social support as an important protective factor in preventing later marginalization. The results confirm the complexities of social support and the importance of specifying different types of social support. Enhancing a person’s social support network may not be efficient if the peer-network provides a negative influence. The results of the study highlight the importance of strengthening family support and improving classmate relationships for vulnerable groups, in order to prevent marginalization. Finally, more research is needed to investigate the mechanisms of social support in preventing later marginalization.

**Conclusion**

Our findings show that individuals exposed to abuse, bullying or both in junior high school have a higher likelihood of becoming marginalized as young adults compared with non-abused individuals. However, family support and classmate relationships may moderate this association in reducing the risk of later long-term welfare usage. More effort is required to build strong social support networks in junior high school and to study different types of social support and their role in preventing marginalization of vulnerable youth.
Acknowledgements

This study was financed with a grant from The Norwegian Research Council.

Ethics statement

The participants signed an informed consent form at baseline indicating their acceptance of the linkage of survey data to the registry data. The data was made anonymous, thus the researchers did not have access to any of the respondents’ identification. The study was approved by the Regional Committee for Medical and Health Research Ethics and by the Norwegian Data Inspectorate.

Conflict of interest

The authors declare that they have no conflict of interest.
References


Figure I

Proportion of having received social welfare benefits (N=13,576)

Proportion having received social welfare benefits

- 2–3 types of abuse
- Bulllying only
- Violence (by youths, adults or both) only
- Sexual abuse only
- Not exposed to abuse or bullying

$p < .001$ (log rank test)
Table I

Sociodemographic characteristics of the total sample of individuals exposed to abuse (N = 13,633)

<table>
<thead>
<tr>
<th>Sociodemographic characteristics</th>
<th>Individuals not exposed to abuse or bullying</th>
<th>Individuals exposed to abuse or bullying</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>52.5% (5016)</td>
<td>45.2% (1844)</td>
</tr>
<tr>
<td>Male</td>
<td>47.5% (4525)</td>
<td>54.8% (2238)</td>
</tr>
<tr>
<td><strong>Perceived financial situation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poor</td>
<td>2.5% (239)</td>
<td>5.0% (203)</td>
</tr>
<tr>
<td>Somewhat good</td>
<td>31.5% (2976)</td>
<td>37.1% (1497)</td>
</tr>
<tr>
<td>Good</td>
<td>56.4% (5333)</td>
<td>48.6% (1961)</td>
</tr>
<tr>
<td>Very good</td>
<td>9.6% (911)</td>
<td>9.4% (378)</td>
</tr>
<tr>
<td><strong>Parents’ marital status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married/cohabitants</td>
<td>69.5% (6622)</td>
<td>60.8% (2471)</td>
</tr>
<tr>
<td>Unmarried</td>
<td>3.3% (312)</td>
<td>4.1% (166)</td>
</tr>
<tr>
<td>Divorced/separated</td>
<td>22.6% (2158)</td>
<td>29.3% (1192)</td>
</tr>
<tr>
<td>One or both dead</td>
<td>2.8% (269)</td>
<td>3.3% (136)</td>
</tr>
<tr>
<td>Other</td>
<td>1.8% (167)</td>
<td>2.5% (100)</td>
</tr>
<tr>
<td><strong>Parents’ employment</strong>—Father</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes. full-time</td>
<td>82.4% (7674)</td>
<td>77.3% (3041)</td>
</tr>
<tr>
<td>Yes. part-time</td>
<td>6.8% (633)</td>
<td>8.0% (315)</td>
</tr>
<tr>
<td>Unemployed/on welfare</td>
<td>5.3% (498)</td>
<td>7.3% (288)</td>
</tr>
<tr>
<td>Stays at home</td>
<td>2.4% (225)</td>
<td>3.2% (126)</td>
</tr>
<tr>
<td>Goes to school/study</td>
<td>1.1% (104)</td>
<td>1.4% (55)</td>
</tr>
<tr>
<td>Dead</td>
<td>1.9% (180)</td>
<td>2.8% (111)</td>
</tr>
<tr>
<td><strong>Parents’ employment</strong>—Mother</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Category</td>
<td>2005 (%)</td>
<td>2007 (%)</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>----------</td>
<td>----------</td>
</tr>
<tr>
<td>Yes, full-time</td>
<td>59.3% (5571)</td>
<td>56.2% (2247)</td>
</tr>
<tr>
<td>Yes, part-time</td>
<td>21.7% (2041)</td>
<td>21.7% (866)</td>
</tr>
<tr>
<td>Unemployed/on welfare</td>
<td>5.1% (479)</td>
<td>7.0% (280)</td>
</tr>
<tr>
<td>Stays at home</td>
<td>9.6% (905)</td>
<td>10.1% (405)</td>
</tr>
<tr>
<td>Goes to school/study</td>
<td>3.4% (318)</td>
<td>3.9% (155)</td>
</tr>
<tr>
<td>Dead</td>
<td>0.8% (77)</td>
<td>1.1% (43)</td>
</tr>
</tbody>
</table>

**Parents’ education**

<table>
<thead>
<tr>
<th>Category</th>
<th>2005 (%)</th>
<th>2007 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highest level of education (&gt; 4 years)</td>
<td>14.5% (1382)</td>
<td>12.9% (525)</td>
</tr>
<tr>
<td>High level of education (≤ 4 years)</td>
<td>31.6% (3007)</td>
<td>29.2% (1191)</td>
</tr>
<tr>
<td>High school</td>
<td>40.3% (3841)</td>
<td>41.7% (1700)</td>
</tr>
<tr>
<td>Junior high school</td>
<td>12.5% (1191)</td>
<td>14.9% (608)</td>
</tr>
<tr>
<td>Unregistered</td>
<td>1.1% (108)</td>
<td>1.2% (49)</td>
</tr>
</tbody>
</table>

**Parents’ birthplace**

<table>
<thead>
<tr>
<th>Category</th>
<th>2005 (%)</th>
<th>2007 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Norway</td>
<td>88.5% (8401)</td>
<td>87.4% (3538)</td>
</tr>
<tr>
<td>Western country</td>
<td>0.9% (81)</td>
<td>0.9% (35)</td>
</tr>
<tr>
<td>Non-Western country</td>
<td>10.6% (1011)</td>
<td>11.8% (477)</td>
</tr>
</tbody>
</table>

**Living situation**

<table>
<thead>
<tr>
<th>Category</th>
<th>2005 (%)</th>
<th>2007 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mother and father</td>
<td>70.7% (6737)</td>
<td>61.6% (2509)</td>
</tr>
<tr>
<td>Just mother</td>
<td>12.7% (1210)</td>
<td>16.1% (655)</td>
</tr>
<tr>
<td>Just father</td>
<td>2.5% (242)</td>
<td>3.4% (137)</td>
</tr>
<tr>
<td>The same time with mother and father</td>
<td>4.8% (458)</td>
<td>5.7% (233)</td>
</tr>
<tr>
<td>Mother or father and new partner</td>
<td>8.0% (764)</td>
<td>10.3% (419)</td>
</tr>
<tr>
<td>Foster parents</td>
<td>0.5% (47)</td>
<td>1.3% (51)</td>
</tr>
<tr>
<td>Other</td>
<td>0.7% (66)</td>
<td>1.7% (71)</td>
</tr>
</tbody>
</table>

*Note:* Not all of the respondents completely reported the sociodemographic items. The n varies for each item (missing values ranges from 0.1%-2.8%).
Table II

Cox regression analyses of the relationship between exposure and receiving social welfare benefits.

<table>
<thead>
<tr>
<th></th>
<th>Model I</th>
<th>Model II</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Unadjusted HR (95% CI): p-value</td>
<td>Adjusted for social support HR (95% CI): p-value</td>
</tr>
<tr>
<td>Not exposed to abuse or bullying*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bullying only</td>
<td>1.90 (1.65, 2.19); &lt;.001</td>
<td>1.66 (1.44–1.92); &lt;.001</td>
</tr>
<tr>
<td>Violence only</td>
<td>1.52 (1.34, 1.72); &lt;.001</td>
<td>1.35 (1.18, 1.53); &lt;.001</td>
</tr>
<tr>
<td>Sexual abuse only</td>
<td>1.23 (.89, 1.71); .213</td>
<td>1.12 (.81, 1.55); .504</td>
</tr>
<tr>
<td>2–3 types of abuse</td>
<td>2.26 (1.95, 2.61); &lt;.001</td>
<td>1.66 (1.42, 1.94); &lt;.001</td>
</tr>
</tbody>
</table>

Note: Unadjusted and adjusted model, adjustment for gender, age, economic situation, parents’ education, parents’ birthplace, parents’ marital situation, father’s employment, mother’s employment, and living situation (Model I) and social support, (Model II). aReference category. P-value for Model II (χ² (30 N = 12547) = 822.68 p = < .001). P-value for interactions (Model III): (χ² (16 N = 12547) = 28.19 p = .030).
Table III

Cox regression analyses of social support within each exposure group and receiving social welfare benefits.

<table>
<thead>
<tr>
<th></th>
<th>Not exposed to abuse</th>
<th>Bullying</th>
<th>Violence</th>
<th>Sexual abuse</th>
<th>Two or more types of abuse</th>
<th>Interactions</th>
</tr>
</thead>
<tbody>
<tr>
<td>HR (95% CI):</td>
<td>. . . .</td>
<td>. . . .</td>
<td>. . . .</td>
<td>. . . .</td>
<td>. . . .</td>
<td>. . . .</td>
</tr>
<tr>
<td>p-value</td>
<td>. . . .</td>
<td>. . . .</td>
<td>. . . .</td>
<td>. . . .</td>
<td>. . . .</td>
<td>. . . .</td>
</tr>
<tr>
<td>Peer support</td>
<td>.98(.86–1.11); .750</td>
<td>.117(.92–1.51); .202</td>
<td>.185</td>
<td>.561</td>
<td>.142(1.12–1.80); .056</td>
<td></td>
</tr>
<tr>
<td>Family support</td>
<td>.87(.78–.97); .012</td>
<td>.77(.60–.97); .030</td>
<td>.196</td>
<td>.087</td>
<td>.88(.73–1.05); .675</td>
<td></td>
</tr>
<tr>
<td>Teacher support</td>
<td>.97(.88–1.07); .531</td>
<td>.98(.81–1.18); .810</td>
<td>.85(.73–.99); .041</td>
<td>.171(1.05–2.80); .031</td>
<td>.93(.78–1.10); .098</td>
<td></td>
</tr>
<tr>
<td>Classmate relationship</td>
<td>.77(.70–.85); &lt;.001</td>
<td>.99(.82–1.20); .925</td>
<td>.80(.68–.95); .011</td>
<td>.72(.46–1.13); .151</td>
<td>.84(.70–1.01); .216</td>
<td></td>
</tr>
</tbody>
</table>

Note: Model II, Including exposure, sociodemographic characteristics and interactions between social support variables and exposure. aReference category. b p-value for interaction between each social support variable and exposure. Overall p-value for interactions: (χ² (16 N = 12 547) = 27.80 p = .033). Centered values for social support scores, for use in interaction models, were chosen based on histograms: Peer support: 3.6. Family support: 3.61. Teacher support: 3. Classmate relationships: 3.06.
Table IV

Cox regression analyses of exposure and receiving social welfare benefits, including hazard ratios for the two first years of follow up and after two years of follow up time.

<table>
<thead>
<tr>
<th></th>
<th>Model I Until 2 y HR (95% CI): p-value</th>
<th>Model I After 2 y HR (95% CI): p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not exposed to abuse</td>
<td></td>
<td></td>
</tr>
<tr>
<td>or bullying*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bullying only</td>
<td>1.80 (1.42–2.27); &lt;.001</td>
<td>1.59 (1.33–1.92); &lt;.001</td>
</tr>
<tr>
<td>Violence only</td>
<td>1.55 (1.26–1.91); &lt;.001</td>
<td>1.24 (1.06–1.46); .008</td>
</tr>
<tr>
<td>Sexual abuse only</td>
<td>1.62 (1.01–2.60); .047</td>
<td>.863 (.55–1.36); .525</td>
</tr>
<tr>
<td>2–3</td>
<td>2.09 (1.65–2.65); &lt;.001</td>
<td>1.42 (1.17–1.75); .001</td>
</tr>
</tbody>
</table>

Note *Reference category. Adjusted for social support.
Appendix

Tests of the proportional hazard assumption

Univariable analysis for exposure categories

The tests of the proportional hazard assumption in the univariable analysis by exposure indicated a deviation (global p=.002), particularly for violence (p=.007) and multiple exposure types (p<0.001) compared with no exposure. The estimate was within or at the confidence bands, although decreasing effects could be noticed.

![Graph 1: Time η(t) for Exposure_categories=Violence (by youths, adults or both)](image1)

![Graph 2: Time β(t) for Exposure_categories=More than one type of exposure categories)](image2)
Univariable analysis for social support variables

In univariable models by social support variables there were significant deviations for family (p=.010) and classmate (p=.012) support.
**Model 1 and 2 for exposure categories**

In model 1 and 2 (global \( p < 0.001 \)) there were significant deviations for violence (\( p = 0.011 \) and \( 0.034 \)) and multiple exposure types in model 1 (\( p = 0.019 \)) compared with no exposure.

**Model 1**

![Model 1 Diagram](image)

**Model 2**

![Model 2 Diagram](image)
Model 2

\[ \eta(t) \text{ for Exposure categories=Violence (by youths, adults or both)} \]

![Graph showing \( \eta(t) \) over time for different exposure categories.](image-url)
Model 1 and 2 for social support variables

In both model 1 and 2, there was significant deviations for teacher support (p=.007 and .006). In both models, the estimate was above the confidence bands at later times where the plot was consistent with no effect. Generally the plots were consistent with a gradual decrease in the effects and no substantial effects from about two years.

Model 1

![Model 1 Graph]

Model 2

![Model 2 Graph]
Model 3

For model 3 there was a significant deviation (global p<.001), but no significant deviations for any interaction (p≥.055).
Appendix I

Questionnaires

- The main questionnaire for the six counties (1)
- The supplementary questionnaire for the six counties (2)
U1. EGEN HELSE

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

1.2 Har du, eller har du hatt? (Sett ett kryss for hver linje)
    Astma .............................................................. JA ☐  NEI ☐
    Høysnue (pollenallergi, allergisk reaksjon, rennende nese, avie i øynene) .............................................................. JA ☐  NEI ☐
    Eksem .............................................................. JA ☐  NEI ☐
    Diabetes (sukkersykje) .............................................................. JA ☐  NEI ☐

1.3 Har du de siste 12 mån hatt? (Sett ett kryss for hver linje)
    Ørebetennelse.............................................................. JA ☐  NEI ☐
    Halsbetennelse (minst 3 ganger).............................................................. JA ☐  NEI ☐
    Bronkitt eller lungebetennelse .............................................................. JA ☐  NEI ☐
    Psykisk plage som det er sikkert hjelp for .............................................................. JA ☐  NEI ☐
    Alvorlig skade eller sykdom .............................................................. JA ☐  NEI ☐
    Hvis du svarte «JA»; hva slags alvorlig skade eller sykdom var dette:

1.4 Har du følgende funksjonshemming? (Sett ett kryss for hver linje)
    Nei ☐  Ja, blir ☐
    Bevegelseshemming.............................................................. JA ☐  NEI ☐
    Nedsatt syn.............................................................. JA ☐  NEI ☐
    Nedsatt hørsel.............................................................. JA ☐  NEI ☐

1.5 Har du i løpet av de siste 12 mån flere ganger vært plaged med smerten? (Sett ett kryss for hver linje)
    Hode (hodepine, migrener e.l.) .............................................................. JA ☐  NEI ☐
    Nækså/skuldre .............................................................. JA ☐  NEI ☐
    Armer/kenar .............................................................. JA ☐  NEI ☐
    Mæg .............................................................. JA ☐  NEI ☐
    Rygg .............................................................. JA ☐  NEI ☐
    Hvis du svarte «NEI» på alle spørsmålene under 1.5: Hopp til U2

1.6 Har disse smertene fort til at du har vært hjemme fra skolen?
    Oppgi også ca. antall skoledager de siste 12 mån: (Sett bare ett kryss)
    Nei ☐  Ja, 1-2 dager ☐  Ja, 3-5 dager ☐  Ja, 6-10 dager ☐  Ja, mer enn 10 dager ☐
    1  2  3  4  5  JA ☐  NEI ☐

1.7 Har smertene fort til redusert aktivitet i fritida? ...... ☐

U2. TANNHELSE

2.1 Mener du at du har bedre eller dårligere tenner enn andre ungdommer på din alder? (Sett bare ett kryss)
    Bedre ☐  Som de fleste ☐  Dårligere ☐  Vet ikke ☐
    1  2  3  4

2.2 Bryr du deg om at du har fine tenner? (Sett bare ett kryss)
    Ja, mye ☐  Ja, litt ☐  Nei ☐
    1  2  3

2.3 Hvor ofte puser du tennene dine? (Sett bare ett kryss)
    Fleire ganger om dagen ☐  En gang om dagen ☐  Annenhver dag ☐  Sjeldnere enn annenhver dag ☐
    1  2  3

2.4 Har du hatt tankeverk på grunn av hvull? (Sett eventuelt flere kryss)
    Ja, men før jeg begynte på skolen ☐
    Ja, etter at jeg begynte på skolen ☐
    Nei ☐  Aldri ☐  Vet ikke ☐
    1  2  3

U3. MOSJON OG FYSISK AKTIVITET

3.1 Utenom skoletid: Hvor mange ganger iuka driver du idrett/mosjon slik at du blir andypusten eller svett?
    ☐ ganger pr. uke

3.2 Omtrent hvor mange timer pr. uke bruker du på dette?
    0 timer ☐  1-2 timer ☐  3-4 timer ☐  5-7 timer ☐  8-10 timer ☐  11 timer eller mer ☐
    1  2  3  4  5  6  JA ☐  NEI ☐

3.3 Driver du med konkurranseldrett? (individuelt eller på lag)
    ☐

3.4 Bruker du naturen (skog og mark) til turer?
    Aldri ☐  Ja, mindre enn 1 gang i måneden ☐  Ja, 1 gang i måneden eller mer ☐
    1  2  3

3.5 Utenom skoletid: Hvor mange timer pr. skoledag. (mandag til fredag) sitter du i gjenomsnitt foran TV, video og/eller PC (spill og internett)?
    Inn til 1 time ☐  1-2 timer ☐  3-5 timer ☐  Mer enn 5 timer ☐
    1  2  3  4

3.6 Hvorav kommer du deg normalt til skolen
    i sommerhalvåret? (Sett bare ett kryss)
    Med buss/tog e.l. (offentlig transport) ☐
    Med bil/moped ☐
    På sykkelen ☐
    Til føt ☐
    1  2  3  4

3.7 Hvor lang skolevei har du?
    Mindre enn 2 km ☐  2-4 km ☐  Over 4 km ☐
    1  2  3
U4. RØYKING, RUSMIDLER OG DOP

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

<table>
<thead>
<tr>
<th>Ja</th>
<th>Aldri</th>
<th>Ja, men jeg har sluttet</th>
<th>Ja, av og til</th>
<th>Ja, hver dag</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

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

4.2 Hvor gammel var du da du begynte å røyke? [ ] År

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

<table>
<thead>
<tr>
<th>Ja</th>
<th>Aldri</th>
<th>Ja, men jeg har sluttet</th>
<th>Ja, av og til</th>
<th>Ja, hver dag</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Ja, mor</th>
<th>Ja, far</th>
<th>Ja, søskene</th>
<th>Ja, andre</th>
<th>NEI</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4.5 Har du noen gang drukket alkohol? 

(Åkterk: alkoholholdig øl, rusbrus, vin, brennevin eller hjemmebrent)

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

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

<table>
<thead>
<tr>
<th>Ja</th>
<th>Aldri</th>
<th>Ja, en gang</th>
<th>2-3 ganger</th>
<th>4-10 ganger</th>
<th>Enn 10 ganger</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4.7 Omtrent hvor ofte har du i løpet av det siste året drukket alkohol? (Slett bare ett kryss)

<table>
<thead>
<tr>
<th>4-7 ganger</th>
<th>2-3 ganger</th>
<th>ca. 1 gang</th>
<th>2-3 ganger pr. måned</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

Omtrent 1 gang i måneden

<table>
<thead>
<tr>
<th>Noen få ganger</th>
<th>Siste året</th>
<th>Aldri</th>
<th>Har ikke drukket alkohol siste året</th>
<th>Har aldri drukket alkohol</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Ja</th>
<th>Aldri</th>
<th>Ja, en gang</th>
<th>Flere ganger</th>
<th>Ja, jeg bruker det regelmessig</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

U5. MAT, DRIKKE OG SPISEVANER

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

<table>
<thead>
<tr>
<th>Sjelden</th>
<th>Aldri</th>
<th>Sjelden pr. måned</th>
<th>1-2 g. pr. dag</th>
<th>2-3 g. el. mer pr. dag</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

Frukter, bær

<table>
<thead>
<tr>
<th>Ost (alle typer)</th>
<th>Poteter</th>
<th>Koke grønnsaker</th>
<th>Rå grønnsaker/salat</th>
<th>Felt fisk (Åkter, laks, orret, makrell, skje)</th>
<th>Sjokolade/smågodt</th>
<th>Chips, potetgull</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5.2 Hvor mye drikker du vanligvis av følgende? (Slett ett kryss pr. linje)

<table>
<thead>
<tr>
<th>Sjelden</th>
<th>Aldri</th>
<th>1-6 glass pr. pr. dag</th>
<th>1 glass pr. dag</th>
<th>2-3 glass pr. dag</th>
<th>4 glass el. mer pr. dag</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

Helmelk, kaffi, yoghurt

<table>
<thead>
<tr>
<th>Løkemelk, cultura, lettyoghurt</th>
<th>Skummet melk (sur/kolt)</th>
<th>Cola/brus med sukker</th>
<th>Cola/brus «light»</th>
<th>Fruktjuice</th>
<th>Saft</th>
<th>Vann</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5.3 Hva slags fett bruker du oftest på brodet? (Slett bare ett kryss)

<table>
<thead>
<tr>
<th>Sjelden</th>
<th>Aldri</th>
<th>1-2 g. pr. pr. dag</th>
<th>3-4 ganger pr. dag</th>
<th>5-6 ganger pr. dag</th>
<th>Hver dag</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Smør/hard margarin</th>
<th>Myk/lett margarin</th>
<th>Oljer</th>
<th>Bruker ikke</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

5.4 Hvor ofte spiser du disse måltidene en vanlig uke?

(Åkterk: kryss for hver linje)

<table>
<thead>
<tr>
<th>Sjelden</th>
<th>Aldri</th>
<th>1-2 g. pr. dag</th>
<th>3-4 ganger pr. dag</th>
<th>5-6 ganger pr. dag</th>
<th>Hver dag</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

Frokost

<table>
<thead>
<tr>
<th>Formiddagsmat/matpakke</th>
<th>Middag</th>
<th>Hvert dag</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

5.5 Hvor mye penger bruker du i uka på snap, snacks, cola/brus og gatekjøkkenet? (Slett bare ett kryss)

<table>
<thead>
<tr>
<th>0-25 kr</th>
<th>26-50 kr</th>
<th>51-100 kr</th>
<th>101-150 kr</th>
<th>151-200 kr</th>
<th>Over 200 kr</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

5.6 Bruker du følgende kosttilskudd? (Åkterk: kryss for hver linje)

<table>
<thead>
<tr>
<th>Tran, tranksiler, fiskeoljekapsler</th>
<th>Vitamin- eller mineraltilskudd</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Ja, aldri</th>
<th>Ja, tidligere</th>
<th>Ja, nå</th>
<th>Ja, hele tiden</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

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

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

<table>
<thead>
<tr>
<th>Jeg spiser mindre</th>
<th>Jeg fatter</th>
<th>Jeg trener mer</th>
<th>Jeg kaster opp</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Jeg bruker avfrøingspiller eller vanngjørende midler

<table>
<thead>
<tr>
<th>Jeg tar mettende eller suit-dempende piller</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

5.9 Hva veide du sist du veide deg? [ ] hele kg

5.10 Hvor høy var du sist du målte deg? [ ] hele cm

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

<table>
<thead>
<tr>
<th>Vekta er OK</th>
<th>Veier litt for mye</th>
<th>Veier alt for lite</th>
<th>Veier litt for lite</th>
<th>Veier alt for lite</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Enlig</th>
<th>Litt enlig</th>
<th>Ikke enlig</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5.13 Hvilken vekta ville du vært tilfreds med nå (din «tvivelsvekt»)? [ ] hele kg

5.14 Har du noen gang vært til behandling for spiseforstyrrelser?

<table>
<thead>
<tr>
<th>Ja</th>
<th>Aldri</th>
<th>Nei, men jeg burde vært</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>
6.1 Under finner du en liste over ulike plager. Har du opplevd noe av dette de siste 12 månedene? (Seitt ett kryss for hver linje)

- Ikke plaget
- Lite plaget
- Ganske mye
- Veldig mye

<table>
<thead>
<tr>
<th>Plutselig frykt uten grunn</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Føler deg redd eller engstelig</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Matthet eller svimmelhet</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Føler deg anspent eller oppjaget</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lett for å klandre deg selv</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Søvnproblemer</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nedtrykt, tungsinnd (trist)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Følelse av å være unyttig, lite verd</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Følelse av at alt er et silt</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Følelse av håpleshet mht. framtida</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

- Helt galt
- Nokså galt
- Nokså rigtig
- Helt rigtig

Jeg klarer alltid å læse vanskelige problemer hvis jeg prøver hardt nok.

Hvis noen motarbeider meg, så kan jeg finne måter og veier for å få det som jeg vil.

Hvis jeg har et problem og står helt fast, så finner jeg vanligvis en vei ut.

Jeg føler meg trygg på at jeg ville kunne ta av unitetene for å be hindre endelser på en effektiv måte.

Jeg beholder noen når jeg møter vanskeligheter, fordi jeg stoler på mine evner til å mestre/få til ting.

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

- Ja
- Nei

| Foreldre (foresatte) har blitt arbeidslese eller uferdig
| Avlorig sykdom eller skade hos deg selv
| Avlorig sykdom eller skade hos noen som står deg nær
| Dødsfall hos noen som stod deg nær
| Seksuelle overgrep (f.eks. blutting, betoling, utvillig sameie m.m.)

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

- Nei
- Ja, av og til
- Ja, ofte

| Stort arbeidspres på skolen
| Stort press fra andre for å lykkes
gjøre det bra på skolen
| Store vansker med å konsentrere deg i timen
| Store vansker med å forstå lærenen når hun/han underviser

6.5 Har fagpersonell sagt at du har eller har hatt læse- og skrivevansker. (Seitt bare ett kryss)

- Ja
- Nei

6.6 Har du i løpet av de siste 12 månedene opplevd problemer med mobbing på skolen/skolevælen? (Seitt bare ett kryss)

- Aldri
- Av og til
- Omtrent en gang i uka
- Fiere ganger i uka

7.1 Har du de siste 12 månedene selv brukt?:
(Ingen ganger 1-3 ganger 4 ganger eller mer)

<table>
<thead>
<tr>
<th>Skolehelsetjenesten</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Helsestasjon for ungdom</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vanlig lege (Allmennpraktiserende lege)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PP-tjenesten</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Psykolog eller psykiater (privat eller på poliklinik)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

U8. UTDANNING OG UTDANNINGSPLANER

8.1 Hva er den høyeste utdanning du har tenkt å ta?:

1. Universitet eller høyskoleutdanning av høyere grad
2. F.eks. lektor, advokat, sivilingeniør, tannlege, lege, psykolog, siviløkonom
3. Universitet eller høyskoleutdanning på mellomnivå
4. F.eks. cand.mag., lærer, sosionom, sykepleier, politi, ingeniør, journalist
5. Videregående allmennfaglig/economisk administrative fag
6. Yrkesskifteutdanning på videregående skole
7. Ett år på videregående skole
8. Annet:

8.2 Hvor mye egne penger brukte du siste uke? (Småinntektplass større gjenstander som f.eks. musikkinstrument)

8.3 Har du lønnet arbeid i løpet av skoleåret?

8.4 Hvilken karakter fikk du siste gangen i karakterboken?

U9. OPPVEKST OG TILHØRIGHET

9.1 Hvor lenge har du bodd i Norge?

9.2 Hvor lenge har du bodd der du bor nå?

9.3 Har du flyttet i løpet av de siste 5 årene?

9.4 Mine foreldre er:

9.5 Hvor er dine foreldre født?
HER COMMER FLERE SPØRSMÅL!!!
Du synes kanskje vi allerede har spurt deg om det meste - men enda er det mer vi gerne vil vite. Dette skjemaet har blant annet spørsmål om de sterke og svake sidene dine, om skolesituasjonen, om kultur og kontakt og om idrett og aktivitet.
Vi håper du tar deg tid til å tenke gjennom det vi spør om og at du svarer det du mener er riktig for deg.
Lykke til!

<table>
<thead>
<tr>
<th>Stemmer</th>
<th>Stemmer</th>
<th>Stemmer</th>
</tr>
</thead>
<tbody>
<tr>
<td>ikke</td>
<td>delvis</td>
<td>helt</td>
</tr>
</tbody>
</table>

**U/T. DINE STERKE OG SVAKE SIDER**

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

<table>
<thead>
<tr>
<th>Stemmer</th>
<th>Stemmer</th>
<th>Stemmer</th>
</tr>
</thead>
<tbody>
<tr>
<td>ikke</td>
<td>delvis</td>
<td>helt</td>
</tr>
</tbody>
</table>

- Jeg prøver å være hyggelig mot andre.
- Jeg bryr meg om hva de føler.
- Jeg er rasfas. Jeg kan ikke være lenge i ro.
- Jeg får ofte hodepine, vondt i magen eller kvalme.
- Jeg eler gjerne med andre (mat, spill, blyanter osv.)
- Jeg blir veldig sint og har et hassig temperament.
- Jeg er vanligvis for meg selv.
- Jeg gjør som regel ting steine.
- Jeg gjør vanligvis det jeg får bestemt om.
- Jeg bekymrer meg mye.
- Jeg er hjelpsom hvis noen er saur.
- Jeg er stadig uralig, det klibber i kroppen.
- Jeg har en eller flere gode vänner.
- Jeg slåss mye. Jeg kan prøve andre til å gjøre det jeg vil.
- Jeg er ofte lei meg, nedfor eller på gråten.
- Jeg blir som regel likt av andre på min ålder.
- Jeg blir lett fortrylt. Jeg synes det er vanskelig å koncentrere meg.
- Jeg blir nervøs i nye situasjoner.
- Jeg blir lett utakker.
- Jeg er en av dem der de yngre enn meg.
- Jeg blir ofte beskyldt for å lyve eller jukse.
- Andre barn eller unger etter eller på meg.
- Jeg tilbryr meg ofte å hjelpe andre (familie, lærere, andre barn, unger).
- Jeg tenker seg om for jeg handler (gjør noe).
- Jeg tar ting som ikke er mine, hjemme, på skolen eller andre steder.
- Jeg kommer bedre overens med voksne enn de på min egen ålder.
- Jeg er redd for mine. Jeg blir lett skremt.
- Jeg fullfører oppgaver. Jeg er god til å holde på oppmerksomheten.
2.1 Har du i løpet av de siste 12 månedene hatt noen av disse problemene? (Sett ett kryss for hver linje)

<table>
<thead>
<tr>
<th>Kranker, eller konflikt</th>
<th>Med foreldre direkte</th>
<th>Bekymringer i forhold til seksualitet</th>
<th>Psykiske problemer hos foreldre/foresatte</th>
<th>Problemer i forhold til venner</th>
<th>Økonomiske problemer hos foreldre/foresatte</th>
<th>Rusproblemer hos foreldre/foresatte</th>
<th>Andre problemer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nei</td>
<td>Ja</td>
<td>Av og til</td>
<td>Fierce ganger</td>
<td>Sjovt ofte</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2.2 Helt | Delvis | Uenig |

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

Det er ofte vanskelig for ungdom med norsk og innvandrerbakgrunn å være sammen på friluftsarbeid, fordi vi har ulike regler vi må følge...

Førstekunstene min er godt kjennskap til hva ungdommen har i Norge.

Jeg synes det er vanskelig å destemme om jeg skal leke som nordmenn, eller som folk fra andre land og kulturer...

Jeg synes det er vanskelig å vælge om jeg skal leke som nordmenn, eller som folk fra andre land og kulturer...

Det er ofte vanskelig for ungdom med norsk og innvandrerbakgrunn å være sammen på friluftsarbeid, fordi vi har ulike regler vi må følge...

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

Jeg trives i klassen...
Jeg har mye til felles med andre i klassen...
Jeg føler meg knyttet til klassen...
Klassen legger vekt på mine meringer...
Lærerne legger vekt på min hengivenhet...
Lærerne mine setter pris på meg...
Lærerne hjelper meg med tøfler...
Lærerne hjelper meg med personlige problemer hvis jeg trenger det...

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

<table>
<thead>
<tr>
<th>Blant ungdom</th>
<th>Alltid lett</th>
<th>Som regel lett</th>
<th>Som regel vanskelig</th>
<th>Alltid vanskelig</th>
</tr>
</thead>
<tbody>
<tr>
<td>med norsk bakgrunn</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>med innvandrerbakgrunn</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3.3 Blant ungdom | Alltid lett | Som regel lett | Som regel vanskelig | Alltid vanskelig |

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

<table>
<thead>
<tr>
<th>Å tilfredsstille behovene til familien din, selv om dine egne</th>
<th>Meget viktig</th>
<th>Ganske viktig</th>
<th>Litt viktig</th>
<th>Ikke viktig i det hele tatt</th>
</tr>
</thead>
<tbody>
<tr>
<td>Å unngå krangel med andre medlemmer av familien</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Å sette familienens behov foran dine egne</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Å dele tingene (gjenstander) dine med andre i familien</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Å dele pengene dine med familien din</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Å leve opp til forventninga fra familien din</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4.3 Når folk med forskjellig bakgrunn er sammen, kan noen føle seg urettferdig behandlet. (Sett ett kryss for hver linje)

Jeg synes at andre har oppført seg urettferdig eller negativt overfor folk fra min kultur...
Jeg føler meg ikke akseptert av folk fra andre kulturer...
Jeg føler meg ikke akseptert av folk fra andre kulturer...
Jeg føler meg ikke akseptert av folk fra andre kulturer...
Jeg føler meg ikke akseptert av folk fra andre kulturer...
Jeg føler meg ikke akseptert av folk fra andre kulturer...
Jeg føler meg ikke akseptert av folk fra andre kulturer...

4.3 Når folk med forskjellig bakgrunn er sammen, kan noen føle seg urettferdig behandlet. (Sett ett kryss for hver linje)

Jeg synes at andre har oppført seg urettferdig eller negativt overfor folk fra min kultur...
Jeg føler meg ikke akseptert av folk fra andre kulturer...
Jeg føler meg ikke akseptert av folk fra andre kulturer...
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Jeg føler meg ikke akseptert av folk fra andre kulturer...
Jeg føler meg ikke akseptert av folk fra andre kulturer...
Jeg føler meg ikke akseptert av folk fra andre kulturer...

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

Jeg trives i klassen...
Jeg har mye til felles med andre i klassen...
Jeg føler meg knyttet til klassen...
Klassen legger vekt på mine meringer...
Lærerne legger vekt på min hengivenhet...
Lærerne mine setter pris på meg...
Lærerne hjelper meg med tøfler...
Lærerne hjelper meg med personlige problemer hvis jeg trenger det...

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

Jeg synes at andre har oppført seg urettferdig eller negativt overfor folk fra min kultur...
Jeg føler meg ikke akseptert av folk fra andre kulturer...
Jeg føler meg ikke akseptert av folk fra andre kulturer...
Jeg føler meg ikke akseptert av folk fra andre kulturer...
Jeg føler meg ikke akseptert av folk fra andre kulturer...
Jeg føler meg ikke akseptert av folk fra andre kulturer...
Jeg føler meg ikke akseptert av folk fra andre kulturer...

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

Jeg synes at andre har oppført seg urettferdig eller negativt overfor folk fra min kultur...
Jeg føler meg ikke akseptert av folk fra andre kulturer...
Jeg føler meg ikke akseptert av folk fra andre kulturer...
Jeg føler meg ikke akseptert av folk fra andre kulturer...
Jeg føler meg ikke akseptert av folk fra andre kulturer...
Jeg føler meg ikke akseptert av folk fra andre kulturer...
Jeg føler meg ikke akseptert av folk fra andre kulturer...

5.4 Når folk med forskjellig bakgrunn er sammen, kan noen føle seg urettferdig behandlet. (Sett ett kryss for hver linje)

Jeg synes at andre har oppført seg urettferdig eller negativt overfor folk fra min kultur...
Jeg føler meg ikke akseptert av folk fra andre kulturer...
Jeg føler meg ikke akseptert av folk fra andre kulturer...
Jeg føler meg ikke akseptert av folk fra andre kulturer...
Jeg føler meg ikke akseptert av folk fra andre kulturer...
Jeg føler meg ikke akseptert av folk fra andre kulturer...
Jeg føler meg ikke akseptert av folk fra andre kulturer...
6.1 Har noen av foreldrene dina opplevd krig og følgene av krig på nært hold? □ □ □ □
6.2 Har du noen gang opplevd krig og følgene av krig på nært hold? □ □ □ □

7.1 Har du opplevd sorg, som har eller har hatt betydning for din helse? (Sett bare ett kryss)
□ Ja, en gang før □ Ja, flere ganger før □ Ja, nå □ Nei
□ 1 □ 2 □ 3 □ 4

7.2 Hvilke helseplager rikk du i så fall av hendelsen?
□ Den økse, hvis du har opplevd flere
□ Mest knapper og lommer □ Mest følelsesmæssige □ Bagge ombrant ikke mye
□ 1 □ 2 □ 3 □ 4

7.3 Omtrent hvor lenge varte/har helseplagene vart?
□ Uker eller □ Måneder eller □ År

7.4 Hvis du har opplevd slik sorg, var den en følge av?
□ Den økse, hvis du har opplevd flere
□ Dødsfall av: □ Ja □ Nei
□ Foreldre: □ Ja □ Nei
□ Besteforeldre: □ Ja □ Nei
□ Søsken: □ Ja □ Nei
□ Annen nærmeste: □ Ja □ Nei
□ Venn: □ Ja □ Nei
□ Andre: □ Ja □ Nei
□ Alvorlig sykdom: □ Ja □ Nei
□ Kjønnsrelatert: □ Ja □ Nei
□ Annen: □ Ja □ Nei
□ Hvis «Ja» på annet, spesifiser:

7.5 Har du fått profesjonell hjelp etter hendelsen?
□ Den økse, hvis du har opplevd flere
□ Hvis «Ja»: Kryss av for hvem som har gitt denne hjelpen:
□ Afmannpraktiser □ Ja □ Nei
□ Psykiater □ Ja □ Nei
□ Psykolog □ Ja □ Nei
□ Lærer □ Ja □ Nei
□ Annen rådgiver □ Ja □ Nei
□ Prest □ Ja □ Nei
□ Sorggruppe □ Ja □ Nei
□ Annen: □ Ja □ Nei
□ Hvis «Ja» på annet, spesifiser:

7.6 Fikk du medisiner på resept som en del av behandlingen? (Ellers ganger, hvis du har opplevd flere sorgen)
□ Ja □ Nei

8.1 Dersom du skulle til tannlege i morgen, hva ville du da føle?
□ Nei tannlege bestemmer også (siste tannlege)
(Sett kryss ved det alternativet som passer best)
□ Jeg ville se frem til det som en ganske hyggelig opplevelse
□ Jeg ville se frem til det som i øvrig mildere
□ Jeg ville se frem til det som trenger hjelp, og væsken
□ Jeg ville se frem til det som er nødvendig, og forskjell i
□ Jeg ville ikke se frem til det som er nødvendig, og vondt
□ Jeg ville ikke se frem til det som er nødvendig, og vondt
□ Jeg ville ikke se frem til det som er nødvendig, og vondt

8.2 Når du venter på tannlegens venteværelse, eller ventet på å bli hentet til tannlegen, hvordan føler du deg da?
□ Den økse, hvis du har opplevd flere
□ Avslappet □ Ja □ Nei
□ Litt urolig □ Ja □ Nei
□ Ansvarlig, nervøs □ Ja □ Nei
□ Redd, engstelig □ Ja □ Nei
□ Så redd at jeg av og til begynner å svette eller nesten føler meg syk

8.3 Når du sitter i tannlegestolen og vent på at tannlegen skal begynne behandlingen, hvordan føler du deg da?
□ Den økse, hvis du har opplevd flere
□ Avslappet □ Ja □ Nei
□ Litt urolig □ Ja □ Nei
□ Ansvarlig, nervøs □ Ja □ Nei
□ Redd, engstelig □ Ja □ Nei
□ Så redd at jeg av og til begynner å svette eller nesten føler meg syk

8.4 Tenk deg at du sitter i tannlegestolen og skal få behandlingen. Mens du sitter og venten på at tannlegene skal få innbenede instrumentene som bruker til å putte og skrape med, hvordan føler du deg da?
□ Den økse, hvis du har opplevd flere
□ Avslappet □ Ja □ Nei
□ Litt urolig □ Ja □ Nei
□ Ansvarlig, nervøs □ Ja □ Nei
□ Redd, engstelig □ Ja □ Nei
□ Så redd at jeg av og til begynner å svette eller nesten føler meg syk

8.5 Hvor red er du for å få utført tannbehandlingen, alle forhold tatt i betraktning?
□ Den økse, hvis du har opplevd flere
□ Ikke i det hele tatt □ Ja □ Nei
□ Litt □ Ja □ Nei
□ Nå □ Ja □ Nei
□ Mye □ Ja □ Nei
□ Veldig mye □ Ja □ Nei
9.1 Når du er passasjer i bil, bruker du biltelef
når du sitter? (Sett ett kryss for hver linje)

<table>
<thead>
<tr>
<th>Aldri</th>
<th>Sjelden</th>
<th>Otte</th>
<th>Aldig</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

Bek: 1 2 3 4

9.2 Hvis du har støtt slålam / utfør i løpet av de siste 12 månedene, har du da fått kontrollert bindingene i forhold til din vekt?

- Ja
- Nei
- Helt ikke slålam på ski

9.3 Bruakte du legg/knebeskyttér ved dine aktiviteter i løpet av de siste 12 månedene? (Sett ett kryss for hver linje)

<table>
<thead>
<tr>
<th>Aldri</th>
<th>Sjelden</th>
<th>Otte</th>
<th>Aldig</th>
<th>Ikke aktuelt</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

Hvis "Annen aktivitet" - hvilken:

9.4 Bruakte du håndledd- / alvebeskyttér ved dine aktiviteter i løpet av de siste 12 månedene? (Sett ett kryss for hver linje)

<table>
<thead>
<tr>
<th>Aldri</th>
<th>Sjelden</th>
<th>Otte</th>
<th>Aldig</th>
<th>Ikke aktuelt</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

Hvis "Annen aktivitet" - hvilken:

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

<table>
<thead>
<tr>
<th>Aldri</th>
<th>Sjelden</th>
<th>Otte</th>
<th>Aldig</th>
<th>Ikke aktuelt</th>
</tr>
</thead>
<tbody>
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Hvis "Annen aktivitet" - hvilken:

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

Vinter er fra oktober til mars. Sommer er fra april til september. (Sett ett kryss for hver linje)

<table>
<thead>
<tr>
<th></th>
<th>Aldri</th>
<th>1-5 ganger i sesongen</th>
<th>1-2 ganger imnd.</th>
<th>Ganger lukka</th>
<th>Flere ganger lukka</th>
</tr>
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</table>

- Sykling: vinter, sommer, ikke aktuelt
- Rullestykter / rullebrett: vinter, sommer
- Håndball: vinter, sommer
- Fotball: vinter, sommer
- Annen ballsport: vinter, sommer
- Slålåm / utfør: vinter, sommer
- Snobrett: vinter, sommer
- Ishockey: vinter, sommer
- Ridning: vinter, sommer
- TURN: vinter, sommer
- Kampang: vinter, sommer
- Fjellbrett: vinter, sommer
- Svømming i basseng: vinter, sommer
- Slålåm / utfør: vinter, sommer
- Snobrett: vinter, sommer
- Telemark: vinter, sommer
- Langrenn: vinter, sommer
<p>| | | | | | |</p>
<table>
<thead>
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</tbody>
</table>

9.4 (Annen sorg): ikke aktuelt
9.5 (Annen hjelp): ikke aktuelt
Appendix II

Information brochures

- Parents (1)
- Youth (2)
Helseundersøkelsen i Oslo er et samarbeid mellom:

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

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

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

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

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

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

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

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

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

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

Hvordan bore ungdommene være med i denne helseundersøkelsen?
Hva vil vi med ungdomsundersøkelsen?

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

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

4 Hvordan foregår undersøkelsen?
Vi spør bl.a. om sykdom og helse, kosthold, idrett, nærmiljøet og hvordan
ungdommen selv synes de har det.
Må alle være med?
Undersøkelsen er frivillig. Vi håper at alle deltar. De som ikke deltager i
undersøkelsen, bruker tiden til vanlig skolearbeid.

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

4 Hvem godkjenner undersøkelsen?
Undersøkelsen er forelagt Den regionale komite for medisinsk
forskningsteknikk, og den er godkjent av Datastilsynet.

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

Undersøkelsen er tilknyttet Oslos 1000-års jubileum.
Helseundersøkelsen i Oslo er et samarbeid mellom:

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

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Institutt for allmennevitsenskap og samfunnsmedisin
Postboks 1130 Blindern, 0317 OSLO.
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**Statens helseundersøkelsesbu**
Postboks 8155 Dep., 0033 OSLO
Tlf. 22 24 21 00 (9-15)
e-post: post@shus.no

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

Kontaktperson for ungdomsundersøkelsen:
tove.æte@shus.no

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

**Barn og unges Kontakttелефon:** **Tlf. 80 03 33 21**

Kontakttелефonen er åpen mellom kl. 14.00 og 20.00 alle ukedager, fra mandag til fredag.
Hei!

Hvordan har du det?
Hvordan er helsen din for tida?
Hvordan synes du det er å være ungdom i Oslo?

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

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

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

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

Hvordan foregår undersøkelsen?

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

Hvordan skal resultatene brukes?


Undersøkelsen er frivillig.

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

Hvem står bak undersøkelsen?

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

Du skal vite at:
alle som jobber med helseundersøkelsen har taushetsplikt
resultatene skal brukes i planlegging og forskning og blir behandlet helt fortroelig
dine foreldre/foresatte er informert om undersøkelsen
det er viktig å nettopp da delta
Appendix III

Informed consent

- Informed consent for the youth in the six counties
SAMTYKKKEERKLÆRING
for deltakelse i Helseundersøkelsen i Oslo

UNGDOM

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

1. Jeg samtykker i at svarene mine kan brukes til planlegging og forskning.
2. Jeg samtykker i at jeg på et senere tidspunkt kan bli kontaktet og få tilbud om å være med i nye undersøkelser.

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

Lim inn etikett med navn og personnummer

Elevens underskrift

Dato