Predictors of mental health problems among adolescents:

The Relationship between Life Events, Bullying, and Resilience

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Preface

The study of children's mental health can have profound influence on how children are brought up, cared for and educated. Research related to the mental health of children and child welfare have been an interest for the me as long as I can remember and today I am proud to be one of the staff member at The Regional Centre for Child and Youth Mental Health and Child Welfare (RKBU-North) at the Faculty of Health Sciences, UiT. Originally it was planned to write a master thesis on language learning for children at Concordia Language Villages, Minnesota, USA and I spent 3 weeks at the camp conducting a survey at three different locations, in addition to a follow up 6 weeks later and 6 months later. For this work, data collection, through recruitment, was conducted by me, as was the role of experimenter. Unfortunately, I found the data too small to be continued. Through my work at RKBU-North I was introduced to the idea of writing a master thesis in the field of mental health problems among adolescence by my supervisor Professor, Ph.d. Monica Martinussen. The present project has been a challenging, but also a very interesting and educational task. This survey is a result from a request from *Oppvekstetaten* and *kommunalsjef* from a municipality in Northern-Norway who initiated this cooperation where the aim was to get better knowledge about the mental health problems among adolescents and the municipality planned to use this survey for preventative work. In addition, I wanted to examine different health determinants that might affect mental health problems for the adolescents. This study is part of a larger project planned to take place every year for three years. Both supervisors have contributed to different approaches and discussions around the compilation of this master thesis. Collection of literature and analyzes of data were done by me, with guidance from my supervisors.

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Abstract (Norwegian)

Denne masteroppgaven undersøkte prediktorer for psykiske problemer som demografiske variabler, livshendelser, mobbing, nettmobbing og resiliens, i tillegg til å kartlegge omfanget av psykiske helseplager blant ungdommene i en liten kommune i Nord-Norge. Utvalget (*N* =158) var elever ved flere ungdomsskoler i kommunen (46 % jenter og 54 % gutter, svarprosent 31 %). Deltagerne fullførte en online spørreundersøkelse om selvrapportert psykisk helse (SDQ; Hyperaktivitet/Uoppmerksomhet, Relasjonsproblemer, Atferdsproblemer, Emosjonelle Problemer og Totale vansker), demografiske variabler, risikovariabler (negative livshendelser, mobbing, og nettmobbing) og beskyttende variabler (resiliens). Deskriptiv statistikk og korrelasjoner ble beregnet, og hierarkisk multippel regresjonsanalyse ble gjennomført for å predikere psykisk helseproblemer. Tilnærmet 19 % skåret over cut-off verdien for Totale vansker på SDQ, noe som indikerer psykiske plager. I tillegg indikerte funnene en signifikant kjønnsforskjell hvor jenter viste mer emosjonelle problemer enn gutter, og også høyere totale vansker på SDQ. Resultatene indikerte en sterk korrelasjon mellom risikovariabler, som å bli mobbet og livshendelser, og Totale vansker (SDQ), mens ulike resiliensfaktorer var negativt relatert til Totale vansker. Regresjonsanalyser indikerte at psykiske problemer var hovedsakelig predikert av risikofaktorer som livshendelser og mobbing, og at resiliens som beskyttende faktor bidro som signifikant varians for predikering av psykiske problemer. Regresjonsmodellen forklarte 59 % av variansen for Totale vansker, og mellom 22 % og 61 % for de ulike SDQ delskalaene. Implikasjoner av funnene for forebygging av psykisk helse i kommunen ble diskutert.

Nøkkelord: Strengths and Difficulties Questionnaire, mobbing, nettmobbing, livshendelser, resiliens, forebygging, grunnskole.

Abstract

This thesis examined predictors of mental health problems such as demographic variables, life events, bullying, cyber-bullying and resilience, in addition to estimate the prevalence of different mental health problems among adolescents in a small municipality in Northern-Norway. The sample (N =158) were pupils' attending primary schools (46% girls and 54% boys, response rate 31%). The participants completed an online questionnaire assessing mental health problems (SDQ; Hyperactivity/Inattention, Peer Problem, Conduct Problem, Emotional Problem and Total Difficulties), demographic variables, risk variables (negative life events and stressors, bullying and cyber-bullying) and protective variables (resilience). Descriptive statistics and correlations were computed, and hierarchical multiple regression analyses were conducted for predicting mental health problems. Approximately, 19% scored above the cut-off value for the Total Difficulties Score on SDQ indicating some mental health problems. The findings also indicated a significant gender difference where girls displayed more emotional problems than boys, and also a higher Total Difficulties Score on SDQ. The results indicated a strong positive correlations between the risk factors such as being bullied and life events, and the Total Difficulties Score (SDQ), whereas resilience factors were negatively related to Total Difficulties. The regression analyses indicated that mental health problems were mostly predicted by risk factors such as life events and bullying, and that resilience as a protective factor added significant variance to the prediction of mental health problems. The regression model explained 59% of the variance in the Total Difficulties Score, and between 22% and 61% for the different SDQ sub scales. Implications of the findings for mental health prevention in the municipality were discussed.

Key words: Strengths and Difficulties Questionnaire, bullying, cyber-bullying, life events, resilience, prevention, primary school.

Introduction

At any given time, approximately 15-20% off all children and adolescent are experiencing psychological strain, with symptoms compromising their well-being, everyday tasks, learning and interactions with others (Folkehelseinstituttet, 2014), and approximately 8% have symptoms so severe that it constitutes a disorder (Heiervang et. al., 2007).

According to the World Health Organization (1979) the definition on mental health is "…a state of well-being in which every individual realizes his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her or his community". This includes the development of feelings, thoughts, behavior, and social skills as well as the ability to experience independence, affiliation, flexibility and vitality. Mental health is far more crucial for the quality of life, interpersonal relationship and productivity than the absence of diseases (Herman, Saxena & Moddie, 2005). A good mental health is central for both learning, development and self-expression for all children and young people (Bru, Idsøe, & Øverland, 2016). At the same time, adolescence is a vulnerable time in many young peoples' life where periods of time consists of big upheaval, both physically and mentally, where they are trying to find out who they are, meet new challenges and expectations (Kroger, Martinussen & Marcia, 2010). This master thesis will examine different predictors of mental health problems, in addition to examine the prevalence of mental health problems among adolescent in a municipality in Northern-Norway.

Children and adolescents spend about 1/3 of their time at schools. Schools have a unique role in promoting learning and developmental skills, in addition to promote mental health and provide important support to adolescence who struggle with mental health problems (Bru, Idsøe, & Øverland, 2016). Schools and education are not just limited to the academic learning, but it is also very important to the children and adolescents social life, so it concerns the whole person. This is clearly pointed out on the first page of The Norwegian Directorate for Education and Training:

> *The aim of the education is to prepare children, youths and adults to meet life with its duties and overcome challenges with others. It shall provide each pupil with the proficiency to take care of themselves and their lives, in addition to surplus and determination to stand by others.* (Opplæringslova, 1998, § 9A-1)

Academic learning and mental health are mutually influenced by each other (Ogden & Hagen, 2013). This means that the school promotes mental health through priority of academic learning. However, this indicates that optimal learning conditions requires attention to the adolescent mental health (Bru, Idsøe, & Øverland, 2016). The schools' main task can sometimes be to represent "normality" and daily routines. For those adolescent where life is a chaos, for instance children whose parents struggle with substance abuse, the focus on school work, structure and predictability in a good learning environment may represent security and "normality". For those adolescent, the school may represent social support and support from other adults/teachers (Bru, Idsøe, & Øverland, 2016, Chapter 14).

The school environment is of great importance to pupils' well-being and learning results (Bru, Idsøe, & Øverland, 2016). The schools are legally required to work systematically to monitor the pupils' school environment and implement measures to comply with the new requirements of the Education Act. (April 1th 2003), which states that every pupil in the primary, lower secondary and upper secondary schools in Norway are granted a statutory right to a good school environment (NOU, 2015). This gives the pupils' the opportunity to ask the school for any deficiency to be remedied if they feel that the indoor climate or any other aspect of a school building or playground cause discomfort. In the same way, all those who feel harassed by offensive words and acts, such as bullying, violence, harassment, ostracism, discrimination and racism, can contact the school and ask for something to be done about this (Opplæringslova, 1998, § 9A-1). The school has a duty to take such requests seriously and handle them in line with the rules of procedure set forth in the Norwegian Administration Act. In addition, the Educational Act instructs all schools to make continuous efforts to ensure that their school environment promotes the pupils' health and safety (Opplæringslova, 1998, § 9A-1). All pupils are entitled to a good physical and psycho-social environment, and the schools must have a systematic plan for controlling that the school complies with the Education Acts (Opplæringslova, 1998, § 9A-1).

It was indicated already as early as 1979 by Rutter that a good psycho-social environment at school contribute both to the pupils' school performance and their mental health (Reynolds, Hargreaves & Blackstone, 1980). Pupils with mental health problems have especially a need for an including school that are able to take into account the diversity among pupils. Further, they need teachers who have the ability to assess different needs among pupils, establish a good relationship with the pupils and facilitate the learning environment in the best possible way for every need (Bru, Idsøe & Øverland, 2016).

The term health, mental health and mental health problems

When the World Health Organization was established in 1948, two important statements about health were approved. One of these was the well-known definition of health: "Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity." (World Health Organization, 1979). As a concept, health is often seen in relation to a number of other concepts such as illness, injury, inability and disability (Bru, Idsøe, & Øverland, 2016). For this reason, the meaning of the concept of health has often been used to illustrate lack of health or the occurrence of health problems. According to NOVA (2015), adolescents in Norway are quite satisfied with their health, but at the same time, many are experiencing somatic problems like headaches, pain in the neck, abdomen, back muscles and joints. Others are struggling with lower self-esteem or symptoms of stress.

Mental health problems can be divided into two groups; internalizing and externalizing problems (Kvalem, & Wichstrøm, 2007). Externalizing problems are behavior that are visible for others and are characterized by symptoms like conduct problems, Attention Deficit Hyperactivity Disorder (ADHD) and substance abuse. Internalizing problems are characterized by greater emotional problems such as depression and anxiety (Folkehelseinstituttet, 2014). For most children and adolescents mental health problems are temporary, but for some the problems persist (Folkehelseinstituttet, 2014). The prevalence of emotional problems increases with age, especially for girls. From six to 12 years old, boys are struggling most with mental health problems, such as ADHD, conduct problems and difficulties in concentrating. In adolescence, from 12 years old, girls are struggling more with mental health problems, characterized by anxiety and depression (Folkehelseinstituttet, 2014). It is difficult to predict who will be affected, and it is therefore important to focus on universal prevention work and early interventions (Folkehelseinstituttet, 2014). The Norwegian Institute of Public Health estimate that about 70,000 children and adolescents in Norway have some mental disorder that require treatment (Folkehelseinstituttet, 2014). Mental health problems and mental health disorders can lead to a failure to thrive, learning disabilities, and functional problems at home and in school (Folkehelseinstituttet, 2014).

Epidemiological research such as the *Barn i Bergen* study (Heiervang et al., 2007) and *Ungdata* (NOVA, 2015) examine the prevalence of mental health among children and adolescents. Both studies are based upon self-reported questionnaires. *Barn i Bergen* is a longitudinal population-based study examining mental health and development among

children and adolescent. The study followed children born in Bergen from 1993-95, from early school age to adolescence. Data was collected from 2002 to 2012 and children, parents and teachers were requested to participate. Including several different respondents provided a broader picture on how problems develop (Heiervang et al., 2007). The study indicated that fewer children in Norway had mental health problems compared to children at the same age from other countries. Further, anxiety was the most common problem for children and adolescents from the age eight to 18 years, but in most cases, however, the symptoms were temporary (Heiervang et al., 2007).

Ungdata is a national study examining Norwegian adolescents, where 110 000 respondents from 8th to 10th grade are included (response rate 82%), reporting on their mental health in addition to other aspects related to health, school satisfaction and bullying (NOVA, 2015). The study is conducted every year, and the results have indicated that adolescents spend more of their leisure time at home and half of them spend at least three hours in front of digital entertainment. Further, the study indicated that seven out of 10 reported that they were "very pleased" with their parents and considered parents as important supporters in their daily life. In general, adolescents reported that they were happy at school and in their local community. Further, the study indicated systematic gender differences in mental health. Almost 25% of the girls from 15 years old were struggling with depressive symptoms, 20% were struggling with physical pain and every third girl was not pleased with herself (NOVA, 2015). Overall, Ungdata indicated that mental health problems were two to three times higher for girls than for boys. In general, those who were experiencing the most mental health problems, had more problems with their relationship with their parents, had fewer friends, were more often bullied, and were not satisfied with their community and their school compared to those adolescents with good mental health (NOVA, 2015).

The Norwegian self-report version of the Strengths and Difficulties Questionnaire (SDQ), aged 11-16 years, is used in research (Kornør & Heyerdahl, 2013). Several large population-based studies from Norway have contributed with regional data distributed by age and gender (Rønning, Handegaard, Sourander & Mørch, 2004; Sanne, Torsheim, Heiervang & Stormark, 2009; Roy, Grøholt, Heyerdahl & Clench-Aas, 2006). Briefly, SDQ consists of five sub-scales, and one can add up four of these (emotional, conduct, hyperactivity and peer problems) to create a Total Difficulty Score. The Total Difficulties Score range from 0 to 40, where a higher score indicate major difficulties (Goodman, 1997). It is not yet determined what constitutes a reasonable clinical limit, but a study based on adolescents from Northern-

Norway ($N = 4167$) indicated a value over 18 (SDQ Total Difficulties) represented a clinical cut off value were approximately 10% of the adolescents had a higher score (Rønning et al., 2004).

Study done by Rønning, Handegaard, Sourander & Mørch (2004) indicated that girls reported significant higher level of Emotional Problems and boys reported significant higher scores on Peer Problems. In addition, the study concluded that SDQ may be judged as an efficient and economical screening instrument for preventive research on large community samples. Study done by Roy and colleagues (2006) reported that girls from 8th to 10th grade from Akershus reported 11.1 Total Difficulties, while boys at same grade level reported 10.8 Total Difficulties. Further, the study indicated that girls reported most Emotional Problems and boys most Conduct -and Peer Problems. Total Difficulties scores were highest in early-adolescence for boys and for girls in late adolescence. Compared to other countries, Norwegian adolescent reported more hyperactive behavior (Roy, Grøholt, Heyerdahl & Clench-Aas, 2006). A longitudinal self-reported health study done by Sagatun, Søgaard, Bjertness, Selmer and Heyerdahl, (2007), indicated that girls from Oslo aged 15-16 years reported 10.3 Total Difficulties, while boys aged 15-16 years reported 8.5 Total Difficulties.

The use of the term «psychosocial» in relation to children's mental health

In recent years the term "psychosocial" has been used with increasing frequency in relation to children's health and well-being (Ahonen, Kurtakko, & Sohlmann, 2007). Psychosocial functions of children represents a normal developmental stage and it is one of the most important stages of the life span, a transition from childhood towards adulthood. Secondly, one featured more often in the media nowadays – it has to do with the indicators of children's health status, which show that although their physical health has improved, psychological and social symptoms have increased (Ahonen, Kurtakko, & Sohlmann, 2007).

One of the most cited psychosocial developmental theories, the Psychosocial Theory of development, was developed by Erik H. Erikson. Erikson (1982) combined both internal psychological factors and external social factors. Each stage builds upon the others and focuses on a challenge (or crisis) that must be resolved during the stage in order to move effectively into the next. The eight-stage psychosocial theory describes individuals' developmental changes by life-period in relation to their social environment (Erikson, 1982). According to Erikson, the individual's development is not only affected by biological and environmental factors, but also individuals themselves contribute to their own development.

In addition, culture and society have an important role in the individual's developmental process (Erikson, 1982). According to Newman and Newman (1991), the Psychosocial Theory of development has been criticized for its complex concepts and for the vague nature of the processes by which individual's progress from one developmental stage to another. In addition, there has been criticism for an overstated positive attitude towards the social society and support for activities (Newman & Newman, 1991).

Psychosocial activities at school are those that promote the psychological and social well-being, and the development of schoolchildren (Allensworth, Lawson, Nicholoson, & Wyche, 1997). According to Allensworth and colleagues, the school community can be divided into three different critical areas. The first critical area, the school environment, includes the physical environment and the policy and administrative environment, promoting health and reducing stress. Further, school environment includes the psychosocial environment, which is a supportive and nurturing atmosphere, a cooperative academic setting, respect for individual differences, and involvement of families. The last one for school environment is health promotion by staff, which includes that staff members become positive role models and increase their commitment to pupils' health. The second critical area is education, which consist of teaching the knowledge and skills, in addition to health education, which addresses the physical, mental, emotional, and social dimensions of health. The last critical are is health services, which is a counseling, psychological, and social services arena. It promotes academic success and addresses the emotional and mental health needs of pupils, in addition to nutrition and foodservices for school children (Allensworth, Lawson, Nicholoson, & Wyche, 1997). According to Allensworth and colleagues (1997) it is the psychosocial activities at school who promote the psychological and social well-being, and the development of school children. However, several other important factors may influence mental health and to better understand this, it is also important to look at various health determinants that may contribute to the children's and adolescents' mental health problems.

Health determinants; risk factors and protective factors

There are several determinants for health, both protective factors and risk factors. Overall, mental health is a result of the interaction between individual characteristics, risk factors and protective factors in the environment (Major, Dalgard, Mathisen, Nord, Ose, Rognerud & Aarø, 2011). Children have less opportunity to influence their conditions than adults, and

their living conditions will in many ways be affected by their parents' socioeconomic status (Mathiesen, Kjeldsen, Skipstein, Karevold, Torgersen, & Helgeland, 2007).

Risk factors. A risk factor is any factor in an individual or in the society that can be associated with increased probability for future negatively psychosocial development (Nordahl, Gravrok, Knudsmoen, Larsen & Rørnes, 2006). According to Mathiesen and colleagues (2007) there are risk factors and protective factors at different social levels; 1) society, 2) community/kindergarten/school/work environment, and 3) family/social support.

Risk variables at a society level can be social inequality (Major et al., 2011). At a community/kindergarten/school/work environment it is indicated that risk variables can be poor social communities, societies with low social integration, poor learning environment, and/or bullying. Family/social support can be social isolation, negative life events, conflicts and /or abuse. Overall, the environmental risk factors are often not a direct cause of psychological distress, but it may contribute to a certain extent or indirectly, and may together with individual factors result in psychological distress. Still, the environmental risk factors can be experienced so stressful and with such a high intensity that they may cause psychological distress without any individual vulnerability factor present (Major et al., 2011).

Several studies have indicated that the likelihood for children to develop psychological symptoms increase in periods when 1) parents have many symptoms of mental disorders like depression and anxiety (Mathiesen, Sanson, Stoolmiller, Karevold, 2009; McCarty, McMahon, 2003), 2) the children and parents are in conflict or parenting skills are deficient (Grych &Fincham, 2001), and 3) the family is exposed to many impacts or negative life events, in addition to low social support (Leve, Kim, & Pears, 2005; Mathiesen & Prior, 2006). The risk for more profound mental health disorders increases when the impact is higher and affects life in different ways or last over a long period of time. These risk factors are often affiliated with life conditions in the family where parents have low education, low income and an uncertain occupational situation (Norman, 2009). According to Clench-Aas, Rognerud and Dalgard (2009), negative life events that may cause the biggest mental health problems, are threats against life and somatic health, negative changes in the social network and acute financial problems.

Risk factors at an individual level indicated that children respond differently to the same events and stressors, all depending at individual characteristics such as intelligence, vulnerable temperament, and biological risk factors and somatic injuries (Major et al., 2011). Vulnerable temperament traits, like negative emotionality and low self-control, are associated

with the possible development of behaviors problems (Janson & Mathiesen, 2008). Further, biological risk factors and somatic injuries are factors that either are of unknown biological character, or are associated with alcohol, and/or illegal abuse drugs (Major et al., 2011). In addition, chronic diseases and sleep problems may also be viewed as risk factors. Factors like low self-esteem, lack of control of your own life and inability to cope are highly associated with higher risk for mental health problems (Major et al., 2011). Bekkhus (2012) indicated that the effect of one risk factor may be small, but the cumulative effect of several risk factors may cause severe consequences for the children's development. It is the sum of several risk factors that contributes to skewed development (Bekkhus, 2012).

Bullying is the most frequent forms of victimization in childhood and adolescence. The potential personal and social effects of bullying may last well into adulthood (Allison, Roeger, & Reinfeld-Kirkman, 2009; Copeland, Wolke, Angold, & Costello, 2013; Wolke, Copeland, Angold, & Costello, 2013).

In the late 1960´s, Heinemann initiated the debate and research on bullying in schools (Heinemann, 1972). He introduced the Swedish term for bullying, *mobb[n]ing*, based on mob from the Latin phrase *mobile vulgus* meaning 'the easily moveable crowd', and thereby established that peer bullying is a group phenomenon. Heinemann was followed by Olweus (1974), who is now regarded internationally as a guru in the discourse on bullying. Olweus developed ways of preventing and taking measures against bullying in schools. Lagerman and Stenberg (2001), and Roland (1997) are further examples of people that have developed anti-bullying programs and methods. According to Luxenberg, Limber, and Olweus (2015) bullying or victimization are defined as:

> *"...when a person is the target of aggressive behavior by another pupil or pupils (e.g., when others say mean things, deliberately and systematically ignore someone, physically hurt others, spread negative rumors, or do other hurtful things), when a power imbalance exists between the individuals involved, and when the bullying behavior happens more than once. All three conditions must be present for the actions to constitute bullying behavior"* (Luxenberg, Limber, & Olweus, 2015).

According to Roland (2002), bullying may be manifested in many different ways, like teasing, physical assault, or active exclusion from a social group. Bullying may be active and physical, like kicking and hitting a person, or passive in the form of exclusion. It may also be

actively, deliberately mental through "psyching", often verbal or passive through silence, pretending the victim does not exist, mimicry or gestures. One difference between bullying and harassing somebody is that the harassment may be a single occurrence. Bullying is systematic, performed in the same way or at the same place and time at least twice or more times (Olweus and Limber, 2010).

According to Hunter, Boyle and Warden (2007) it is important to differentiate between bullying and peer-victimization. Their research indicated that peer-victimization and bullying appear to be qualitatively different experiences for children, with bullying being the more serious phenomenon. Specifically, victims of peer-victimization did not always report that there existed a power imbalance (in terms of physical strengths, group numbers or popularity) between them and their attacker, or that they felt their attacker intended to upset them. This prediction is supported by Ybarra, Espelage and Mitchell (2014) who indicated that generalized peer aggression appears to be a broader form of violence compared to bullying. Still, the study emphasizes that it needs to be recognized that youths who are victimized, but do not meet the criteria of bullying, have similarly elevated rates of problems as those being bullied.

A recent national study, *Elevundersøkelsen*, indicated that reported bullying among pupils at school have been slightly reduced from 2013 to 2015 (Wendelborg, 2016). The incidence of those reported being bullied 2 or 3 times per months or more frequently in 2013 was 4.3%. The percentage was further decreased in 2014 to respectively 3.9%. The overall level of reported being bullied in 2015 were 3.7% (Wendelborg, 2016). Further, most of the pupils reported that they were bullied by peers in class (1.7%) or by other pupils' at school.

In a comprehensive meta-analysis by Smith (2014), it was indicated which risk factors and protective factors were the most important for being involved in bullying. The study postulated that being with peers both protected bullying others and being bullied. In addition, social competence protected adolescents from being bullied (Smith, 2014). Research on bullying have indicated that the incidence of bullying is reduced by age, and that boys bully more than girls (Solberg & Olweus, 2003). However, the results from the most recent national study, *Elevundersøkelsen 2015,* have indicated that gender differences had been reduced since 2013 (Wendelborg, 2016). According to Olweus (1993) boys were more exposed to bullying than girls, in terms of so-called "direct bullying" with relatively open attacks on the victim. Girls were more exposed to indirect and more subtle forms of bullying than to bullying with open attacks (Olweus, 1993). Further, boys most often bullied directly physically with kicks

and punches (Olweus, 1986), and girls bullied more subtly through spreading rumors, verbal allusions, gestures and mimicking somebody (Besag, 2006). *Elevundersøkelsen 2015* confirmed that boys both were more exposed to being bullied and to bully other more than girls did (Wendelborg, 2016). This may be due to a focus on aggressiveness when speaking about bullying and the fact that most boys are more physical and express more anger, both verbal and non-verbal than girls (Wendelborg, 2016).

Being bullied during childhood is a risk factor for a person's mental health (NOVA, 2015). Hallberg and Strandmark (2004) postulated that bullying is a public health problem that may cause the victims into a situation of learned helplessness. Victims of bullying may think that they deserve to be harassed and maltreated, just like women who suffer domestic violence, and a state of learned helplessness emerges quickly with a total lack of self-esteem. Victims internalize very soon a negative attribution style where they at the end just have to blame themselves (Hallberg & Strandmark, 2004). According to Forsman (2003), the victims' learning options could be considered totally unacceptable due to stress, and they often suffer from depressive disorders.

Peer bullying is a severe crisis for those affected (Cullberg, 1975). Pupils who are bullied are more likely than their non-bullied peers to have low self-esteem, loneliness, anxiety and depression (Olweus, 1993), and experience later depression, anxiety and psychosomatic problems (Gini & Pozzoli, 2013; Lereya, Copeland, Costello, Wolke, 2015). Every year a couple of pupils choose to take their own lives as a last desperate resort (Hasday, 2002). Other may take a dreadful revenge on their tormentors as well as on teachers who participated in or did not protect them from the abuse, e.g., the Columbine High School Shooting (Hasday, 2002). Such acts of violence have been committed in several countries, like the USA, Russia, Australia, Canada, Germany and France. Hasday (2002) implies that there is a relationship between so-called school shootings and peer bullying where victims take a dreadful revenge on bullies and teachers that have not protected them from intimidation.

According to the national study *Elevundersøkelsen 2015*, adolescent from 8th grade to last year of high schools (VG3), have a higher percentage of reporting mental health problems (Wendelborg, 2016). The most common typical symptoms are stress and anxiety (NOVA, 2015). Several meta-analyses have examined the association between bullying and mental health. A meta-analytic review of cross-sectional studies indicated that pupils who had experienced bullying had 1.67-6.22 higher odds of reporting internalizing problems, and

being bullied was most strongly related to depression (Hawker & Boulton, 2000). Another meta-analysis of 24 studies done by Gini and Pozzolini (2013) indicated that the association between being bullied and psychosomatic problems was confirmed. Bully victims had 2.17 higher odds of reporting psychosomatic problems and the study results indicated that bullying should be considered a significant international public health problem. A population-based non-clinical study done by van Dam et. al. (2012) indicated that children who had experienced bullying, had 2.3 higher odds of reporting psychotic symptoms later in life. Another meta-analysis of 36 cross-sectional studies indicated bullying as a risk factor for child and adolescent suicidal ideation and attempts (Geel, Vedder & Tanilon, 2014).

The research project *Exploring Bullying in Schools (eXbus)* were established in 2007 in Denmark, examining bullying as a social phenomenon (Kofoed & Søndergaard 2013). A fundamental assumption was that bullying was not characterized by one, but many different forms for interdependent efforts. Further assumptions were that bullying was not just from one cause. The eXbus-research examined the history of classes where bullying had occured, with attention to culture, norms and social dynamics in the class. According to eXbus it was important to pay attention to class-culture when examining bullying. A key assumption in the theory of eXbus was the concept *exclusion anxiety*. It was postulated that humans want to belong to a community or fellowship, and the exclusion anxiety would occur when this affiliation was threatened. The anxiety could be alleviated by creating contempt towards others and contribute to bullying (Søndergaard, 2009).

Regardless whether bullying is defined by individual characteristic or more as a phenomenon expression of social mechanism and exclusion anxiety, there is broad consensus that this form of behavior have severe consequences for children and adolescents' mental health, welfare and learning development (NOU, 2015). Pupils exposed to bullying are particularly vulnerable to develop mental health problems and low self-esteem. Pupils who expose others for this type of actions, have higher risk for later in life to be involved in criminal acts or abuse. Further, those pupils who both are bullied and are bullying other, are particularly exposed to negative consequences (NOU, 2015).

Being bullied is not a harmless rite of passage, but throws a long shadow over affected people's lives (Wolke, Copeland, Angold, & Costello, 2013). Being bullied by peers in childhood have generally worse long-term adverse effect on young adults' mental health than those not being bullied (Lereya, Copeland, Costello & Wolke, 2015). Wolke and Lereya (2015) found an increased risk of young adult mental health problems such as anxiety,

depression, and self-harm or suicidality in children who were bullied by peers whether or not they had a history of maltreatment by adults. Research on the impact of bullying in childhood on adult life indicated that victims of childhood bullying, including those who bullied others, were at increased risk of poor health, wealth, and social-relationship outcomes in adulthood (Wolke et al., 2013). Another study have supported this finding, indicating that pupils who participate in bullying are more likely than their peers to vandalize property, drop out of schools, and to use alcohol (Olweus, 2011).
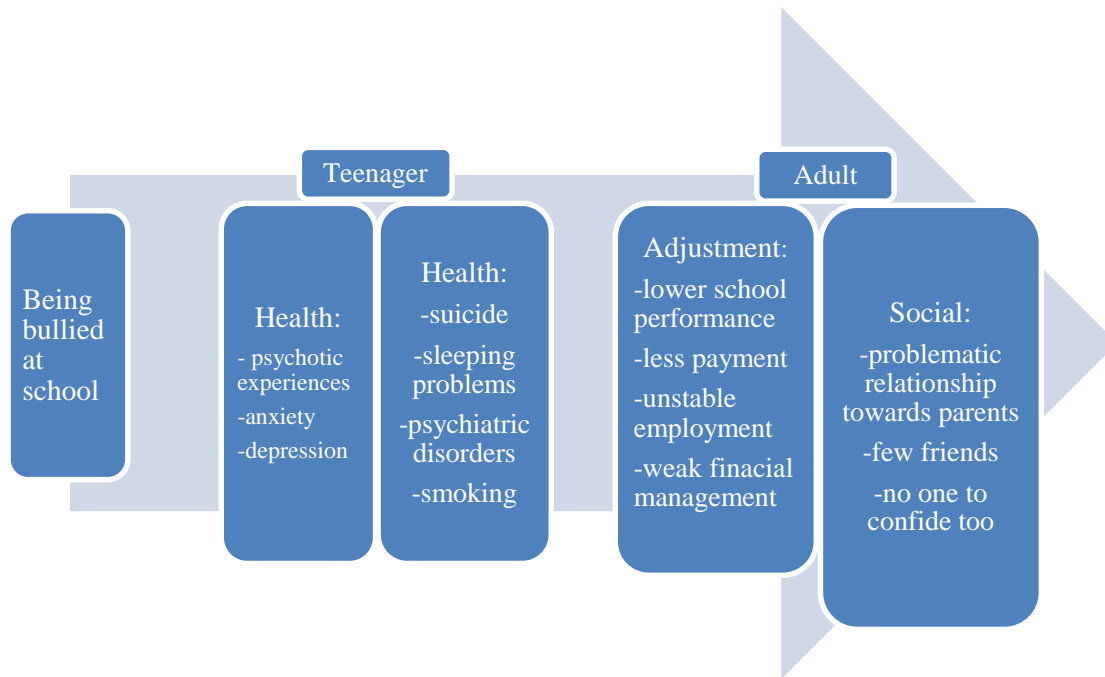
Figur 1 The impact of being bullied of functioning in teenagers and adulthood (Wolke & Lereya, 2015).

Cyber-bullying. Cyber space is increasingly being used as a virtual environment that globally everyone use, and express their thoughts and feelings to others freely regardless of age, race and gender (Huang & Chou, 2010). Given that these environments provide individuals with the opportunity of expressing their thoughts and feelings freely, negative thoughts and feelings might be part of the interaction as well as positive ones. Several researches indicate that children and adolescents react more aggressively online, compared to real life (Huang & Chou, 2010; Wolak, Mitchell & Finkelhor, 2007). The rapid increase in the use of information and communication technologies has propelled bullying into the cyber world, thus fostering the emergence of cyber-bullying (Mishna, 2012).

According to Hinduja and Patchin (2012) cyber-bullying is perpetuated through the internet, mobile phone and other electronic devices that allow, in an overt or covert way, the

sending of hurtful emails, messages, images, videos and calls in order to damage someone. Cyberspace is quicker, more comprehensive, and almost unstoppable and unavoidable. Young people are socially connected with others through the internet and other communication technologies, and these tools have become a new medium of bullying behaviors (Huang & Chou, 2010).

Cyber-bullying is typically defined as aggression that is intentionally and repeatedly carried out in an electronic context (e.g., e-mail, blogs, instant messages, text messages) against a person who cannot easily defend him -or herself (Kowalski, Limber, & Agatston, 2012; Patchin & Hinduja, 2012). Mobile phones are used to send offensive messages or photos and the internet with its chats and blogs, is a common forum for harassment, threats and pictures taken in sensitive situations (Li, 2006). These pictures and texts, often produced without the victim's knowledge or consent, may remain there permanently. Research on school bullying has identified several factors that likely contribute to cyber-bullying and that those being bullied have a higher risk of being cyber-bullied as well (Flygare & Johansson, 2013). Among them are the significant factors like gender, academic achievement, and culture. In addition, research on cyber-bullying has reported that computer-use frequency is a key factor (Li, 2006).

The *NOU-* report (2015), indicated three important aspects that may be present at cyber-bullying. 1) It is difficult to escape. Kowalski and Limber (2012) points out that cyber-bullying can occur at any time and this may increase the experience of vulnerability. When technology is involved, bullying can still occur when you get home. In addition, cyber-bullying can occur from different people as technology no longer makes it necessary to be at the same physical location (Hinduja & Patchin, 2012). 2) The use of digital technology makes it possible to be anonymous. When it is possible to hide the sender's identity, it creates an uncertainty at the receiver, which can lead to insecurity (NOU, 2015). 3) The endless publicity, which differs from traditional bullying. In traditional bullying the crowd remains within the familiar social group, while cyber-bullying expand the potential crowd enormously. In cyber-bullying a greater number of people can be involved (Slonje & Smith, 2008).

The extent of cyber-bullying exist, but the numbers varies because of different criteria's in studies, age differences of the respondents, different definition and different procedure (Hinduja & Patchin, 2009). At the same time, it is pointed out that no survey indicate that there excist no cyber-bullying at any kind (Hinduja & Patchin, 2009). However,

Olweus (2012) argued that the claims about cyber-bullying made in the media and elsewhere are greatly exaggerated and have little empirical scientific support. Olweus further predicted that cyber-bullying is a low-prevalence phenomenon, which has not increased over time and has not created many "new" victims and bullies, meaning children and youths who are not also involved in some form of traditional bullying. To be cyber-bullied or to cyber-bully other pupils seem to a large extent to be part of a general pattern of bullying where the electronic media is only one possible form, and, in addition, a form with quite low prevalence. Results also suggest that even if most cyber-bullying actually occurs outside school hours, most episodes of cyber-bullying originate in the school setting and a great majority of cyber-bullied children and youth are also bullied in traditional ways (Olweus, 2012).

The experience of cyberbullying has been linked with a host of negative outcomes for both individuals and places like school. Outcomes like anxiety, substance abuse, depression, increased physical symptoms, difficulty sleeping, decreased performance in school, absenteeism and truancy, dropping out of school and murder or suicide (Beran & Li, 2005; Mitchell, Ybarra, & Finkelhor, 2007; Ybarra, Diener-West. & Leaf, 2007). Although bullying comes in a different medium like physical bullying, verbal aggression, relational harassment and cyber-bullying, they all share the key elements of bullying; the intentional harm to a victim, the repetition of harmful behavior and the power imbalance between bully and victim (Tokunaga, 2010).

Schools need to pay attention to bullying. The activities of schools are regulated by a number of conventions, laws and ordinances. *The UN Declaration of Children's Rights* states that all children have the right to education and to protection against violence. Every school is bound by law to set up an equality of treatment plan, models and methods for preventing and taking measures against bullying. The municipalities' boards for children and education or the equivalent authorities are responsible for following up and evaluating the work of schools against all forms of violation (Opplæringslova, 1998, § 9A-1).

Protective factors. A protective factor is any factor in an individual or in the society that can be associated with decreased probability for future negative psychosocial development (Nordahl, Gravrok, Knudsmoen, Larsen & Rørnes, 2006).

Protective factors at a society level can be social capital; a society which are characterized by mutual support, social support and solidarity (Major et al., 2011). At a community/kindergarten/school/work environment it is indicated that protective variables can be social integration and control over their own life situation. The last one, family/social

support, can be a socially supportive environment (Major et al., 2011). The preventive work toward children are associated with healthy environments in all arenas in homes, the local society and school/kindergarten. It is indicated that societies which are characterized by mutual trust, social support and cohesion can contribute to a positive psychosocial effect on mental health (Major et al., 2011).

Protective factors at an individual level are in many ways the opposite to a risk factor at an individual level. A life style with less sleep, less physical activities and an unhealthy diet may cause a higher level of mental health problems. Correspondingly, a life style with enough sleep, exercise and a good healthy diet may constitute protective factors for mental health problems (Major et al., 2011). In the middle of the 1950's researcher became more aware of large individual differences in how things were going to people who had been exposed to the same kind of adversity. It was the understanding of this phenomenon that highlighted the children who were doing fine, who were considered to be resilient (NOU, 2015).

Resilience is defined as protective factors, processes, and mechanisms that, despite experiences with stressors, shown to carry significant association for developing psychopathology which contribute to a good outcome (Hjemdal, Friborg, Stiles, Martinussen & Rosenvinge, 2006). Resilience is processes that enable children to develop a satisfactory results, despite experiencing situations that might involve great risks for developing problems or discrepancies (Borge, 2010). Resilience is often associated with "løvetannbarna" (Fonagy, Steele, Steele, Higgitt & Target, 1994), and individuals who sustain normal development despite long-term stress, adversity or maltreatment, are frequently labeled resilient (Rutter, 1985; Block & Kremen, 1996).

According to Werner (1993; 1989), there are three higher order categories of resilience; 1) individual dispositional attributes, 2) family support and cohesion, and 3) external support systems. These three protective resources are the most significant determinants of healthy adjustment to long-term stress (Werner, 1993). More specifically, individual dispositional attributes are described as constitutional intelligence, robustness, communication skills and sociability and various personal attributes as talent and self-efficacy. Further, family support and coherence are described as important determinants. The last one, external support systems promoting resilience indicate peers, neighbor, teachers and coaches. It is external support systems that are facilitating the individual's attempts to master adversities (Werner, 1993). According to Werner (1989), there are several key features characterizing resilient people who overcome difficult life conditions. In general, resilient

people cope by using several protective resources, either within themselves or in their environment, and they are more flexible than vulnerable people. People with high resilience are positive socially oriented towards other people (Werner, 2001). Further, Cederblad, Dahlin, Hagnell, and Hansson (1993) indicated that resilient people have a positive self-image and display great optimism for the future. In contrast, individuals low on emotional stability generally report more negative affect, lower self-esteem and more symptoms of depression and anxiety. In order to face life stressor, resilient people have dispositional attributes like internal locus of control, pro-social behavior and empathy (Svanberg, 1998). Resilient people seem to cope more functionally and flexible with stress. These characteristics are developed early in life by the formation of a secure attachment to other people, which may reduce the vulnerability to developing psychiatric disorders significantly (Svanberg, 1998).

Gender differences in resilience have been investigated less often, but one consistent finding is that resilient women tend to elicit and provide more social support (Werner & Smith, 2001). This was supported by Hjemdal and colleagues (2006) who indicated that girls reported significant more access to social resources than did boys, whereas boys reported more personal competence than did girls. This result indicated the same as Werner (1989), who reported that women generally are more skilled in using social support and resources, while men feel personally more competent than women. In addition, the study showed that there were no significant gender difference for the factors social competence and family cohesion (Werner, 1989).

Resilience resources have been defined as positive factors that are external to the individual and that help youths overcome risks (Fergus & Zimmerman, 2005). Examples of these external resources are family support, having a supporting adult at school, community engagement (e.g. volunteering, participating in clubs), and positive peer engagement (e.g. sport activities involvement) (Reisner, Biello, Perry, Garamel, & Mimigaga, 2014). In this matter, the school plays an important role as a protective factor, and support from teachers have been identified as good protective factor for those being bullied (Strøm, Thoresen, Wentzel-Laren, Sagatun & Dyb, 2014).

The aim of the master thesis

There are several determinants for mental health, and both risk factors and protective factors may affect mental health. All Norwegian municipalities are required to draft a plan for public health prevention and promotion, including mental health among children and young

people (St.meld. nr 20 (2012-2013)). This plan should be based on local knowledge, including an overview of the mental health status and factors that may impact the mental health of the population. This may be based on existing statistics or the municipality may initiate a local study to address these factors. The RKBU-Nord was asked by one of the coastal municipalities to assist in this work and the following two research questions were formulated:

1. Estimate the prevalence of different mental health problems among adolescents in a small municipality in Northern-Norway. This research question was important in order for the municipality to plan prevention and health promoting measures, and also for the current primary schools and their work for ensuring a good psycho-social learning environment.

2. Examine different predictors of mental health problems including risk factors such as life events and bullying and resilience as a protective factor. Risk factors such as bullying cause psychological strains and these factors can enhance if they occur in the absence of protective factors.

Based on earlier research, it is expected that gender is an important factor associated with mental health, and more specific that girls experience more emotional problems than boys (Rønning, Handegaard, Sourander & Mørch, 2004; Folkehelseinstituttet, 2014). Further, it is expected to see positive correlations between factors such as bullying and negative life events and mental health as indicated by previous studied (Copeland, Wolke, Angold, & Costello, 2013; Hallberg & Strandmark, 2004; Kowalski &Limber, 2012). Results from this study may be used to increase knowledge and understanding of the mental health for the pupils' at the municipality in Northern-Norway. Further, this study can contribute to generate knowledge about identifying risk factors and protective factors for mental health problems in general.

Method

Participants

Participants were pupils' recruited from eight primary schools from a municipality in Northern Norway. All schools were mainstream public schools, and both parents and pupils' were informed by the local teachers about the study. The municipality had approximately 11 500 registered inhabitants in 2013 when the study was conducted. At four of the schools there were less than 30 pupils' attending, while two of the schools had around 40 pupils', and the last two schools had between 140 and 221 pupils' attending. Junior high schools in Norway consist of three different grades. The ages are such that in 8th grade, pupils' turn 13 years, in 9th grade, they turn 14, and in 10th grade, they turn 15. The total number of pupils' asked to participate was 507, and 202 pupils' and parents gave their consent to participate. Of those, there was a total sample of 158 respondents. Response rate was 31%. The total sample (*N*=158) consisted of 72 girls (46%) and 86 boys (54%). From the 158 respondents, there was 35% from the 8th grade, 34% from the 9th grade and 31% from the 10th grade.

Procedure

The survey was approved by the Regional Committee for Medical and Health Research Ethics (REK). The survey was a cooperation between the RKBU-North, University of Tromsø, and a local municipality in North-Norway. The pupils' were given written and oral information about the survey, and both pupils' and parents were asked for their written consent to participate in the study. The information letter consisted of a short description about the purpose of the survey and how the survey would be carried out. It was listed that participation was voluntary, and that participants could withdraw at any time throughout the survey. The information letter consisted of a consent schema to parents/guardians and pupils' which was returned to RKBU-North. Information about the survey was also communicated through the local media.

The survey was carried out from January to May 2013. Those pupils' who had consented to participated, were given an individual code and a link to the online survey services Questback. The class teacher administrated this in class, and the pupils' completed the Questback questionnaire anonymously during a school lesson. The pupils who did not wish to participate where given another assignment to work with.

Measurements

Participants completed an online questionnaire (Questback), which consisted of questions about demographic variables, in addition to specific measuring scales.

Demographic Variables. Demographic Variables included Gender, Grade level and Relationship status between parents of the pupils' ("married/cohabitants", "not married", "divorced/separated" or "other, specify"). Further, pupils were to report Occupational status among parents ("yes, full-time employed", "yes, part-time unemployed", "unemployment/sick-leave", "home-staying", "student" or "other"). The variable was recoded to 0 = Unemployed (unemployment/sick-leave, home-staying) and 1= Employed (full-time employed, part-time unemployed, student). In addition, pupils' were to report their impression of the Financial status for the family in five different categories ("very good", "good", "average", "poor", "very poor").

Mental Health. The Strengths and Difficulties Questionnaire (SDQ) is a brief multidimensional measurement of psychological adjustment for children aged three to 16 years. SDQ was developed by Professor Robert Goodman, and first published in 1997 (Goodman, 1997). SDQ is a frequently used instrument by researchers as demonstrated by its many translations into different languages (Besevegis, Dalla, Gari & Karademas, 2008: Culhane & Morera, 2010). It was translated to Norwegian by Heyerdahl and colleagues (Heyerdahl, 2003). SDQ is used both for clinical and research purposes (Rothenberger & Woerner, 2004). It exits in several versions to meet the needs of researchers, clinicians and educators and there are versions that may be used by parents or teachers of 4-16 year olds (Goodman, 1997), in addition to self-report versions for young people. This self-report version is suitable for young people aged around 11-16 years, depending on their level of understanding and literacy. For this study, the self-report version was used.

SDQ is divided into five sub-scales: Hyperactivity/Inattention (HIN), Conduct Problems (CON), Emotional Problems (EMO), Peer Problems (PPR), and Prosocial Behavior (PRO). Participants were instructed to give their answers on the basis of his/her behavior over the last six months. Each item was scored 0 for "not true", 1 for "somewhat true", and 2 for "certainly true" (Goodman, 2001). In addition to the five sub-scales, a Total Difficulty Score (Total Diff.) was calculated based on items from the sub-scales HIN, CON, EMO, and PPR, and compromised a total of 20 items (Youthinmind, 2012). The Prosocial Scale is a score of positive social behavior and is thus not included in the Total Difficulty Score. Example of items for the different scales are "I am restless, I cannot stay still for long" (HIN), "I get very angry and often lose my temper" (CON), "I get a lot of headaches, stomach-aches or sickness" (EMO), "I am usually on my own. I generally play alone or keep to myself" (PPR), "I usually share with others (food, games, pens etc.)" (PRO). In order to minimize response

bias, five items in the SDQ was negatively formulated, and had to be reversed before they were included in their respective scale.

In the current study, Cronbach's α for Hyperactivity/Inattention was .68, and Cronbach's α for Conduct Problems was .30. Further, Cronbach's α for Emotional Problems was .82, and Cronbach's α for Peer Problems was .67. Cronbach's α for Total Difficulty was .70. Written permission to use SDQ in the online survey was obtained from Youthinmind.

Life events. The Negative Life Events Score was calculated based on three questions where participants reported the number of recent life events and stressors over the last 12 months. The three questions were "have you during the last 12 months experienced the following; 1) mental health problems among your parents, 2) financial problems among parents, 3) substance abuse among parents. The response alternatives were "no, never", "sometimes", "several times" and "very often". Cronbach's α for Life Events was .61.

Bullying. Traditional bullying and cyber-bullying were assessed by a total of four items. The questionnaire started with a definition of what is considered to bully someone and what is considered to cyber-bully someone. The definitions were: "A pupil is bullied when he or she is exposed, repeatedly and over time, to negative actions on the part of one or more other pupils. It is bullying when someone is teased several times in a hurtful way" and "Cyber-bullying is bullying performed via electronic means such as mobile/cell phones or the internet". Participants reported on the following questions; "have you been bullied over the last months", "have you participated in bullying one or more peers at school over the last months", "have you been cyber-bullied over the last months", and "have you cyber-bullied peers the last months". The alternative responses to all four questions were "not at all", "rarely", "2 or 3 times a month» or «about once a week». These questions are frequently used as a dichotomous variable where experiencing this 2-3 times per month or more are considered being bullied or cyber-bullied, and corresponding variables are computed for engaging in bullying others (Olweus, & Limber, 2010).

The Resilience Scale for Adolescents (READ-scale) is a reliable and valid scale for measuring the presence of protective resources like psychological/dispositional attributes, family support and cohesion and external support system for young people (Hjemdal, Friborg, Stiles, Martinussen & Rosenvinge, 2006). The READ-scale is based on previous work by Friborg, Hjemdal, Rosenvinge & Martinussen, (2003) who developed a scale for measuring the presence of such protective resources, called The Resilience Scale for Adults (RSA).

Hence, a preliminary version of RSA was developed in an earlier study (Hjemdal, Friborg, Martinussen and Rosenvinge, 2001). The resulting scale consisted of 45 items covering five dimensions labelled Personal Competence, Social Competence, Social Support, Family Coherence and Personnel Structure. This factor solution was in accordance with the overall classification of resilience (Werner, 1989; Rutter, 1990; Werner, 1993; Garmezy, 1993). The study implied that the dimensions should be regarded as sub-scales measuring different, but all various and positive aspects of the concept of Resilience. Further, this supports the theoretical understanding of Resilience as a multidimensional phenomenon (Garmezy, 1993; Luthar, Doernberger and Zigler, 1993).

The READ includes 12-items and have the same conceptual content as the five RSA factors (Friborg & Hjemdal, 2004; Friborg, Barlaug, Martinussen, Rosenvinge & Hjemdal, 2005; Friborg, Hjemdal, Rosenvinge & Martinussen, 2003; Hjemdal, Friborg, Martinussen & Rosenvinge, 2001). The low to moderate inter-correlations between the factors of the READ indicate that they should be regarded as factors measuring different, but related, aspects of the concept of Resilience. This finding supports the theoretical understanding of Resilience as a multifaceted phenomenon (Garmezy, 1993; Luthar, Doernberger & Zigler, 1993). Personal Competence measures the level of self-esteem, self-efficacy, self-liking, hope, determination and a realistic orientation to life. Social Competence measures extraversion, social adeptness, cheerful mood, an ability to initiate activities, good communication skills and flexibility in social matters. Social Resources measures access to external support from friends and relatives, intimacy, and the individual's ability to provide support, and the last, Family Coherence measures amount of family conflict, cooperation, support, loyalty and stability (Friborg, Hjemdal, Rosenvinge, & Martinussen, 2003). READ shows adequate psychometric properties and promising validity when correlated with measures of mental health. The internal consistency is adequate for four of five subscales and READ is well suited for research purposes (Askeland & Reedtz, 2015).

All 12 items was reversed. Reversing wording of particular items might help prevent response bias. In the current study the Cronbach's α for Personal Competence was .80 and Cronbach's α for Social Competence was .87. Further, Cronbach's α for Social Resources was .83 and Cronbach's α for Family Coherence was .87.

Statistical analyses

All statistical analyses were performed with SPSS version 22. Our approach to missing data was listwise, which was considered acceptable, as less than 5% of the participants did not have complete data on the items used in the present study (Schafer, 1997).

One of the most popular reliability statistics in use today is Cronbach's α (Cronbach, 1951). Cronbach's α is a measure of the internal consistency. European Federation of Psychologist' Associations (EFPA) have a guided criteria for rating the technical qualities of an instrument where $r < 0.60$ is "Inadequate", $.60 \leq r < .70$ is "Adequate", $.70 \leq r < .80$ is "Good" and $r \geq .80$ is "Excellent" (EFPA, 2013).

The Pearson Correlation measures the existence and strengths of a linear relationship between two variables. According to Cohen (1988) an absolute value of 0.1 is classified as "Small", an absolute value of 0.3 is classified as "Medium" and value of 0.5 is classified as "Large".

To assess the prevalence of Mental Health of the sample, descriptive data for Demographic Variables were estimated. Further, descriptive results for Mental Health Variables, Risk and Protective Variables were estimated with mean, standard deviation and Cronbach's α. In order to identify Risk and Protective Variables for Mental Health, Bivariate Correlations between Variables in the Study were examined. To examine the prediction of Mental Health Variables, hierarchical multiple regression analysis were conducted, including independent variables as Demographics, Risk Variables and Protective Variables. The dependent variables were Hyperactivity/Inattention, Peer Problems, Conduct Problems, Emotional Problems and Total Difficulties. At step one Demographics were examined, at step two Risk Variables were included and at step three Protective Variables were included.

<div align="center">

Results

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Descriptive data for the sample

      Background variables. Demographic characteristics of the sample are presented in Table 1.

      Mental Health. The pupils' mental health was measured with The Strengths and Difficulties Questionnaire (SDQ), both Total Difficulties and mean scores for sub scales are presented in Table 2. The 90th percentile cut-off point indicating a clinical area of the Total Difficulty Score was 18 points based on a Norwegian sample of youths (Rønning, Handegaard, Sourander & Mørch, 2004). Using this cut-off value, a total of 19% of the sample scored above 18 points, and the corresponding number was 28% for girls and 9% for the boys, respectively.

      Life Events. A total of 87.3% reported that they had never experienced mental health problems among their parents over the last 12 months. Further, 70.3% reported that they had never experienced financial problems among their parents, while 23.4% responded that they sometimes had experienced financial problems. In addition, 95% of the pupils' reported that they had never experienced any substance abuse among their parents. Overall, 4% of the participants reported that they several times or very often had experienced either mental health- , financial- or substance abuse among their parents. Mean score for the scale is presented in Table 2.

      Bullying. Being Bullied 2 or 3 times per months or more frequently are labelled "Bullied". The overall level of being Bullied was 6.3% and 15% percent of the sample indicated that they had bullied a peer. A total of 3.2% reported to have experienced Cyber-Bulling. The overall level of participating in Cyber-Bullying were 3.1% (see Table 2).

      Resilience (READ-scale). The READ-scale assessed different aspects of pupils' resilience within four areas: Personal Competence, Social Competence, Family Cohension and Social Resources. Descriptive statistics is presented in Table 2.

Table 1

Descriptive Results for Demographic Variables

Variables	N = 158	
	N	*%*
Relationship status between parents		
Married/cohabitants	93	59
Not married	9	6
Divorced/separated	51	32
Other	4	3
Occupational status among parents		
Mother employed (working fulltime/Par-time/student)	136	86
Mother unemployed (unemployment/sick leave/homemaker)	16	10
Other	6	4
Father employed (working fulltime/part-time/student)	138	87
Father unemployed (unemployment/sick leave/homemaker)	12	8
Other	8	5
Participants' impression of the financial status for the family		
Very poor	2	1.3
Poor	2	1.3
Average	47	30
Good	91	58
Very good	16	10

Table 2
Descriptive Results for Mental Health Variables, Risk and Protective Variables

Variables	Girls N = 72		Boys N = 86		Total N = 158	
	M	*SD*	*M*	*SD*	*M*	*SD*
SDQ						
Hyperactivity/Inattention	4.44	2.56	4.14	2.10	4.28	2.32
Conduct Problems	2.08	1.33	1.95	1.51	2.01	1.43
Emotional Problems	4.67	2.75	2.02	2.17	3.23	2.78
Peer Problems	2.58	1.86	2.03	1.95	2.28	1.92
Prosocial Behavior	8.22	1.53	7.68	1.80	7.93	1.70
Total Difficulty Score	13.79	6.68	10.14	5.46	11.81	6.29
Life Events Scale[a]	1.24	0.35	1.11	0.32	1.17	0.34
Bullying[b]						
Have you been bullied over the last months?	1.49	0.77	1.26	0.65	1.36	0.72
Have you participated in bullying over the last months?	1.15	0.39	1.13	0.48	1.14	0.44
Have you been cyber-bullied over the last months?	1.22	0.58	1.08	0.38	1.15	0.49
Have you cyber-bullied peers over the last months?	1.07	0.30	1.01	0.10	1.04	0.22
The Resilience Scale for Adolescents[c]						
Personal Competence	3.62	0.88	4.18	0.78	3.93	0.87
Social Competence	3.56	0.95	3.89	0.99	3.74	0.98
Family Coherence	4.16	0.97	4.37	0.79	4.28	0.88
Social resources	4.60	0.69	4.64	0.66	4.63	0.68

Note: [a]Scale from 1 = no never, to 4 = very often.

[b]Scale from 1 = not at all, to 4 = about once a week.

[c]Scale from 1 = totally disagree, to 5 = totally agree.

Bivariate Correlations between Mental Health Variables and Predictors (Demographics, Risk and Protective Variables)

Mental Health and Demographics Variables. Results indicated a medium correlation between Total Difficulties and Gender, ($r = .29^{**}$), and for the sub-scales the only significant correlation was found for Emotional Problems, ($r = .48^{**}$), indicating that girls displayed more Emotional Problems, and also a higher level of Total Difficulties Problems. Total Diff. and Family Economy was significantly negatively correlated ($r = -.31^{**}$) indicating more mental health problems among pupils who experienced their family economy as poor.

Mental Health and Risk Variables. Total Diff. and Life events were strongly correlated, ($r = .48^{**}$). Further, all variables assessing Mental Health were significantly correlated with Life events ($p < .01$). Total Diff. and Bullying was highly correlated, ($r = 54^{**}$). In addition, there was a significant correlation between Total Diff. and experiencing Cyber-Bulling, ($r = .40^{**}$). Further, all SDQ scales showed significant correlations with Being Bullied or Cyber-Bullied. Total Diff. and the variable Bullying Others ($r = .26^{**}$) and the variable Cyber-Bullying others ($r = .21^{**}$) were significantly correlated.

Mental Health and Protective Variables. Total Diff. and all the Protective Variables assessing Resilience were negatively correlated (Personal Competence $r = -.67^{**}$, Social Competence $r = -.45^{**}$, Family Coherence $r = -.53^{**}$, Social Resources $r = -.48^{**}$).

Hierarchical Multiple Regression Analysis for Predicting Mental Health

The combined effect of Risk and Protective Variables were investigated by conducting hierarchical multiple regression analyses for predicting Mental Health problems, Total Difficulties and more specific problems. The results are displayed in Table 4 and Table 5.

Hyperactivity/Inattention. In general, demographic variables explained a small part of the variation in the Hyperactivity/Inattention dimension. Further, controlling for step 1 in Table 4, risk variables explained 10% of the variation Hyperactivity/Inattention and controlling for step 1 and step 2, Protective variables explained 6% of the variation. Overall, the independent variables (step 1, step 2 and step 3) explained a total of 22% of the variance in Hyperactivity/Inattention. The results are displayed in Table 4.

Peer Problems. In the analyses of the relationship between Peer Problems and the independent variables, demographic variables explained 11% of the variance ($p < .001$). The results are displayed in Table 4. More specifically, the variable Family Economy had a small

negative effect on Peer Problems (β = -.15, $p < .05$). Controlling for step 1, risk variables explained 25% of the variance in Peer Problems. Both Experienced Bullying (β = .36, $p < .001$) and Cyber-Bullied others (β = .24, $p < .001$) uniquely predicted Peer Problems (Table 4). Controlling for step 1 and step 2, protective variables explained 12% of the variance Peer Problems. More specifically, the Resilience scale Social Competence had a significant negative effect on Peer Problems (β = -.22, $p < .01$). Overall, 48% of the variance in Peer Problems was explained by all the variables (Table 4).

Conduct Problems. In general, demographics variables (step 1) did not explain a significant part of the variation in the Conduct Problems (Table 4). Further, controlling for demographics variables, risk variables explained 14% of the variance Conduct Problems ($p < .001$). More specifically, Bullying Peers explained a small significant part of the variance (β = .17, $p < .05$). Controlling for step 1 and step 2, protective variables explained 16% of the variance in Conduct Problems. More specifically, the Resilience scale Personal Competence (β = -.35, $p < .001$), Social Competence (β = .22, $p < .05$) and Family Coherence (β = -.22, $p < .05$) were all significant. Overall, the independent variables (step 1, step 2 and step 3) explained 33% of the variance in Conduct Problems (Table 4).

Emotional Problems. To examine the relationship between Emotional Problems and the independent variables, demographic variables explained 26% of the variance ($p < .001$). (Table 5). More specifically, Gender was significant (β = .30, $p < .001$), indicating that girls displayed more Emotional Problems than boys. Controlling for step 1, risk variables explained 24% of the variance in Emotional Problems. Both Life Events (β = .22, $p < .01$), and Experience Bullying (β = .23, $p < .001$), were significant (step 2 in Table 5). Controlling for step 1 and step 2, protective variables explained 11% of the variance in Emotional Problems in Table 5. More specifically, the Resilience scales Personal Competence (β = -.31, $p < .001$), and Social Competence (β = -.14, $p < .05$), had a negative significant effect. Overall, the independent variables (step 1, step 2 and step 3) explained 61% of the variance in Emotional Problems. The results are displayed in Table 5.

Total Difficulties (Total Diff.). In general, demographics variables explained 17% of the variation in Total Diff. Further, controlling for demographic variables, risk variables explained an additional 30% of the variance in Total Diff. More specifically, Experience Bullying (β = .27, $p < .001$), Life Events (β = .16, $p < .05$), and Cyber-Bullied others (β = .12, $p < .05$) were significant. Controlling for step 1 and step 2, protective variables explained 13% of the variance in Total Diff. More specifically, the Resilience scale Personal

Competence had a negative significant effect on Total Diff. (β = -.38, $p < .001$). Overall, the independent variables (step 1, step 2 and step 3) explained a total of 59% of the variance in Total Difficulties (Table 5).

Table 3 *Bivariate Correlations between Variables in the Study (N=158)*

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Demographics																
1. Gender	-															
2. Grade level	.13	-														
3. Family economy	-.20*	-.14	-													
Risk Variables																
4. Life events	.18*	.09	-.47**	-												
5. Have you been bullied?	.16*	-.09	-.10	.34**	-											
6. Have you bullied peers?	.03	.09	-.09	.03	.28**	-										
7. Have you been cyber-bullied?	.14	-.11	-.15	.43**	.54**	.14	-									
8. Have you cyber-bullied peers?	.13	.04	.02	.07	.15	.20*	.36**	-								
Protective Variables																
9. Personal Competence	-.32**	-.07	.26**	-.37**	-.45**	-.17*	-.39**	-.07	-							
10. Social Competence	-.67*	-.07	.16*	-.25**	-.35**	-.08	-.20*	.01	.63	-						
11. Family Coherence	-.12	-.14	.29**	-.48**	-.37**	-.26**	-.42**	-.25**	.51**	.35**	-					
12. Social Resources	-.03	-.12	.34**	-.31**	-.29**	-.13	-.37**	-.09	.55**	.45**	.67**	-				
Mental Health																
13. Emotional Problems	.48**	.06	-.22**	.45**	.51**	.18*	.36**	.16*	-.65**	-.50**	-.41**	-.36**	-			
14. Hyperactivity/ Inattention	.07	.11	-.22**	.39**	.28**	.18*	.27**	.13	-.34**	-.10	-.33**	-.27**	.30**	-		
15. Peer Problems	.14	.14	-.29**	.36**	.47**	.15	.29**	.21**	-.51**	-.49**	-.40**	-.44**	-.55**	.24**	-	
16. Conduct Problems	.05	.02	-.18*	.25**	.29**	.31**	.22**	.12	-.41**	-.16*	-.46**	-.40**	.43**	.52**	.33**	-
17. Total Difficulties	.29**	.11	-.31**	.48**	.54**	.26**	.40**	.21**	-.67**	-.45**	-.53**	-.48**	.82**	.69**	.71**	.71**

Note. Gender was coded 0 = male, 1 = female.*p < .05, ** p < .01, *** p < .001 (two-tailed).

Table 4 *Hierarchical Multiple Regression Results for Predicting Hyperactivity/Inattention, Peer Problems and Conduct Problems*

Predictor	Hyperactivity/ Inattention		Peer Problems		Conduct Problems	
	ΔR^2	β	ΔR^2	β	ΔR^2	β
Step 1: Demographics	.06*		.11***		.04	
Gender (0 = male, 1 = female)		-.08		-.05		-.07
Grade level		.09		.08		-.05
Family economy		-.09		-.15*		-.01
Step 2: Risk Variables	.10**		.25***		.14***	
Life Events Scale		.10		.07		.04
Have you been bullied?		.10		.36***		.08
Have you bullied peers?		.06		-.04		.17*
Have you been cyber-bullied?		.05		-.14		-.10
Have you cyber-bullied?		.02		.24***		.00
Step 3: Protective Variables	.06*		.12***		.16***	
Personal Competence		-.30**		-.16		-.35***
Social Competence		.22*		-.22**		.22*
Family Coherence		-.09		.06		-.22*
Social Resources		.00		-.14		-.15
Total R^2	.22***		.48***		.33***	
N	158		158		158	

Note. *p < .05. **p < .01. ***p < .001. The betas are from the final model with all steps and variables included.

Table 5 *Hierarchical Multiple Regression Results for Predicting Emotional Problems and Total Difficulties*

Predictor	Emotional Problems		Total Difficulties	
	ΔR^2	β	ΔR^2	β
Step 1: Demographics	.26***		.17***	
Gender (0 = male, 1 = female)		.30***		.07
Grade level		-.02		.04
Family economy		.05		-.06
Step 2: Risk Variables	.24***		.30***	
Life Events Scale		.22**		.16*
Have you been bullied?		.23***		.27***
Have you bullied peers?		.05		.07
Have you been cyber-bullied?		-.07		-.08
Have you cyber-bullied?		.09		.12*
Step 3: Protective Variables	.11***		.13***	
Personal Competence		-.31***		-.38***
Social Competence		-.14*		.00
Family Coherence		.02		-.06
Social Resources		.01		-.08
Total R^2	.61***		.59***	
N	158		158	

Note. *$p < .05$. **$p < .01$. ***$p < .001$. The betas are from the final model with all steps and variables included.

Discussion

The goal of this thesis was to examine how demographic variables, life events, bullying (risk factors) and resilience (protective factors) were associated with mental health problems, in addition to estimate the prevalence of different mental health problems among adolescents in a small municipality in Northern-Norway. Approximately, 19% scored above the cut-off value for the Total Difficulties Score on SDQ, indicating some mental health problems. The findings also indicated a significant gender difference where girls displayed more emotional problems than boys ($r = .48**$), and also a higher Total Difficulties Score on SDQ ($r = .29**$), as indicated by the significant correlations between gender and SDQ. Further, the results indicated a strong positive correlation between the risk factors such as being bullied and life events ($r = .34**$), and the Total Difficulties Score (SDQ) whereas resilience factors were negatively related to Total Difficulties (range $r = -.25**$ to $-.48**$). Hierarchical regression analyses indicated that mental health problems were mostly predicted by risk factors such as life events ($r = .48**$), and bullying ($r = .54**$) after controlling for demographic variables, and that resilience as a protective factor added significant variance to the prediction of mental health problems. Overall, the regression model explained 59% of the variance in the Total Difficulties Score, and between 22% and 61% for the different SDQ sub scales.

The prevalence of different mental health problems among adolescents in a small municipality in Northern-Norway (Research question one)

Altogether, 158 adolescents participated in the study. Most of the adolescents lived with their parents and about 85% reported that their mother was employed or a student, and the corresponding figure for father was 92%. Only 3% considered that their family had poor economy compared to other families. Mental health problems among the adolescents were measured with the Norwegian self-report version of the Strengths and Difficulties Questionnaire (SDQ). SDQ has been widely used in large population-based studies, both abroad and in Norway (e.g., *Barn i Bergen, Ungdata*). It is not yet determined what constitutes a reasonable clinical limit, but the results in this study was compared to another large scale-study where over 4000 adolescents from Northern-Norway participated (Rønning et al., 2004). The study by Rønning et al. (2004), indicated that 9% of their sample scored above the suggested cut-off value. The current study indicated a slightly higher prevalence of mental health problems compared to the study from 2004. Approximately, 19% scored above

the cut-off value for the Total Difficulties Score on SDQ, indicating some mental health problems. Results from a national study *Ungdata* indicated a relatively high proportion (approximately 20%) displayed emotional symptoms like anxiety and depression (NOVA, 2015). However, the results are not directly comparable as a different scale was used for assessing mental health problems than SDQ.

Most of the adolescents perceived their mental health as good (see Table 2), still there were associations between gender and Total Difficulties (*r* = .29**). The study indicated systematic gender differences in adolescents' mental health, where girls displayed more emotional problems (*r* = .48**). This finding is supported by results from *Ungdata* where the extent of mental health problems was two to three times higher for girls than for boys (NOVA, 2015). Almost 25% of the girls from 15 years old were struggling with depressive symptoms and every third girl were not pleased with herself (NOVA, 2015). Other studies and national reports have reported similar results, including that emotional problems increased with age, and especially for girls (Folkehelseinstituttet, 2014; Rønning et al., 2004; Roy, Grøholt, Heyerdahl, & Clench-Aas, 2006). From 6 to 12 years old, boys are struggling most with mental health problems. In adolescence, from 12 years old, girls are struggling more with mental health problems, characterized by anxiety and depression (Folkehelseinstituttet, 2014). These emotional problems can lead to failure to thrive, learning disabilities and functional problems at home and school (Folkehelseinstituttet, 2014).

This study indicated a significant negative correlation between mental health and family economy (*r* = -.31**). Most of the adolescents considered the family economy as good. Only 3% considered that their family had poor economy compared to other families, while 60% of the adolescents reported that their family had good economy. Parents' financial situation is considered a risk factor among health determinants (Mathiesen et al., 20007). Being poor or to live in poverty is a risk factor that may follow generations and can make the daily life more difficult than necessary (NOU, 2012). Those living in poverty have often more mental health problems and less social contact, and many are ashamed of having financial problems (NAV, 2014). Adolescents who drop out of school, and in addition are not employed, are overrepresented among those receiving public benefits (NAV, 2014). Other demographic variables like whether parents were employed or grade level for the adolescents were not associated with mental health problems in this study.

Negative life events are considered important risk factors for mental health problems and several studies have indicated strong associations between negative life events and mental

health problems (Leve, Kim, & Pears, 2005; Major et al., 2011). This study supported this finding whereas Total Difficulties and life events were strongly associated ($r = .48^{**}$). Most of the adolescents from the municipality reported that they never had experienced mental health problems, financial problems, or substance abuse among their parents. Still, a small group (4%) of the adolescents had several times experienced negative life events, which may not be known to the school or their teachers. The likelihood for children and adolescents to develop mental health problems increases in periods when parents have many symptoms of mental disorders like depression and anxiety or the family is exposed to many impacts or negative life events (Mathiesen, Sanson, Stoolmiller, Karevold, 2009; Mathiesen & Prior, 2006). According to Mathiesen, Karevold and Knudsen (2009), children of parents with many strains and negative life events have higher risk of develop mental health problems. These children are often referred to as "the invisible children" meaning that they are often ignored by the welfare services and the children's strains and needs are not visible for the surroundings (Rimehaug, Børstad, Helmersberg, & Wold, 2006). Special prevention programs have been developed to address the needs of these children, e.g, the BAPP-program (Barn av foreldre med rus- og psykiske problemer) (Rimehaug et al., 2009), and Child Talks (Reedtz, 2009).

Bullying is the most frequent forms of victimization in childhood and adolescence. The potential personal and social effects of bullying may last well into adulthood (Allison, Roeger, & Reinfeld-Kirkman, 2009; Copeland, Wolke, Angold, & Costello, 2013; Wolke, Copeland, Angold, & Costello, 2013). In this study, a total of 6.3% of the adolescents reported that they had been bullied at school 2-3 times a month or more often. Comparing this incidence to the recent national study, *Elevundersøkelsen 2015*, in which 3.7% reported to have been bullied, the adolescents from Northern-Norway reported a higher level of bullying than Norwegian adolescents in general. The corresponding number for 2013, the same time as this current study were conducted, were 4.3% (Wendelborg, 2014). Still, when comparing this study to both 2013 and 2015, the adolescents from Northern-Norway reported a slightly higher rate of bullying compared to the two national studies.

However, one problem with these comparisons is that the national study *Elevundersøkelsen 2013* changed the order of questions regarding bullying and new questions regarding different types of violations were added to the study. Questions regarding violation were placed just ahead of the questions regarding bullying, and it has been debated to what extent the decline in bullying is due to methodological effects or if it is a true decline in

bullying (Wendelborg, 2015; Wendelborg and Caspersen, 2016). This questions has been raised due to the fact that there are other national studies (e.g. *Ungdata*), that have not indicated the same decline in bullying. According to *Ungdata,* the occurrence of bullying is reported to a stable 6-7% (NOVA, 2015). In *Ungdata* there are no questions directly about bullying, but rather how often adolescents experience different incidents like "are you exposed to harassment, threats or ostracism by others at school or in your spare-time?". These kind of questions regarding bullying are in line with the definitions of bullying, but still, the question is how often bullying occurs at school or in the spare-time, and thus not exclusively bullying at school (Wendelborg & Caspersen, 2016). In studies done by Olweus and colleagues (Olweus, 1993; Olweus & Limber, 2010) there are preliminary questions regarding bullying, and then the extent and types of bullying. This research indicated that the percentage of experienced bullying at school is approximately the same as *Ungdata* indicated. In other words, both *Ungdata* and Olweus differ from *Elevundersøkelsen 2015*. According to Wendelborg and Caspersen (2016), the variation in reported percentage of bullying, and the variety of measurement scales for bullying indicate that the definition and assessment of bullying is complicated. It is further discussed whether the order of questions may have affected the results; that the question regarding violations have "drained" some of the reported bullying questions (Wendelborg & Caspersen, 2016). However, *Elevundersøkelsen 2015* had a control group where the questions about violations were placed after questions about bullying, and there were no significant effect of the placement (Wendelborg & Caspersen, 2016). As previously mentioned, in this study 6.3% of the adolescents in the small municipality of Northern-Norway reported that they were bullied. It is difficult to determine whether this incidence is approximately at the Norwegian level, or slightly higher. However, it is severe for those children who experience bullying and important for the municipality to pay attention to.

Bullying, both traditional bullying and cyber-bullying, are documented as highly salient risk factors for mental health problems (Cullberg, 1973; NOVA, 2015). In this study, there were higher correlations between being bullied and mental health problems ($r = .54**$) compared to engaging in bullying peers and mental health problems ($r = .26**$). Still, all variables for mental health were associated with being bullied and bullying others (range $r = .18*$ to $.51**$). Emotional problems had the highest correlations with being bullied ($r = .51**$). This finding is supported by several meta-analytic reviews indicating that the experience of being bullied was strongly correlated with depression (Hawker & Boulton,

2000), psychosomatic problems (Gini and Pozzolini, 2013) and suicidal ideation and attempts (Geel, Vedder & Tanilon, 2014). The variable Hyperactivity/Inattention was not significantly related to bullying, possibly because of biological factors being more important determinants.

Cyber-bullying, both being cyber-bullied and having cyber-bullied others, are indicated as risk factors for mental health problems (NOVA, 2015). In this study we found higher associations between being cyber-bullied and mental health problems ($r = .40**$) compared to having cyber-bullied peers and mental health problems ($r = .21**$). Still, all variables for mental health were associated with Being cyber-bullied (range $r = .22**$ to .36**), and Cyber-bullied others (range $r = .16**$ to .21**). This finding is supported in earlier studies, where it is indicated that the experience of cyber-bullying has been linked with a host of negative outcomes like anxiety, substance abuse, depression, increased physical symptoms, difficulty sleeping, decreased performance in school, absenteeism and truancy, dropping out of school and murder or suicide (Beran & Li, 2005; Mitchell, Ybarra, & Finkelhor, 2007; Ybarra, Diener-West & Leaf, 2007).

Resilience among adolescent was measured with the READ-scale. Personal Competence measures the level of self-esteem, self-efficacy, self-liking, hope, determination and a realistic orientation to life. Social Competence measures extraversion, social adeptness, cheerful mood, an ability to initiate activities, good communication skills and flexibility in social matters. Social Resources measures access to external support from friends and relatives, intimacy, and the individual's ability to provide support, and the last, Family Coherence measures amount of family conflict, cooperation, support, loyalty and stability (Friborg, Hjemdal, Rosenvinge, & Martinussen, 2003). Overall, the adolescents reported high levels of resilience (see Table 2). Most of the resilience-scales (Personal Competence, Social Competence, Family Coherence and Social Resources) were close to four on a five-point scale (see Table 2). When comparing these findings with another Norwegian study where over 400 adolescents participated, the current study indicated approximately the same levels of resilience as in the study by Hjemdal and his colleagues (2006).

This study indicated that Total Difficulties problems and all the protective variables were strongly associated (range $r = -.45**$ to $-.67**$). In other words, the higher the resilience, the less mental health problems. All variables of mental health were highly, negatively associated with Personal Competence (range $r = -.34**$ to $-.65**$), and the highest associations were detected for Emotional Problems ($r = -.65**$). This may indicate that adolescents who have high self-esteem, self-efficacy and self-liking, who experience hope,

determination and a realistic orientation to life, have less mental health problems. This assumption is supported by Svanberg (1998), who indicate that resilient people seem to cope more functionally and flexible with stress. These characteristics are developed early in life by the formation of a secure attachment to other people, which may reduce the vulnerability to developing psychiatric disorders significantly.

Except from Hyperactivity/Inattention, all the other mental health variables were highly negatively associated with Social Competence (range $r = -.16*$ to $-.50**$). This may indicate that adolescents who are have a cheerful mood, an ability to initiate activities, good communication skills and flexibility in social matters, have less mental health problems.

All mental health variables were highly negatively associated with family coherence (range $r = -.33*$ to $-.46**$), and the highest correlations was with conduct problems ($r = -.46**$). This is supported by findings from Werner (1993), and it may indicate that those adolescents who have a good relationship with their parents and family, small amounts of family conflicts and generally high on cooperation, support, loyalty and stability have less mental health problems.

Different predictors of mental health problems including risk factors such as life events and bullying and resilience as a protective factor (Research question two)

In general, demographic variables explained a small amount (17%) of variance in mental health scores. Family economy explained a small, if any, amount of variance in mental health scores, indicating that poor economy in the family may affect the adolescents' relationship to peers (see table 5). This assumption is supported by Mathiesen and colleagues (2007) who indicate that children have less opportunity to influence their conditions than adults, and their living conditions will in many ways be affected by their parents' socioeconomic status.

As expected and discussed earlier in this paper, Emotional Problems were predicted by gender ($\beta = .30, p < .001$), indicating that girls displayed more emotional problems than boys. This is consistent with previous studies (NOVA, 2015).

Risk variables represented by life events, been bullied, and bullying others, both traditional and cyber-bullying, explained a large part of the variance in mental health scores (30%). Life events explained a high amount of variance in total difficulties ($\beta = .30, p < .001$). This finding is supported by Clench-Aas, Rognerud and Dalgard (2009), who indicate that negative life events may cause mental health problems. As expected, the experience of

being bullied explained a large amount of the variance in Peer problems ($\beta = .36$, $p < .001$), Emotional problems ($\beta = .23$, $p < .001$), and Total Difficulties ($\beta = .27$, $p < .001$). This is consistent with several studies (NOVA, 2015; Olweus, 1986), indicating that those who were experiencing the most mental health problems, were more often bullied. Bullying is a public health problem that may cause the victims into a situation of learned helplessness (Hallberg & Strandmark, 2004) and bullied pupils are more likely than their non-bullied peers to have anxiety and depression (Olweus, 1993).

Earlies studies have indicated that cyber-bullying others may have different outcomes from anxiety to decreased performance in school or dropping out of school (Beran & Li, 2005; Mitchell, Ybarra, & Finkelhor, 2007; Ybarra, Diener-West. & Leaf, 2007). In this study, the experience of being bullied was the only variable explaining a large amount of the variance in Total Difficulties. This may be explained by the degree of overlap of traditional bullying and cyber-bullying. According to Olweus (2013), there is a very high degree of overlap between traditional bullying and cyber-bullying and that the question regarding traditional bullying may have "drained" some of the reported cyber-bullying questions. His research indicated that students who had been exposed to cyber-bullying in the Norwegian schools, 93% had been bullied at least one traditional way. For cyber-bullying others, the overlap also was 91% (Olweus, 2013). Peer problems were predicted by both the experience of being bullied ($\beta = .36$, $p < .001$), and the experience of having cyber-bullied others ($\beta = .24$, $p < .001$). This may support the findings from a previous study done by Flygare and Johansson (2013), indicating that school bullying has identified several factors that are likely contribute to cyber-bullying and that those being bullied have a higher risk of being cyberbullied as well.

Protective variables can be associated with decreased probability for future negative psychosocial development (Nordahl, Gravrok, Knudsmoen, Larsen & Rørnes, 2006). In this study the protective variables explained 13% of the variance in Total Difficulties. Personal Competence was a significant predictor for Hyperactivity/ Inattention ($\beta = -.30$, $p < .01$), Conduct Problems ($\beta = -.35$, $p < .001$), Emotional Problems ($\beta = -.31$, $p < .001$), and Total Difficulties ($\beta = -.38$, $p < .001$). The findings is supported by Werner (1993), who indicate that individual dispositional attributes (e.g. self-esteem and self-efficacy) are one out of three protective resources that are the most significant determinant of healthy adjustment to long-term stress. According to Bandura (1986), self-efficacy is a term that has been used in relation to mental health, where it is an expectation to cope with problems as they occurs.

Friborg and colleagues (2003), indicated that social competence measures extraversion, social adeptness, cheerful mood, ability to initiate activities, good communication skills and flexibility in social matters. Social competence was significant when predicting hyperactivity/inattention ($\beta = .22$, $p < .05$), peer problems ($\beta = -.22$, $p < .01$), conduct problems ($\beta = .22$, $p < .05$), and emotional problems ($\beta = -.14$, $p < .05$). Both variables, personal and social competence, may be protective variables for mental health problems. This is consistent with previous studies indicating that resilient people cope by using several protective resources either within themselves or in their environment (Werner, 2001), and resilient people have a positive self-image and display great optimism for the future (Cederblad, Dahlin, Hagnell, & Hansson, 1993).

Prevention work at schools

One of the fundamental functions of a school is to provide a safe learning environment for all pupils (Luxenberg, Limber, & Olweus, 2015). All Norwegian municipalities are required to draft a plan for public health prevention and promotion, including mental health among children and young people (St.meld. nr 20 (2012-2013)). For this prevention work, it may be important for schools to focus more towards social competence rather than personal competence. Personal competence may in many ways be characterized as personality characteristics, and it might be difficult for schools to do prevention work regarding personal competence. However, social competence may be an arena where the school can contribute to their pupils' development. According to Strøm, Thoresen, Wentzel-Laren, Sagatun and Dyb (2014), adolescents who were exposed to bullying at school and had social support from classmates, teachers or family were less likely to become marginalized compared to exposed adolescence without such support. A strong social supportive network (e.g., teachers) at school is important in order to protect vulnerable adolescents (Strøm et al., 2014).

Another aspect at preventive work at school is the discussion to introduce mental health as part of the curriculum in schools (Klomsten, 2014). Children and adolescents spend about 1/3 of their time at schools and schools have a unique role in promoting learning and developmental skills, in addition to promote mental health and provide important support to adolescence who struggle with mental health problems (Bru, Idsøe & Øverland, 2016). A small group (4%) of the adolescents from this study had several times experienced negative life events (experienced mental health problems, or financial problems, or substance abuse among parents). The school can be an important contributor for learning about mental health

(Klomsten, 2014). To include mental health as part of the curriculum gives the teacher and the pupils an opportunity to discuss and reflect upon thoughts and feelings that might occur, and the school can help pupils to cope with stress factors and anxiety that may occur in different situations (Klomstein, 2014).

Schools have the opportunity to introduce universal interventions that will benefit all youths, but particularly youths that have experienced or are experiencing difficult periods in life (e.g., financial problems among their parents). An example of universal intervention can be *VIP* (*Veiledning og informasjon om psykisk helse hos ungdom*), which are a health promotion and universal measure aimed at youths, primarily aged 16 to 17 years old (Neumer, 2012). The main aim for the program is to make youths be more aware of their mental health and learn about where to seek help if mental health problems occur (Neumer, 2012). Another program is the *TIM-study* (*Tidlig intervensjon - Mestrende barn*), which is a selective, low-threshold program to be used in schools for children, aged from eight to 12, who are at risk for anxiety and depression (NTNU, utdatert). In the work of preventing bullying at school, the Olweus Bullying Prevention Program (OBPP) is one of the most widely researched and highly regarded programs for preventing bullying at schools (Luxenberg, Limber, & Olweus, 2015). The program uses a comprehensive schoolwide, systems-change approach that involves teachers, pupils, parents, and other school and community personnel in an effort to reduce existing bullying problems and prevent future problems from occurring (Luxenberg, Limber, & Olweus, 2015). An evidence-base study indicated that the use of this program led to a decrease in bullying by more than half (Olweus, 1999). According to Olweus (1999), the use of the OBPP-program will not only decrease peer bullying, but also result in a more positive psycho-social climate in the school. According to Ttofi and Farrington (2011) school-based anti-bullying programs are effective. On average, the use of anti-bullying programs, bullying decreased by 20-23% and victimization decreased by 17-20% (Luxenberg, Limber, & Olweus, 2015).

Limitations of the present study

Like any other research study, this study has limitations. To begin with, our study relied on self-assessments only. Although natural observations are also important in bullying research (Pellegrini & Bartini, 2000), most studies on bullying uses self-assessments which are also recommended for reporting prevalence rates for bullying (Solberg & Olweus, 2007). A second limitation is the use of only four specific items to measure bullying and cyber-

bullying. Obviously, these four items do not fully capture the whole picture. Nevertheless, the particular four items covered relevant aspects of bullying (been bullied, have bullied other, have been cyberbullied, have cyberbullied others). Furthermore, the use of only quantitative methods in bullying research may be a limitation. Future studies should also consider qualitative methods to be able to better understand the concepts of bullying for pupils' at schools.

Another source of weakness was the number of participants. The number of participants of the study was modest. About one third of all adolescents in the municipality have participated in this study. At some of the schools the response rate was very low without any apparent reason. It might be coincidences, but it may also be systematical differences between the respondents and non-respondents. It is difficult to know whether those not participating are not satisfied with their school or have more mental health problems than those who participated. The collection of consent form from both parents and adolescents may have contributed to the low response rate.

The use of online questionnaire may give some source of errors due to reading skills. In addition, some adolescents may have responded in a socially expected and desirable way (Merrel, 2003). These are errors not specific to this study but may occur in any questionnaire. Another source of error is the design of the study, a cross-sectional design, which makes it difficult to indicate anything certain about the causal relationship between variables. Longitudinal studies are needed to provide a more accurate picture of causal relations. .

Earlier studies have indicated that several risk variables and protective variables may affect mental health (Berkmann & Glass, 2000; Hjemdal, Friborg, Stiles, Martinussen & Rosenvinge, 2006; Nordahl, Gravrok, Knudsmoen, Larsen & Rørnes, 2006). This may be variables like participating in sport activities, coping-skills, and relationships to their teacher at school. Further research may include several variables to achieve a broader picture of mental health among adolescents.

Conclusion

The goal of this thesis was to estimate the prevalence of different mental health problems among adolescents in a small municipality in Northern-Norway. Overall, 19% scored above the cut-off value for the Total Difficulties Score on SDQ indicating some mental health problems. The findings also indicated a significant gender difference where girls displayed more emotional problems than boys, and also a higher Total Difficulties Score on SDQ. The

results indicated a strong positive correlations between the risk factors such as being bullied and life events, and the Total Difficulties Score (SDQ) whereas resilience factors were negatively related to Total Difficulties. The overall level of being bullied was higher (6.3%) among the current sample compared to a recent national study (3.7%) (Wendelborg, 2016). Overall, this master thesis has indicate that the prevalence of mental health problems among adolescents are highly associated with being a girl, with poor family economy, exposed to negative life events and bullying and low on personal competence (Research questions one). Further, this master thesis examined how the relationship between life events, bullying (risk factors) and resilience (protective factors) were associated with mental health problems (Research questions two). The regression analyses indicated that mental health problems were mostly predicted by risk factors such as life events and bullying, and that resilience as a protective factor added significant variance to the prediction of mental health problems. The regression model explained 59% of the variance in the Total Difficulties Score, and between 22% and 61% for the different SDQ sub scales.

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