DET PSYKOLOGISKE FAKULTET

The Associations Between Parenting Practices, Bullying in School and Psychological Distress in Young Adulthood

HOVEDOPPGAVE

profesjonsstudiet i psykologi

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Vår 2021

Forord

Denne hovedoppgaven markerer slutten på profesjonsstudiet i psykologi. Arbeidet med oppgaven har utfordret meg faglig og samtidig styrket min egen tro på meg selv.

Først og fremst ønsker jeg å rette en stor takk til mine veiledere, Robert Frans Otto Smith og Tormod Bøe. En spesielt stor takk til min hovedveileder, Robert, for å ha stolt på meg med sine innsamlede data og brukt sin tid på å veilede meg. Takk til dere begge for gode, konstruktive tilbakemeldinger, rask respons og motiverende ord.

Det er min hovedveileder som har stått for innsamlingen av data og utformingen av foreldrepraksissurvey brukt i hovedoppgaven. Bortsett fra dette, er det jeg som har hatt ansvaret for utarbeidelsen av hovedoppgaven- fra litteraturgjennomgangen til alle de statistiske analysene, inkludert faktoranalysen og tolkningen av resultatene.

Oppgaven følger APA 6th standarden, men vil avvike fra standarden ved at figurer og tabeller er inkludert i selve teksten.

Sammendrag

Tidligere forskning har vist at foreldrepraksis og mobbing på skolen hver for seg påvirker psykisk helse. Både foreldrepraksis gjennom oppveksten og mobbing på skolen har vist langvarige konsekvenser for psykisk helse. Spesielt det å bli mobbet på skolen er knyttet til skadelig påvirkning på psykisk helse hos unge voksne. Målet med denne studien er å undersøke om foreldrepraksis og mobbing på skolen kan ha assosiasjoner til hverandre, og har en videre innvirkning på psykiske vansker i ung voksen alder. Resultatene i denne studien er basert på selvrapport fra tverrsnittstudien Studentenes Psykiske Helse Over Tid (*n*= 2453 gjennomsnittsalder = 23.23 år) i Bergen. Regresjonsanalysene viste at alle foreldrepraksiser og bli mobbet på skolen var assosiert med psykiske vansker hos unge voksne. Mer spesifikt, støttende foreldrepraksis gjennom oppveksten var en beskyttende faktor for senere psykiske vansker, mens aggressiv- og overbeskyttende foreldrepraksiser, og være utsatt for mobbing på skolen, var risikofaktorer for flere psykiske vansker hos unge voksne. I følge medieringsanalysene var det å ha vært mobbet, men ikke å ha mobbet andre, en mediator for forholdet mellom aggressiv- og støttende foreldrepraksis og psykiske vansker hos unge voksne. Denne studien styrker evidensgrunnlaget for at foreldrepraksis gjennom oppveksten har en langtidseffekt på psykisk helse som varer til ung voksen alder, og at en del av denne assosiasjonen kan forklares av å ha opplevd mobbing på grunnskolen.

Abstract

Previous research has separately linked parenting practices and being involved in bullying to mental health outcomes. Additionally, both are associated with long-term consequences in mental health. Especially being bullied in school is related to adverse impact on mental health in young adults. The aim of this study is to investigate whether parenting practices and bullying in school could be associated, and to examine whether parenting practices and bullying in school have an impact on psychological distress in young adulthood. The results of this study are based on self-report data from the cross-sectional Students´ Psychological Health Over Time-study in Bergen, Norway (*n*= 2453, mean age= 23.23 years). Regression analyses revealed that all parenting practices and bullying victimization were related to psychological distress in young adulthood. More specifically, supportive parenting was a protective factor for future psychological distress, while aggressive- and overprotective parenting practices, and bullying victimization were risk factors for elevated psychological distress in young adults. Results from mediation analyses suggest that bullying victimization, but not bullying perpetration, mediated the relationship between aggressive-, supportive parenting and psychological distress in young adults. This study strengthens the evidence that parenting practices may have long-term consequences on mental health in young adulthood, and that part of this effect may be explained by bullying victimization during primary and secondary education.

A report by the Norwegian Public Health Institute showed that one out of three adults will be affected by a mental illness within a year, and one in three adults will meet the criteria for a mental illness across the lifespan (Mykletun, Knudsen, & Mathiesen, 2009). Mental illness is a major issue in society as it is one of the biggest contributors to increased sick leave, incapacity to work and mortality (Mykletun et al., 2009). People with mental illness are burdened with troublesome symptoms, reduced function and quality of life. A report published in the Lancet Psychiatry, by Firth et al. (2019), points out that mental illness is a major contributor to lost years of good health, and contributes to reduced life expectancy with up to 20 years.

For many decades, researchers have tried to identify factors that contribute to and explain the development of individual mental health differences across the lifespan. The majority of mental illness debut early in the lifespan, during adolescence or early adulthood, and some people show symptoms or have the onset already during childhood (Mykletun et al., 2009). Research has shown that children who are exposed to *adverse childhood experiences* are especially vulnerable for developing psychiatric disorders later in life (Afifi et al., 2008). Adverse childhood experiences refer to "*some of the most intensive and frequently occurring sources of stress that children may suffer early in life*", and include poor relationships with parents, peer-, parent-, community and collective violence, neglect and sexual abuse (WHO, 2018, para. 1). Inadequate support or parental involvement, as well as being bullied by peers, are examples of adverse childhood experiences that may give rise to prolonged stress in childhood which in turn can later lead to mental illness (WHO, 2018). To minimize the impact of such adverse experiences on later mental health, it is important to recognize psychological problems early in the lifespan and implement psychological interventions.

Parenting

Parents play a key role in childhood and set the context for child development. Parents affect their children through their own behavior, parenting practices and style, and other relationship variables such as quality of attachment and parent-child relationship. Growing up in a healthy and supporting environment is important for later development of emotional, cognitive and social skills. Whether a child grows up in a secure environment with supporting and warm parents can lay a crucial foundation for positive development in later life. Conversely, an environment characterized by cold parenting shows harmful associations in developmental trajectories.

According to attachment theory parents have a key influence on their children through attachment- "*the strong emotional bond that develops between children and their primary caregivers"* (Passer & Smith, 2004, p. 489). Attachment lays the foundation for an internal working model, a mental framework that includes memories, expectations, and cognitions about the self and others. Parents affect their children by being a prototype for a child´s internal working model, which in turn guides the relationships with others (Bowlby, 1982). Another way that parents influence their children is through parenting style.

Baumrind (1966) identified three parenting styles based on the dimension of parental control, which refers to parental discipline and monitoring. Maccoby and Martin (1983) expanded on Baumrind´s work by categorizing parenting practice along two axes, and by adding a fourth style of parenting. The two axes were parental demandingness, also referred to as parental control, and parental responsiveness, also known as parental support. The combined work of Baumrind (1966) and Maccoby and Martin (1983) resulted in a typology consisting of four different parenting styles along the two axes. The four styles of parenting are: 1) authoritative parenting, 2) authoritarian parenting, 3) permissive or indulgent parenting, and 4) uninvolved or neglectful parenting. The authoritative parent is high on both axes of responsiveness and demandingness. Contrary, an uninvolved parent is low on both

axes. High demandingness and low responsiveness describe an authoritarian parent, while a permissive parent show low demandingness and high responsiveness.

In addition to parenting styles, many researchers measure parenting behaviors, or parenting practices, to separate outcomes. Parenting practices may refer to use of discipline, control, monitoring and displaying parental warmth and support.

Furthermore, children can learn behavior through observation that can affect the way children act in other contexts and later in life (Bandura, 1977). According to the Social cognitive theory (Bandura, 1986) parents can act as models of behavior for their children. If parents are emotionally unavailable, aggressive or highly controlling, children may replicate these behaviors in other contexts. Bandura (1973, 1986) argues that children may acquire and maintain aggression through observation of their parents. Therefore, one must investigate the context that children grow up in to fully understand children's behavior.

Parenting Practices and Outcomes in Childhood, Adolescence and Adulthood

Outcomes in childhood. The research on parental styles and outcomes in childhood is extensive. A systematic scoping review conducted by the Norwegian Institute of Public Health and commissioned by the Norwegian Directorate for Children, Youth and Families, sums up the findings of eight systematic reviews (Blaasvær & Ames, 2019). The results are consistent and show that authoritative parenting style is associated with positive outcomes in children. Authoritative parents are often described as warm, attentive, supportive and encouraging. Children of authoritative parents show better health, less behavioral problems, less anxiety and depression symptoms and report better quality of life (Blaasvær & Ames, 2019). On the other hand, an authoritarian parent exerts high control, and can be described as cold, punitive and dismissive. This parenting style is consistently considered with worse outcomes and dissatisfaction in children. Higher prevalence of behavioral problems, higher scores of depression and anxiety symptoms are among the results tied to authoritarian

parenting in research. The association between authoritarian parenting and behavioral problems is especially strong (Blaasvær & Ames, 2019). The children of neglectful, or uninvolved, parents score the lowest on all measures of child well-being. Permissive parenting is associated with higher prevalence of behavioral problems, more anxiety symptoms and worse health behavior. However, permissive parenting is at the same time linked to reduced depression symptoms and fewer externalizing difficulties (Blaasvær & Ames, 2019).

Outcomes in adolescence. Parenting styles continue to affect people in their adolescence. A literature review by Hoskins (2014) on parenting and outcomes in adolescence, concludes that authoritative parenting is the most beneficial of parenting styles. Adolescents with at least one authoritative parent show lowest levels of depression, higher levels of well-being, life-satisfaction, self-esteem and school-commitment, and are less likely to engage in drug use (Chan & Koo, 2011; Hoskins, 2014), and get better grades in school (Chan & Koo, 2011). In the same way as in childhood, authoritarian-, permissive- and uninvolved parenting styles are associated with worse outcomes in adolescence when compared to authoritative parenting (Hoskins, 2014). In addition, Hoskins (2014) links different parenting behaviors to separate outcomes in adolescents. Consistent discipline is associated with positive adjustment, and can buffer the effects of stressful and negative experiences. On the other side, inconsistent- and harsh discipline, such as reacting with yelling or threats, is related to more behavioral problems. Especially harsh discipline is thought to normalize aggressive behavior (Hoskins, 2014). Furthermore, parental warmth and support are positively associated with outcomes such as increased self-esteem, and lower levels of aggression, depression and irritability in adolescents (Hoskins, 2014).

Outcomes in adulthood. The effects of parenting styles on adult mental health have not yet been summarized in literature reviews or meta-analyses. However, several large

longitudinal studies connected parenting to lasting outcomes in adulthood. Aquilino and Supple (2001) analyzed data collected in 80s and 90s from the National Survey of families and households in the US. The study had a longitudinal design where adolescents and their parents were interviewed when adolescents were between age 12 and 18, and again five years later at age 18 to 24. The results showed that parenting styles had long-term effects that lasted into early adulthood. In general, a parenting style that was characterized by high conflict with the child, yelling and arguing was associated with more negative mental health outcomes in mental health in young adulthood, compared with other parenting styles. This type of parenting showed associations to higher levels of hostile affect, lower levels of personal efficacy, self-esteem and life satisfaction, and more substance use in young adulthood (Aquilino & Supple, 2001). On the other side, parenting characterized by parental support predicted less depressive symptoms and irritability. In addition, children who were involved in rule-setting by their parents had higher self-efficacy in young adulthood (Aquilino & Supple, 2001). Another longitudinal study found that parent-child conflict and parental affectionless control were associated with major depressive disorder at 20-year follow-up (Pilowsky, Wickramaratne, Nomura, & Weissman, 2006). Low parental warmth and care was associated with mental disorders in adulthood by two studies. Another study examined data from the National Comorbidity Survey on the association between parental care, overprotection, authoritarianism and mental health in adulthood, in a US representative sample. The study identified lack of care as having the strongest association to mental disorders including depression and anxiety (Enns, Cox, & Clara, 2002). Using the same measurement of parenting, lifetime prevalence of major depressive disorder was linked to low parental care from both parents in a community sample (Parker, Hadzi-Pavlovic, Greenwald, & Weissman, 1995).

It is important to note that parenting styles are theoretical constructs, and in reality, parenting behavior will be determined and characterized by a complex set of factors. In addition, parenting styles may be difficult to measure precisely. Therefore, parenting style typology is usually broken down in research to other more specific, but still related units. Other times maladaptive parenting variables are included in other general terms, such as child maltreatment.

The included studies seem to point to a consistent association between parenting practice and mental health outcomes. However, it is conceivable that parenting practices also have an impact on how children socialize and interact with their environment, in particular their peers. One of the most prevalent and potentially damaging behaviors in this context is bullying. According to Olweus (1993), there are four main trends in child rearing conditions associated with aggressive behavior, including bullying. These four factors are: 1) permissive caretakers that do not set boundaries for the aggressive behavior, 2) a general attitude in the primary caregiver that is characterized by a lack of warmth and involvement, 3) physical punishment by parents and 4) an aggressive temperament of the child. In the next sections, I will define bullying, describe its forms, and report about what is known in the literature about the interrelations between bullying, parenting practices and mental health outcomes.

Bullying

Bullying in school is a type of antisocial behavior that is defined as aggressive, intentional acts carried out by a group or an individual repeatedly and over time against a victim who cannot easily defend him or herself (Olweus, 1993). Bullying is a global public health concern that affects people world-wide, and research has associated bullying with several negative outcomes in mental health and risk behavior. Children and adolescents in all countries, irrespective of income status, are exposed to bullying (Biswas et al., 2020; Fleming & Jacobsen, 2009). There are however some global variations in prevalence of bullying. Low-

and middle income countries show similar prevalence of children being bullied. International studies indicate that around 35% of children in low- and middle income countries are victimized by peers across age groups and gender, although boys report victimization more often compared to girls (Fleming & Jacobsen, 2009). Victimization is less common in the European region with around 9% of children reporting being bullied (Biswas et al., 2020). A recent survey in Norway reported that 6.8% of children in school experience bullying (Wendelborg, Dahl, Røe, & Buland, 2020). In Germany on the other hand, the estimated prevalence of bullying is 14.4% (Jantzer, Haffner, Parzer, Resch, & Kaess, 2015). The wide variation in prevalence of peer victimization within economic and geographic regions suggest that other factors are of importance. For example, the degree to which an individual experiences support from parents and peers is identified as a protective factor against bullying (Biswas et al., 2020).

Research distinguishes between different types of bullying involvement. Bullying perpetration refers to children who bully, and there are two different types of bullying perpetration. The first type is a "typical" *bully*, a child who bullies others. The second type is a *bully-victim*, a child who both bully others and is bullied by others. On the other hand, bullying victimization refers to someone who *is* bullied, or exposed to negative actions repeatedly and over time from one or more people (Olweus, 1993). Children who are exposed to bullying are often referred to as *victims.* In addition, both bullying perpetration and victimization require a certain imbalance of power between the bully and the victim (Olweus, 1993). Accordingly, the literature on bullying refers to different categories of bullying involvement: *bullies*, *victims*, *bully-victims* and children who are *not involved* in bullying.

All children involved in bullying, i.e. bullies, victims and bully-victims, report dislike for school (Slee, 1995) and are more disliked by peers than uninvolved children (Veenstra et al., 2005). Bullies and bully-victims share some common characteristics. They are the most

disliked group among peers, are more likely to be boys, and show high levels of aggressiveness (Veenstra et al., 2005). Research has also identified certain characteristics that appear more specific to each of the categories. Bullies often show an aggressive reaction pattern combined with physical strength (Olweus, 1994) and are psychologically strong (Juvonen, Graham, & Schuster, 2003). Although bullies are disliked among peers, they are not marginalized, and some studies point out that bullies have a high social standing among their class-mates and gain social status from peers (Juvonen et al., 2003). This is in contrast to victims, who are more often socially marginalized among classmates (Juvonen et al., 2003). Victims also suffer the highest degree of isolation (Juvonen et al., 2003). Additionally, victims are emotionally distressed, and especially boy victims exhibit an anxious reaction pattern combined with physical weakness (Juvonen et al., 2003; Olweus, 1994). Bully-victims display the highest level of problems linked to peers, school and conduct (Juvonen et al., 2003). The main characteristic of children not-involved in bullying is that their families have higher SES compared to children involved in bullying (Veenstra et al., 2005).

Bullying and Outcomes in Childhood, Adolescence and Adulthood

The effects of peer victimization are well-documented. However, a meta-analysis points out that up to relatively recently, studies on bullying effects concerned only short follow-up periods or were cross-sectional (Wolke & Lereya, 2015). Research that examines the long-term effects of childhood bullying in adulthood has emerged mostly in the last two decades.

Outcomes in childhood. Bullying is consistently linked to worse mental health in children. A review by Rigby (2003) identified four categories of negative health consequences of bullying in school-children. These are: 1) low psychological well-being, 2) poor social adjustment, 3) psychological distress and 4) physical unwellness. Victims of bullying show a wide and diverse range of problems. These results are summarized in a

systematic review and a meta-analysis by Moore et al. (2017), and a world-wide study by Fleming and Jacobsen (2009). Being a victim of bullying is associated with risk behaviors such as tobacco use, alcohol use and illicit drug use (Fleming & Jacobsen, 2009; Moore et al., 2017). Additionally, peer victimization relates to mental health problems (Arseneault, 2018), such as higher levels of depression symptoms (Moore et al., 2017; Slee, 1995), anxiety and anxiety spectrum disorders such as social phobia and post-traumatic stress disorder (Lin, Wolke, Schneider, & Margraf, 2020). Moreover, victims of bullying report more often feelings of sadness and hopelessness, loneliness and insomnia (Fleming & Jacobsen, 2009). Furthermore, having experienced bullying has a significant relation to idealizing thoughts of suicide (Rigby & Slee, 1999), non-suicidal self-injury, suicidal behavior (Jantzer et al., 2015) and increased rates of suicide attempts (Barzilay et al., 2017; Fleming & Jacobsen, 2009; Lin et al., 2020).

Additionally, being a bully is also associated with negative mental health outcomes. In a similar way as victims, bullies show high depression scores (Salmon, James, & Smith, 1998; Slee, 1995), unhappiness (Slee, 1995) and suicidal ideation (Rigby & Slee, 1999).

Outcomes in adolescence. The negative mental health consequences of bullying persist at least into adolescence. First of all, a longitudinal follow-up from age 8 to 16 reveals that bullying in school is persistent (Sourander, Helstelä, Helenius, & Piha, 2000). While bullying victimization is strongly persistent, especially among boys, bullying perpetration shows a weaker persistence. Although bullying victimization and perpetration is less common at age 16, it was predicted by emotional and behavioral problems at age 8. Both bullies and victims reported a wide range of problems at age 16. This is consistent with earlier reports of earlier school victimization´s continuous influence on mental health in adolescence (Rigby, 1999). According to a research review by Arseneault (2018), bullying victimization is associated with mental health problems such as anxiety and depression in adolescence, and

psychotic experiences in those who experienced high levels of bullying. A prospective cohort study of adolescents in Australia on bullying victimization and emotional problems, showed that "*history of victimizations is a strong predictor of the onset of self-reported symptoms of anxiety or depression and remains so after adjustment for other measures of social relations"* in adolescence (Bond, Carlin, Thomas, Rubin, & Patton, 2001, p.483).

Outcomes in adulthood. The first known longitudinal study to examine effects of bullying in childhood on young adults, by Olweus (1994), showed optimistic results. One major finding was the lack of continuity in bullying victimization- children who were bullied in grade 6 and 9, were not at greater risk to be victims of bullying at age 23. The finding is promising as it suggests that victimization ends in school for some children. Another finding implicated that victims recovered from bullying victimization experienced in school. At 23 years of age, former victims scored in the normal range of stress levels, anxiety symptoms, inhibition and introversion. However, young adults who were victimized in childhood differed from their peers with respect to depressive symptoms and poor self-esteem. Although the pioneering research on long-term effects of bullying were optimistic, the results from this study should be considered with precaution, as Olweus (1994) pointed out himself, due to the small sample size. In fact, later research on long-term outcomes of bullying have concluded with far less optimistic results. In the next section, several studies will be reviewed with regard to effects of bullying involvement in childhood on adult mental health: two prospective, longitudinal studies from Finland (Klomek et al., 2008; Sourander et al., 2009) and United States (Copeland, Wolke, Angold, & Costello, 2013), and research reviews on bullying as a risk factor for mental health problems in adults (Arseneault, 2018; Wolke & Lereya, 2015).

There is a general agreement in research that bullying involvement either as a victim, bully or bully-victim in childhood, poses individuals at a long-term risk for negative

outcomes in adulthood (Arseneault, 2018; Copeland et al., 2013; Wolke & Lereya, 2015). In a prospective population-based study from the US, all groups involved in bullying maintained a higher risk for psychological problems, even after childhood factors, such as problems associated with family and psychiatry, were controlled for (Copeland et al., 2013).

A dose-effect relationship between bullying victimization and outcomes in adulthood seem to be present. Children who experienced more severe bullying more frequently, showed worse outcomes in adulthood (Wolke & Lereya, 2015). Researchers unambiguously link childhood bullying victimization to more anxiety disorders in adulthood (Arseneault, 2018; Copeland et al., 2013; Lin et al., 2020; Sourander et al., 2007; Wolke & Lereya, 2015). Bullied children are more likely to struggle with generalized anxiety disorder, panic disorder, and agoraphobia as young adults (Copeland et al., 2013). In addition to anxiety disorders, bullied children are more likely to develop depressive disorders in young adulthood (Copeland et al., 2013; Wolke & Lereya, 2015). As adults, victims of bullying are at an increased risk for suicidal ideation (Arseneault, 2018; Lin et al., 2020), attempts of suicide and completed suicides (Arseneault, 2018; Lin et al., 2020; Wolke & Lereya, 2015). However, one prospective longitudinal study from Finland, did not find associations between frequent victimization in boys and depression or suicidal ideation in adulthood (Sourander et al., 2007). However, frequent victimization at age 8 for females, independently predicted psychiatric hospital treatment and use of antipsychotics, antidepressants and anxiolytic medication in young adulthood (Sourander et al., 2009). In addition, victims of bullying report more often poor general health, more somatic symptoms (Wolke & Lereya, 2015), are more likely to smoke and have increased levels of psychological distress (Arseneault, 2018; Lin et al., 2020). Furthermore, when it comes to financial obligations and academic achievement, victims were more likely to have lower educational qualification and financial troubles (Wolke & Lereya, 2015).

In general, those who were bully-victims in childhood report more severe long-term consequences (Copeland et al., 2013; Klomek et al., 2008; Wolke & Lereya, 2015). Bully-victims describe higher levels of anxiety, depression, psychotic experiences, antisocial personality disorder and poorer general health as adults when compared to victims-only (Klomek et al., 2008; Wolke & Lereya, 2015). In comparison to the not-involved group, bully-victims consistently reported higher prevalence of depressive disorder (21.5% vs. 3.3%), generalized anxiety (13.6% vs. 3.1%) and panic disorder (38.4% vs 4.6%) (Copeland et al., 2013). In addition, being both a bully and a victim in childhood is associated with the highest suicidality in young adulthood, with 24.8% of bully-victims reporting suicidality compared to 3.3% in the not-involved group (Copeland et al., 2013; Wolke & Lereya, 2015). Moreover, bully-victims had an even greater chance of lower education qualification and financial problems, as well as difficulties with keeping a job than victims-only (Wolke & Lereya, 2015).

The effect of bullying perpetration in childhood on adult mental health are more ambiguous when compared to bullying victimization. While one prospective study identifies bullies more at risk for severe depression and suicidal ideation in adulthood, a review points out that bullies are not at an increased risk for mental health problems in adulthood (Wolke & Lereya, 2015). In fact, according to the review, some studies report bullies having better emotional and physical health than their peers (Wolke & Lereya, 2015). However, being a bully in childhood is linked to higher risk for antisocial personality disorder (Copeland et al., 2013; Klomek et al., 2008), and antisocial behavior such as being charged with crime, burglary or illicit drug use in adulthood (Wolke & Lereya, 2015). Although, a research review points out that in many studies, these associations disappear when family circumstances are controlled for (Wolke & Lereya, 2015).

Although the research field on bullying effects in adulthood is relatively new, the results are compelling that the risk of psychological problems associated with bullying involvement persist also into early adulthood. Overall, bullying involvement is a risk factor that can identify children at risk for mental health problems in adulthood (Wolke & Lereya, 2015).

Bullying interventions. Due to the harmful nature of bullying, there has been great effort to eliminate bullying from schools. However, although school programs show some effectiveness, bullying is only minimized and not completely eliminated from schools. A systematic review of 622 reports on bullying prevention strategies showed that school-based anti-bullying programs on average reduced bullying perpetration by 20-23% and bullying victimization by 17-20% (Farrington & Ttofi, 2009). Additionally, a meta-analysis on the subject by Merrell, Gueldner, Ross, and Isava (2008) concluded that bullying interventions may influence outcomes such as self-perception, knowledge and attitudes rather than bullying behavior itself. Indicating childhood bullying as a complex behavior, where other factors than those that can be controlled for at school, play a role in bullying behavior. Therefore, bullying interventions are suggested to involve measures at a general level, but also include the school, class and the individual (Olweus, 1993). Parent involvement is an important contributor in interventions on all levels. Olweus (1993) points out several ways parents can be a part of bullying interventions. First of all, adults at home must be informed of the bullying problem, and secondly, it is critical that parents promote a non-accepting attitude for bullying in their home, in the day-to-day dialog. A randomized controlled trial showed that bullying interventions that combined parenting interventions and child social training with parents present, showed greater improvements on outcomes such as depressive symptoms, reduction in aggressive behavior, victimization, and internalizing feelings (Healy & Sanders, 2014). Due to the harmful consequences bullying has on all involved parts, bullying programs should

additionally consider early individual follow-up for children to minimize consequences related to mental health later in life.

The Relationship Between Parenting and Bullying

The association between bullying and parenting was first reviewed by Smith and Myron-Wilson (1998). Since the research field of family and bullying was understudied at the time, the article reviews only a handful of studies, some of which have a limited number of participants. The review argued support for a cycle of violence, where aggression from one generation is passed down to the other generation. Fathers who were bullies in school did more often have children who bullied compared to fathers who did not bully. In addition, bullying is often linked to aggression and violence. There seems to be a link between aggressive behavior in parents and bullying involvement of their children. One study reviewed pointed out that of 20 fathers who were convicted for violence, 35% had children with bully-status. In comparison, out of 140 remaining fathers without a conviction, 7.9% had a child with bully-status. Furthermore, for bully-victims, exposure to marital conflict and violence at age 4-5 predicted bully-victim status at age 8-9. In fact, bully-victims were three times more likely to experience physical abuse from family members compared to other children, with 38% of bully-victims exposed to physical abuse. In addition, bully-victims reported poor family functioning and had troubled relationships with parents- describing their parents most often as low on monitoring and warmth, and high on overprotection and discipline. Victimization for boys was predicted by mothers who described themselves as overprotective, and distant and critical fathers. In contrast, victimized girls report a hostile relationship with their mothers.

Over twenty years later after the original review by Smith and Myron-Wilson (1998), bullying in relation to parenting is still an understudied subject. Only one systematic review (Nocentini, Fiorentini, Di Paola, & Menesini, 2019) and one meta-analysis (Lereya, Samara,

& Wolke, 2013) that investigates the role of family and parents in relation to bullying is known to date. The review by Nocentini et al. (2019) includes 154 articles of which 56% were published between 2013 and 2017- indicating the lack of research on the subject the past decades, but also an increasing interest in the topic for the last few years. Both articles show similar results. Some parental characteristics have a predictive role in bullying behavior, while other characteristics may protect or expose children at risk for involvement in bullying. The most consistent finding in Nocentini et al. (2019) is the predictive value of exposure to domestic violence, abuse/neglect, parental mental health problems, and maladaptive parenting for both bullying and victimization. All of the factors can in turn be linked to neglectful or authoritarian parenting style. Factors such as warmth and affection, supporting and involved parents, supervision and family communication, were identified as protective factors and can be attributed to authoritative parenting. Interestingly, the results in Nocentini et al. (2019) regarding the protective role of authoritative parenting are not consistent, which may be due to variations in definitions. However, similar findings are reported by the meta-analysis: victims and bully-victims are less likely to experience positive parenting behavior and more likely to be abused or neglected. In general, bully-victims and bullies were less likely to experience positive parenting, and more likely to be exposed to negative parenting, especially children with bully-status have been linked to authoritarian parents (Baldry & Farrington, 2000). On the other side, victims are more likely to have overprotective parents (Lereya et al., 2013). Other studies have found parenting parameters to be related to bullying in different ways, e.g. parent-child conflict is suggested as predictor for both victimization and perpetration, while child-disclosure was considered as a possible protecting factor for bullying (Georgiou & Stavrinides, 2013).

The presented literature thus far indicates that the bivariate relationships between parenting practices, bullying and mental health outcomes have been widely studied. In the

next section, I present a more systematic search on what is known on the interrelationship between all three variables with a specific interest in how parenting practices are associated with bullying behavior and how these in turn are associated with mental health outcomes in young adults.

Systematic Literature Search

To further investigate the associations between parenting practice, bullying and mental health outcomes, a systematic literature search was conducted of the literature published from January 2000 to January 2021. The search was performed in PsycInfo with following search string (bully* or bullying or peer victim*) and (parent* or childrearing or child rearing or upbringing) and (psychological distress or depress* or anx* or mental health) and (university student* or college student* or young adult* or adult* or late teen* or early twenties). The search words are inspired by previous research. Limitations were set to peer reviewed journals, abstracts, human and English language. Overall, the search resulted in 132 articles.

Inclusion and exclusion criteria. After reading the abstracts and reviewing some articles more closely, a total of 14 articles were included in the review. In the review, the studies were included or excluded after following criteria: Studies were included if they examined parenting and bullying in relation to mental health in adults. Studies were included when they considered parental- and bullying variables as predictors of mental health variables. Studies that viewed outcomes in adulthood, and measured long-term consequences either in a longitudinal or cross-sectional design

Studies were excluded when no associations between parental variables and bullying were examined, e.g., parents only reported behavior or exposure to peer victimization. Articles that primarily investigated other types of bullying, e.g., cyberstalking or sibling bullying, were excluded. Studies that did not report on long-term mental health outcomes were not included. Excluded studies did not measure mental health, parental behavior or

bullying variables. Studies that measured parent socio-economic status or in cases where parents reported behavior, and no other parental variables were included as measurements, were excluded. Studies that measured other phenomena as outcome variables, e.g., social inclusion, gang involvement, drug use, borderline personality disorder, were excluded. Exclusion encompassed studies that did not measure long-term outcomes either with longitudinal or cross-sectional design. Other excluded articles were a) guidelines, guidebooks, booklets etc. for parents, b) articles with no authors, c) qualitative studies, d) book reviews, e) case studies. To best match the sample age in this study, the cut-off age was set to 18 years in the search, thus studies that primarily considered adolescents or children population, and did not measure long-term outcomes after age 18 were excluded. The relevance of two articles could not be assessed and were excluded since they were unavailable in full text.

Results literature search. Most of the studies investigated the long-term effects of bullying involvement in young adulthood and were not primarily interested in the association between childhood experiences of parenting and bullying, and psychological distress in young adulthood. Several of the included studies were longitudinal birth cohort studies or had a prospective longitudinal design of high methodical quality. These studies included a prospective longitudinal study from Finland (Isaacs, Hodges, & Salmivalli, 2008) and US (Kerr, Gini, & Capaldi, 2017), birth cohort studies from Denmark (Lund et al., 2009), New Zealand (S. J. Gibb, Horwood, & Fergusson, 2011), Australia (Vassallo, Edwards, Renda, & Olsson, 2014) and two studies from England (Stapinski et al., 2014; Takizawa, Maughan, & Arseneault, 2014). The remaining studies had a cross-sectional design.

Eleven studies included depression or psychological distress as an outcome measure. Most studies investigated the associations between bullying victimization in childhood and depression in adulthood. First of all, several studies concluded that being exposed to bullying in school contributes independently to depression vulnerability. However, factors related to

parenting did influence the association between bullying in school and adulthood depression in multiple ways. Meaning that the relationship between bullying experiences and depression symptoms is partly influenced by variables related to parents. With the exception of one study, depression was investigated in non-clinical samples.

In a student sample, B. E. Gibb, Abramson, and Alloy (2004) found that emotional maltreatment by parents was associated with cognitive vulnerability for depression before age 15 but not after age 18. This finding suggests that parenting variables have the greatest effect on younger children, and victimization by peers becomes of greater influence in adolescence and young adulthood. In a clinical sample, adults who were depressed and bullied as children were more likely to have a dysfunctional relationship with their parents than depressed but non-bullied adults (Gladstone, Parker, & Malhi, 2006). They reported more often overcontrolling parents, abusive and uninvolved fathers. In fact, in the same study, parental overcontrol remained a significant predicted of childhood bullying after controlling for exposure to traumatic events, physical- and sexual abuse (Gladstone et al., 2006).

Many studies investigated associations between bullying and mental health outcomes, and only controlled for parenting variables in their respective models. Overall, when parenting and other covariates were controlled for, the association between bullying and mental health decreased, but remained significant. In a British birth cohort longitudinal study frequent peer victimization predicted higher rates of depression, anxiety disorder and suicidality compared to non-victimized children, and these effects remained significant after controlling for family conflict, physical and sexual abuse, and parental mental health (Takizawa et al., 2014). After controlling for parental depressive symptoms, childhood bully-victims remained at higher risk for suicide attempts in their 20s and 30s, and all three groups involved in bullying were at greater risk for depressive symptoms in young adulthood (Kerr et al., 2017). A Danish birth cohort study showed that bullying in childhood increased the risk of

a depression diagnosis in young adulthood and midlife. Controlling these results for parents´ mental health and SES reduced the relationship between bullying and risk for depression, but the association remained significant. However, there is one exception from this main trend. In S. J. Gibb et al. (2011), the association between bullying victimization and perpetration in childhood and outcomes at age 16-30 was no longer significant after adjustment for covariates. These covariates included parental measures such as attachment to parents, family functioning, parental adjustment, childhood abuse, and factors such as child behavioral and personality factors, IQ and academic ability, peer affiliations and gender.

Five studies measured outcomes related to anxiety disorders. Two studies primarily investigated the associations between childhood bullying experiences and outcomes in adulthood related to anxiety, and only controlled for parenting variables. First of all, victimized children were two to three times more likely to develop anxiety disorders in adulthood compared to non-victimized children (Stapinski et al., 2014). The association between bullying and anxiety remained significant after adjustment for parenting variables in the two studies, without any exceptions (S. J. Gibb et al., 2011; Stapinski et al., 2014). Others showed that emotional maltreatment by parents and bullying by peers related independently to social anxiety (Iffland, Sansen, Catani, & Neuner, 2012). Both types of emotional maltreatment mediated the relationship between physical maltreatment and social anxiety, suggesting that it is emotional maltreatment and not physical punishment that contributes to development of social anxiety in adulthood (Iffland et al., 2012). Finally, González-Díez, Orue, and Calvete (2017) demonstrated that adult social anxiety was predicted both by bullying and parents´ emotional abuse. A special type of cognitive style, social looming, was identified as a mediator between parents´ emotional abuse and social anxiety (González-Díez et al., 2017). A looming cognitive style is "*an important cognitive component of threat or danger that elicits anxiety, sensitized the individual to signs of movement and threat, biases*

cognitive processing, and makes the anxiety more persistent and less likely to habituate" (Riskind, 1997, p. 685). It can thus appear that individuals that experience emotional maltreatment by parents adapt a style of cognition that makes the individual prone to developing social anxiety in adulthood.

Two studies investigated the role of support from parents and others. The results of a Finish prospective study showed that the outcomes of childhood bullying in young adulthood depended on supportive parents. Being bullied in school did not show a lasting effect on depression, self-esteem or negative peer-perceptions in young adulthood, if bullied individuals viewed their parents as supportive in childhood (Isaacs et al., 2008). Children who were unsupported by parents and bullied had more often depression, negative views of peers and decreased self-esteem a decade after bullying (Isaacs et al., 2008). A cross-sectional study from Japan investigated the associations between bullying by peers, neglect, physical abuse by parents and psychological distress in adulthood. (Oshio, Umeda, & Kawakami, 2013). The results showed that both bullying and maltreatment by parents were associated with worse mental health in adulthood, and that perceived support mediated 24% of the association, and inclusion of SES as an additional mediator increased the mediation to 32% (Oshio et al., 2013).

Several studies investigated whether parenting strategies could serve as moderators between bullying in childhood and later mental health. An Australian birth cohort study found that parental monitoring moderated the relationship between bullying perpetration and later antisocial behavior, and the effects remained significant after adjusting for demographics (Vassallo et al., 2014). In the same study, none of the parenting variables were protective factors in the association between bullying victimization and depression in young adulthood (Vassallo et al., 2014). Parenting as a moderator was also investigated by Day et al. (2018). Overprotective parenting was identified as a moderator in the association between bullying in

school and being diagnosed with an anxiety disorder between ages 29-36. Their results showed that having an overprotective parent increased the risk of bullying victimization in childhood which in turn predisposed for a greater risk of anxiety disorder. However, overprotective parenting did not show any moderation effects in the association between bullying and substance use.

One study, by Luk et al. (2016), examined bullying as a mediator between parenting and current mental health. This study suggested parenting styles as precursors for bullying. Luk et al. (2016) examined the association between parenting style, global self-esteem in childhood and current depression, alcohol use and alcohol problems. Bullying victimization and perpetration were investigated as mediators for the association. Several parenting strategies had positive and negative associations to bullying. Luk et al. (2016) suggest that children of authoritative parents experienced less victimization because they had higher self-esteem. Additionally, permissive and authoritarian parenting style in mothers was associated with bullying perpetration. The study found that bullying perpetration was a mediator in the association between mothers who are permissive or authoritarian and later use of alcohol (Luk et al., 2016). Other research, identified an association between bullying in childhood and low parental involvement, that was again associated with increased psychological distress at age 23 and 50, but also depression, anxiety and suicide (Takizawa et al., 2014). Opposite, Luk et al. (2016) showed that positive parenting strategies, which are high on parental involvement, were associated with less bullying victimization.

How Can Parenting and Bullying Be Associated with Mental Health Outcomes?

Being bullied and parents´ child-rearing practices influence on children, can be understood in light of different theories. Social cognitive theory can provide a framework for analyzing parenting influences on bullying behavior. The theory emphasizes the impact of observation, instruction, motivation, modelling, consequence, imitation, attitudes and

emotional reactions in learning behavior. According to Bandura (1977), for learning to occur four basic conditions must be met. The individual must focus, internalize, reproduce and be motivated to learn a certain behavior. Motivation is influenced by the consequences of following a behavior. If the observer perceives the consequences as rewarding and outweigh the cost, then the behavior is more likely to be imitated. Furthermore, individual cognitions are essential in determining behavior. Cognitive evaluations are influenced by an interaction between social environment, internal stimuli and behaviors- also known as the triadic reciprocal determinism. Home environment is one of the most important social arenas in a child's life and is thus strongly influential in learning behavior. Bullying behavior can thus be influenced by for example observing domestic violence, although not all children observing violence at home are involved in bullying. Cognitions about bullying, violence and aggression may be crucial in determining whether a child is involved in maladaptive behavior. An unacceptable attitude in the home towards bullying may protect against bullying perpetration. In addition, whether bullying perpetration is perceived as rewarding, e.g. a perpetrator gets attention or increased social standing among peers, will, according to the theory, increase the chance of bullying behavior. In sum, Social Cognition Theory predicts that bullying is most likely occur when one is 1) exposed to bullying or other similar behavior, 2) accept positive attitudes towards bullying, and 3) interact with others who accept and reinforce the bullying behaviors (Swearer, Wang, Berry, & Myers, 2014).

Affrunti, Geronimi, and Woodruff-Borden (2014) describe a model that seeks to describe a way that parenting can influence the relationship between mental health and peer victimization. The authors present a moderated mediation model for the relationship between fearful temperament and child anxiety. In the model, peer victimization is a mediator for the relationship between temperament and child anxiety. Furthermore, nurturing, or supportive, parenting moderates the relationship between peer victimization and child anxiety.

Bullying involvement may additionally be associated with other factors, such as a stressful family environment. Both involvement in bullying and exposure to maladaptive parenting practices in childhood can be sources to long-term stress exposure, which over time may affect an individual's stress response. The exposure to these stress responses can alternate activity in the HPA-axis and contribute to explaining the relationship between bullying, parenting and poorer mental health outcomes. Both peer victimization and childhood experiences of care and maltreatment are shown to influence biological stress reactivity. An altered stress response is found in victimized 12-year-olds in the form of flattened cortisol response, which in turn is associated with poorer health (Knack, Jensen-Campbell, & Baum, 2011). Childhood maltreatment, assessed as hostility or coldness towards the child, indifference or neglect of child´s emotional or physical needs, violence towards the child and sexual abuse, is found to be associated with blunted cortisol response in children who are moderately or severely depressed (Harkness, Stewart, & Wynne-Edwards, 2010). A blunted cortisol response may indicate exposure to long-term stress. The alteration of cortisol secretion may contribute to depression. In turn, being depressed contributes to an alternation in cognition and may further sustain the negative impact of childhood experiences. Negative cognitive styles in university students highly correlates with both childhood peer victimization and emotional maltreatment, suggesting that early maltreatment by parents may contribute in some way to further negative experiences with peers in childhood (B. E. Gibb et al., 2004).

The Present Study

Both bullying and parenting have been extensively studied as separate topics in relation to mental health outcomes. However, there is a paucity of studies that studied these three constructs simultaneously, and there are even fewer studies that have considered

bullying as a mediator for the relationship between parenting practice and mental health outcomes. Moreover, no such studies have been carried out in Norway.

The aim of the current study is twofold. First, the study will explore the possible associations of parenting practices and bullying experiences in childhood on psychological distress in young adults. The second aim is to examine whether the associations of parenting practices with psychological distress are mediated by bullying victimization or perpetration in childhood. It is hypothesized that positive parenting strategies will be associated with less psychological distress later in life. Contrary, it is hypothesized that more negative parenting strategies will have a positive association with psychological distress in young adults. In the present study, bullying experiences refer to bullying victimization and/or bullying perpetration. It is hypothesized that exposure to bullying either as a victim or perpetrator will positively predict psychological distress in young adults. Additionally, it is hypothesized that childhood bullying experience will mediate the relationship between parenting practice and psychological distress in young adulthood.

To our knowledge, this is the first study that investigates the long-term associations between parenting, bullying and psychological distress, and explores these associations in a mediation model.

Methods

Participants and Procedures

The sample in the present analyses is part of the Students Psychological Health Over Time (SPOT) study. SPOT is a longitudinal study that weekly measures mental health and life quality during the school year. The study was approved by the Regional Committees for Medical and Health Research Ethics (REK). Initially, all participants were given detailed descriptions concerning privacy of the collected data and pros and cons of participating. In addition, participation was completely voluntary, withdrawal of consent was possible at any

time, and data that was not already used in scientific articles could be deleted. Students that stated Norwegian as their first language were invited to participate in the study (N= 15816).

Participants were administered an online self-report survey, through Websurvey, a system developed by the Norwegian Center of Research Data. The sample in the present study is based on a baseline survey answered in January 2020 that took approximately 20-30 minutes to complete. The baseline survey was completed by 4823 students (response rate = 30.5%). Additionally, a random sample based on 2/3 of the participants were asked to complete the Hopkins symptom checklist-25 (HSCL-25). Only participants who completed the HSCL-25 were included in the current sample. Furthermore, the sample was limited to students aged 18- 32 years, who had a person they counted as a mother and a father and who grew up with their biological parents. The sample in the current analyses consisted of a total 2453 participants and complete individual-level data was available for more than 98% of them (see Figure 1).

Measures

Parenting practices. Parenting practices was measured by five sets of items that were aimed to measure parental warmth and involvement (5 items), parental encouragement (3 items), boundary setting (3 items), parental aggression (4 items), and discouragement of independence (3 items). The set of items were inspired by dimensions identified in previous studies (Buri, 1991; George & Bloom, 1997; Robbins, 1996), and the included items were carefully formulated and assessed for face validity by the involved researchers of the SPOT study. As this instrument was used as part of a larger survey, items were based on relatively short statements in order to reduce overall participant burden. The questionnaire was completed separately for mothers and fathers. For the sake of simplicity, the present study only considered parents as a single unit by computing the average score of mothers and fathers for each item.

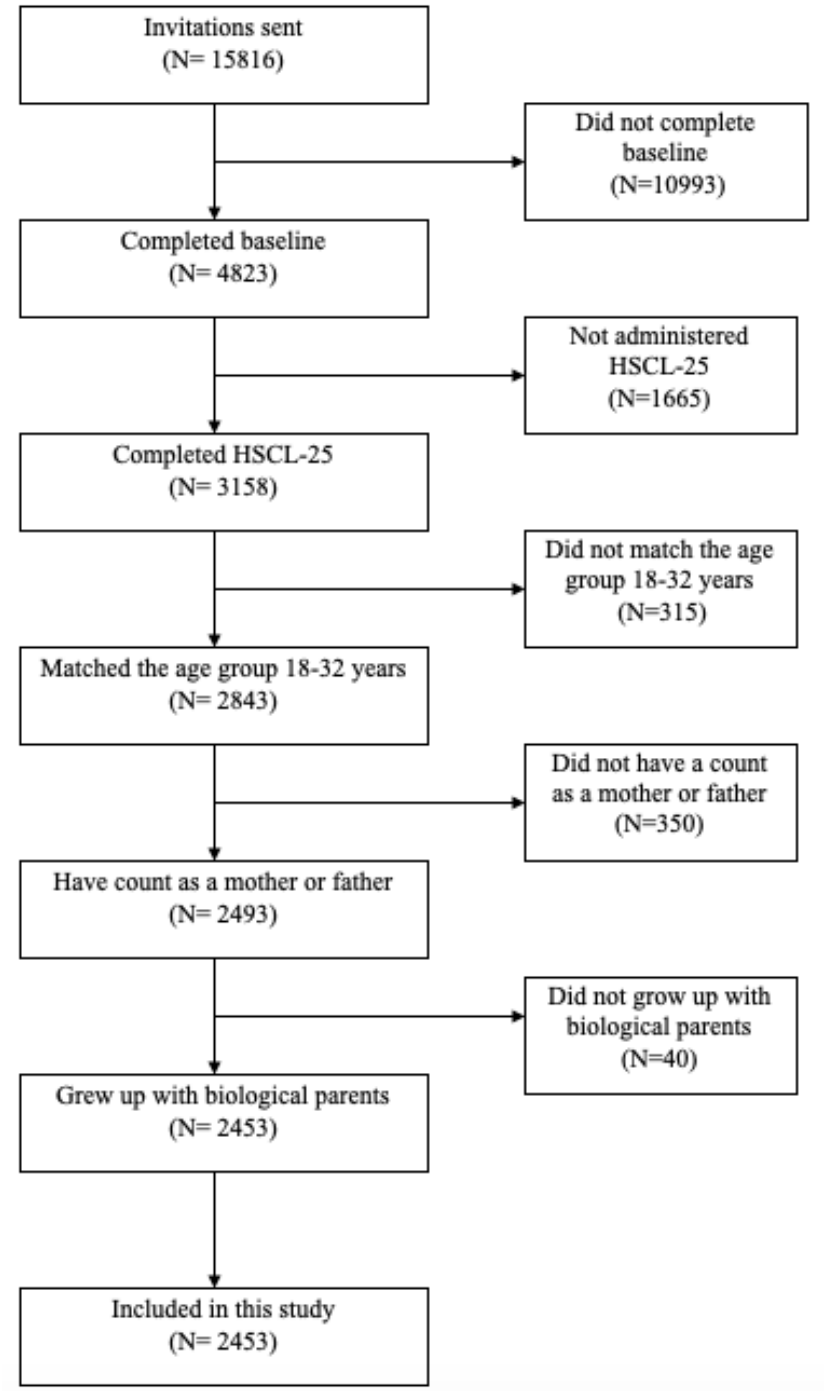

Figure 1. Sampling and Flow of Subjects.

Psychological distress. To assess psychological distress, the participants were administered the HSCL-25 that includes questions about depression and anxiety on a scale ranging from "not at all" (0) to "very much" (3). In the current study, an average HSCL-25 score was computed for each participant (M = 0.71, SE = 0.55). A cut-off score of .75 is often

used to indicate clinically significant mental health problems (Nettelbladt, Hansson, Stefansson, Borgquist, & Nordström, 1993). The majority of students (61.2%) had a mean score below cut-off. However, a significant part of students (38.8%) had a score above cut-off, indicating clinically significant levels of psychological distress in the sample.

Bullying involvement. The assessment of bullying was based on Olweus (1993) definition of bullying: "aggressive, intentional acts carried out by a group or an individual repeatedly and over time against a victim who cannot easily defend him or herself". Previous experiences with bullying were assessed by a total of six questions. Participants were asked about bullying perpetration and bullying victimization in primary-, secondary and high school. The respondents were asked "if they were bullied" and "if they bullied others ". The items were rated on a scale: "never or rarely" (0), "sometimes" (1) and "often" (2). For further analyses, two average scores for bullying perpetration and bullying victimization were calculated for individuals with no missing values.

Covariates. In the analyses, several standard covariates associated with mental health outcomes were controlled for. The demographic indicators that were gathered from participants were used as covariates including gender, immigrant background, divorced parents and parent education. Gender was coded female (0), male (1) and other (2). To assess immigrant background, the students were asked if they had immigrant background from other than first world countries and were coded no immigrant background (0) and immigrant background (1). Additionally, the students were asked if their parents were divorced and the answers were coded yes (0), no (1) and not applicable (2). Moreover, parents´ level of education was initially measured both for mothers and fathers. Students were asked to indicate the highest level of education that their parents had completed: primary school (0), high school (1) and university/college (2). Based on the answers, a new variable was computed for parent higher education that was coded as: no parents with higher education (0),

one parent with higher education (1), both parents with higher education (2). Participants were also asked to rate their parents´ tendency to be anxious and depressive on a scale from strongly disagree (0) to strongly agree (4), that were included as covariates in the analyses. Furthermore, the SPOT study measured participants´ neuroticism on an 8 items subscale from Big Five Inventory-44 (Engvik & Føllesdal, 2005; John & Srivastava, 1999). The mean score for each participant was included as a covariate in the sensitivity analysis but excluded as a covariate in the main analyses (M = 1.88, SD = 0.90).

Data Analysis

All analyses were conducted in SPSS, version 26. First, descriptive statistics were performed to analyze the basic features of the data set.

A factor analysis was carried out to examine the new parent practice questionnaire. A principal axis factor analysis was conducted on the 18 items in the parental practice survey using oblique rotation (direct oblimin). The Kaiser-Meyer-Olkin measure verified the sampling adequacy for the analysis, KMO = .88. Multiple approaches were used to determine how many factors should be extracted from the analysis. Traditional methods such as Kaiser-criterion of eigenvalues greater than one and analysis of the scree plot were applied, in addition to a parallel analysis (Vivek, Singh, Mishra, & Donavan, 2017).

After the factors were extracted, their reliability was assessed. The internal consistency was rated with Cronbach´s alpha, a value ranging from 0 to 1. There is no clear agreement in research on the most suitable labels to use when reporting alpha values (Taber, 2018). Some researchers have pointed out that an alpha as low as .65 can be considered adequate (Cortina, 1993), while others have suggested that at least a value of .70 is required (Taber, 2018). A maximum level of alpha .90 is generally recommended (Streiner, 2003).

Based on the reliability test and the factors analysis, new variables were computed. However, only items that had a factor loading higher above .40 were included in the new

variables. Additionally, the new variables consisted of a mean score of the included items. These new variables were labelled to reflect different types of parenting practices and were used as parenting variables in later analyses.

An initial correlation analysis was performed to establish whether it was an association between the variables measuring parental and personal characteristics, exposure to bullying and psychological distress. A correlation coefficient is usually considered low or weak if it is below .35, a moderate correlation is 0.36 to 0.67, and 0.68 to 1 is a high correlation, with *r* coefficients above .90 indicating very high correlations (Taylor, 1990).

After examining the results of the correlations, the associations were further tested in a series of regression analyses. Three different models predicting psychological distress were tested with regression analyses. The first model consisted of parent practice variables as predictor for psychological distress. The second model controlled for covariates, and the third model included the bullying variables.

The final analyses tested a parallel mediation model (see Figure 2). To test the mediation model, the PROCESS macro v.3.5 by Andrew F. Hayes was used. Due to limitations in the PROCESS macro linked to the number of factors that are possible to use as predictors in a mediation model, three separate mediation analyses were performed. Each mediation model tested a different independent variable related to parent practice. The parent practice variables that were not used as independent variables in the analysis of question, were included as covariates in the same analysis. The PROCESS macro can only calculate direct and indirect effects for one independent variable at the time. All other exogenous variables can only be included as covariates. For example, to calculate the (in)direct effects of supportive parenting, this factor needs to be specified as the independent variable, whereas the other parenting factors and control variables need to be specified as covariates. When one of the parent practice variables were included as a predictor in a mediation model, the other

parent practice variables were included as covariates in the same model. For example, when supportive parenting was added as a predictor in the model, the two other types of parent practice were included as covariates in the same model. The same model was therefore estimated three times, each run with a different parent practice factor specified as an independent variable. Bootstrapping was set to 5000 resamples. The mediated percentage is reported when direct and indirect effects have the same sign and the indirect effect is statistically significant.

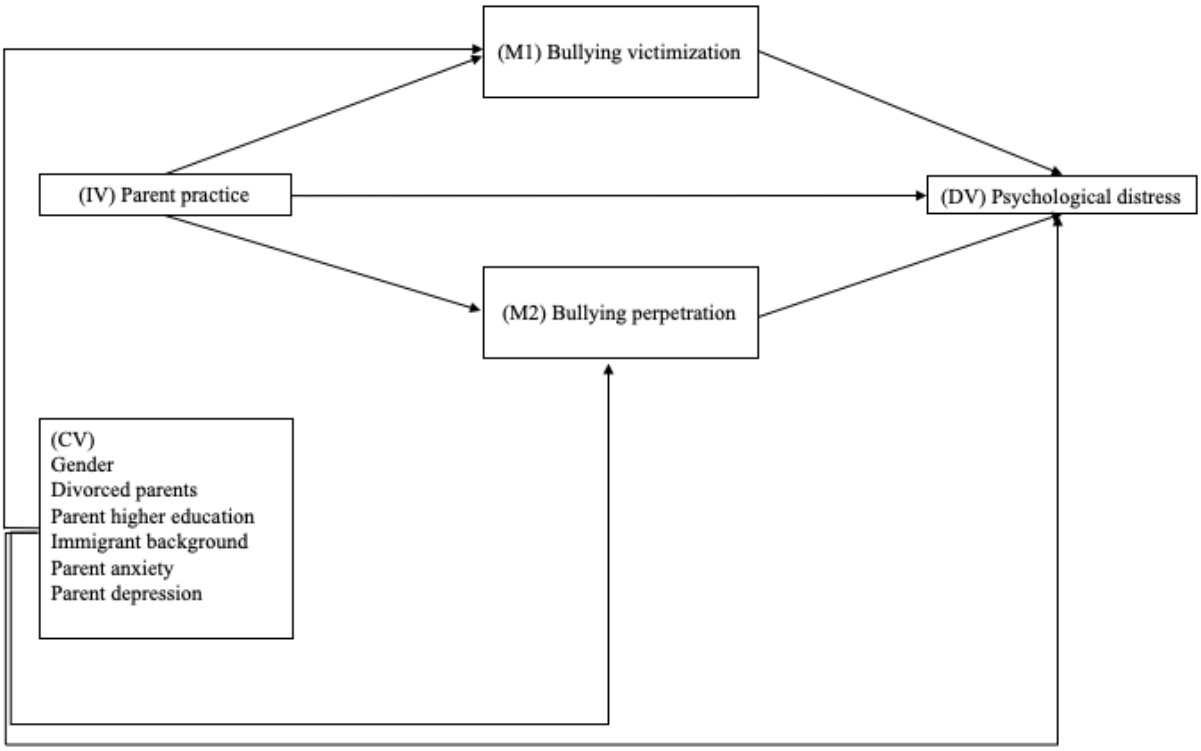

Figure 2. The hypothesized parallel mediation model

Results

Descriptive Statistics

Results from descriptive statistics are shown in Table 1. The final student sample included 2453 participants, 68.7 % females and 31.3% males. The age ranged from 19 to 31

Table 1

Sample characteristics

Variable	Total
Age in years, *M* (*SD*)	23.23 (2.82)
Gender, *n* (%)	
Male	767 (31.30)
Female	1686 (68.70)
Parent education, *n* (%)	
No parents with higher education	427 (17.70)
One parent with higher education	678 (28.10)
Both parents with higher education	1310 (54.20)
Parent marital status, *n* (%)	
Divorced	704 (28.70)
Not divorced	1702 (69.40)
Not applicable	47 (1.90)
Immigrant background, *n* (%)	
Non-immigrant	186 (7.60)
Immigrant	2267 (92.40)
Parent tendency to be anxious, *M* (*SD*)	1.20 (0.97)
Parent tendency to be depressed, *M* (*SD*)	0.62 (0.87)
Previous experiences with bullying, *n* (%)	
Bullying victimization in primary school	
Rarely or never	1478 (61.30)
Sometimes	628 (26.10)
Often	304 (12.6)
Bullying victimization in secondary school	
Rarely or never	1661 (69.00)
Sometimes	568 (23.60)
Often	178 (7.40)
Bullying victimization in high school	
Rarely or never	2164 (90.10)
Sometimes	205 (8.50)
Often	33 (1.40)
Bullying perpetration in primary school	
Rarely or never	1861 (77.00)
Sometimes	530 (21.90)
Often	27 (1.10)
Bullying perpetration in secondary school	
Rarely or never	2075 (85.90)
Sometimes	329 (13.60)
Often	12 (0.50)
Bullying perpetration in high school	
Rarely or never	2344 (97.20)
Sometimes	65 (2.70)
Often	2 (0.10)
Neuroticism, *M* (*SD*)	1.88 (0.89)
Psychological distress/ HSCL, *M* (*SD*)	0.71 (0.55)

Note. Values in parentheses are valid percentages, unless indicated otherwise. HSCL= Hopkins Symptoms Checklist

years (*M* = 23.23, *SD* = 2.82). The majority of students, almost 70.0%, reported that their parents were not divorced. A minority of students (7.6%) reported immigrant background. Most students (54.2%) reported that both of their parents had a university diploma, 28.1% of students stated that one of their parents completed higher education, while the remaining 17.7% had parents with no higher education. In general, both bullying victimization and perpetration had a decreasing tendency with age. Victimization and perpetration were most often reported in primary school, less often in secondary school and was least prevalent in high school. In primary school, 12.4% of the respondents reported being victimized "often", while exposure to bullying victimization in the category "often" was reported by 7.0% in secondary school and 1.3% in high school. Bullying perpetration was less common than victimization, only 1.1% reported bullying others "often" in primary school, in secondary school "often" perpetration was reported by 0.5% and 0.1% in high school.

Factor Analysis

An initial analysis was performed to extract eigenvalues for each factor in the data. Three factors had eigenvalues above 1. According to the Kaiser-criterion, the scree plot and the parallel analysis three factors were extracted. These factors reflected, and were named in accordance to, three types of parent practices: *supportive-*, *overprotective-* and *aggressive* parenting.

The items that clustered on "supportive parenting" measure both parental demandingness and responsiveness, thus suggesting that this factor may reflect some of the characteristics in the authoritative parenting style (Baumrind, 1966). The second factor was named "aggressive parenting" (3 items) because it loaded on items that measured punishment of behavior, parents´ yelling and authoritarianism.

The third factor, "overprotective parenting" (3 items), loaded mostly on items measuring discouragement of independence. One item, "neglected me" did not load on

Table 2

Factor loadings after rotation

	Rotated Factor Loadings		
Item	Supportive Parenting	Aggressive Parenting	Overprotective Parenting
… gave me the love and warmth that I needed	**.80**		
... showed great interest in what I was interested in	**.78**		
… was responsive to my feelings and/or needs	**.69**		
… had a parenting style that was characterized by encouragement instead of coercion	**.69**	-.36	
…was usually familiar with my problems and concerns	**.65**		
… set clear and consistent boundaries	**.63**	.36	
… encouraged me to be a responsible and independent person	**.58**		
… encouraged me to push my own limits	**.58**		
… was violent	-.37	.30	
… always stuck to what he/she said, a no was a no, a yes was a yes	.37		
… often yelled at me if I did not behave or obey him/her		**.70**	
… was authoritarian		**.63**	
… often used a form of punishment to correct wrong behavior or disobedience		**.56**	
… neglected me			
… often did thing for me that I could do myself			**.71**
… had a tendency to take responsibility away from me			**.67**
… had a tendency to protect me against failure			**.66**
… often overlooked if I didn't behave or obey him/her			.32
Eigenvalues	5.16	2.21	2.06
% of variance	28.67	12.26	11.43
Cronbach´s α	.86	.67	.67

any of the factors. Table 2 shows the items that cluster together, translated from Norwegian to English by the author. All three factors had reliabilities within the acceptable range. Three new variables were computed based on the extracted factors. All items and their loadings are displayed in Table 2 and the loadings of the included items are displayed in bold. Correlations between factors were generally low. Supportive parenting was negatively correlated to both aggressive parenting (r = -.13) and overprotective parenting (r = -.24). The analysis did not find the factors aggressive and overprotective parenting to be correlated (r = -.00).

Analysis of Correlations

Initially, the correlations between measures were investigated. The correlations between variables are shown in table 3. The strongest correlation was between psychological distress and neuroticism score, $r(2438) = .69$, $p < .001$, indicating that these two measures are strongly related, or could be measuring overlapping concepts. Due to this, it was decided that neuroticism will not be included as a covariate in further analyses. After neuroticism, psychological distress showed the second largest association to bullying victimization, $r(2407) = .35$, $p < .001$, while bullying perpetration had very low correlation to psychological distress, $r(2407) = .08$, $p < .001$. Of the parent practice variables, supportive parenting showed greatest correlation to psychological distress $r(2437) = -.30$, $p < .001$. The relationship was negative, indicating as supportive parenting increases, the psychological distress decreases. The other two parenting practice variables, aggressive and overprotective parenting showed a positive association to psychological distress. Aggressive parenting was somewhat more positively correlated to psychological distress, $r(2437) = .15$, $p < .001$, than overprotective parenting, $r(2434) = .12$, $p < .001$.

Regression Analyses

First a regression model with supportive, aggressive and overprotective parenting as predictors of psychological distress was tested. The results of the regression analyses are

displayed in table 4. The first model explained a significant proportion of variance in the psychological distress score, $R^2 = .10$, $F(3, 2443) = 92.02$, $p < .001$. All of the parent practice variables did statistically significantly predict psychological distress in university students. Similar to the correlation analysis, supportive parenting was associated with less psychological distress, while aggressive and overprotective parenting were associated with more psychological distress. Of the parenting variables, supportive parenting had the strongest association to psychological distress.

In the second regression model, the parenting practice variables were used as predictors as well as covariates. In the second model, the proportion of the explained variances in psychological distress increases and is statistically significant $R^2 = .18$, $F(9, 2398) = 58.62$, $p < .001$. Adding the covariates to the model, all of the parenting variables remained significant predictors of psychological distress. Of the covariates, gender, parent anxiety and parent depression were associated with psychological distress.

In the final model, bullying victimization and bullying perpetration were added. Adding bullying variables, further increased the proportion of the explained variance in the model, $R^2 = .25$, $F(11, 2389) = 71.34$, $p < .001$. The regression estimates of the parenting variables decreased furthermore after inclusion of bullying variables to the model. Supportive and overprotective parenting remained associated with psychological distress, while aggressive parenting, on the other hand, was no longer a statistically significant predictor of psychological distress with bullying in the model. Of the bullying variables, only bullying victimization predicted psychological distress in young adulthood. Bullying perpetration was not a significant predictor of psychological distress in the full model. In the full model, gender, parent anxiety and parent depression proved to be significant predictors of psychological distress. Furthermore, adding bullying variables in the full model, influenced

Table 3
Correlations Between Parenting Practice, Bullying Involvement, and Parent and Personal Characteristics

Measure	1	2	3	4	5	6	7	8	9	10	11	12
1.Supportive parenting	–											
2. Aggressive parenting	- .25**	–										
3.Overprotective parenting	-.14**	.14**	–									
4. Psychological distress	-.30**	.15**	.12**	–								
5. Bullying victimization	-.23**	.16**	.08**	.35**	–							
6. Bullying perpetration	-.16**	.12**	.08**	.08**	.16*	–						
7. Gender	-.08**	.06*	.12**	-.20**	-.01	.18**	–					
8. Divorced parents	.18**	-.05*	.02	-06*	-.04	-.01	.05*	–				
9. Parent higher education	.20**	-.11**	-.10**	-.12**	-.13**	-.12	-.04	.10**	–			
10. Neuroticism	-.24**	.10**	.13**	.69**	.24**	.05*	-.27**	-.07**	-.10**	–		
11. Immigrant background	-.14**	.15**	.11**	.07**	.05*	.05*	-.01	-.01	-.08**	.05*	–	
12. Parent anxiety	-.33**	.18**	.29**	.21**	.12**	.09**	.03	-.12**	-.13**	.26**	.12**	–
13. Parent depression	-.44**	.20**	.13**	.27**	.21**	.10**	-.01	-.26**	-.15**	.26**	.11**	.51**

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

most of the coefficients, with the exception from gender. The values that remained significant, but decreased when bullying was added to the model, were supportive parenting, overprotective parenting, and parent depression. On the other side, regression coefficients of parental anxiety increased, while gender coefficients remained the same when bullying was added to the model.

Table 4
Results of regression analyses: predicting psychological distress.

	Model 1		Model 2		Model 3	
Predictors	*b*	95% CI	*b*	95% CI	*b*	95% CI
Supportive parenting	-0.22**	[-0.25, -0.19]	-0.18**	[-0.22, -0.15]	-0.15**	[-0.18, -0.12]
Aggressive parenting	0.05**	[0.02, 0.07]	0.04**	[0.02, 0.07]	0.02	[0.00, 0.05]
Overprotective parenting	0.05**	[0.02, 0.08]	0.05**	[-0.02, 0.08]	0.04*	[-0.01, 0.07]
Gender			-0.28**	[-0.32, -0.24]	-0.28**	[-0.32, -0.23]
Divorced parents			0.04	[-0.00, 0.08]	0.03	[-0.01, 0.07]
Parent higher education			-0.03	[-0.05, 0.00]	-0.01	[-0.04, 0.01]
Immigrant background			-0.02	[-0.09, 0.06]	-0.01	[-0.08, 0.07]
Parental anxiety			0.03*	[-0.01, 0.06]	0.04*	[-0.01, 0.06]
Parental depression			0.08*	[0.05, 0.11]	0.05**	[-0.00, 0.04]
Bullying victimization					0.32**	[0.28, 0.36]
Bullying perpetration					0.06	[-0.03, 0.14]

Note. *b*=Unstandardized regression coefficients
** p<.05, ** p<.001*

Mediation

Analyzing the indirect effects, results reveal that only bullying victimization significantly mediated the relationship between parenting practices and psychological distress,

based on 5000 sample bootstrapped confidence intervals. The total, direct and total indirect effects are shown in table 5. Bullying victimization significantly mediated the relationship between supportive parenting (indirect= -0.031, *SE* = 0.006, 95% BootCI [-0.043, -0.020]), aggressive parenting (indirect=0.026, *SE* =0.006, 95% BootCI [0.010, 0.024]) and psychological distress.

The second mediator, bullying perpetration, did not significantly mediate the effect of supportive parenting on psychological distress in young adulthood (indirect= 0.002, *SE* = 0.002, 95% BootCI [-0.006, 0.001]), nor between aggressive parenting and psychological distress (indirect= 0.002, *SE* = 0.002, 95% BootCI [-0.001, 0.007]). In addition, none of the effects with overprotective parenting as predictor were statistically significant.

Table 5

Results mediation analysis, total, direct and indirect effects.

	Total	Direct	Indirect victimization	Indirect perpetration	Percent mediated by victimization
Predictors	Unstandardized coefficients [95% CI]				
Supportive parenting	-0.184* [-0.218, -0.150]	-0.151* [-0.184, -0.118]	-0.031* [-0.043, -0.020]	0.002 [-0.006, 0.001]	16.85%
Overprotective parenting	0.049* [-0.021, 0.077]	0.041* [-0.014, 0.068]	0.007 [-0.001, 0.027]	0.001 [0.000, 0.002]	–
Aggressive parenting	0.041* [0.017, 0.065]	0.023 [0.000, 0.047]	0.017* [0.010, 0.024]	0.001 [-0.001, 0.004]	41.46%

Note. Dependent variable: psychological distress. Mediating variables: bullying victimization and bullying perpetration. Controlled for covariates.
* *p*<.05

Sensitivity Analysis

Sensitivity analysis, also known as "what if" analysis, can be used to examine how an outcome variable responds to change in various factors (Riksheim, 2020). Due to the high correlation between the measure of psychological distress and neuroticism (r (2438) =.69, p <.001), it was hypothesized that the two measures estimate overlapping concepts. As a result, neuroticism was not used as a covariate in the analyses above. An inclusion of neuroticism in the models would explain too big part of the variance in psychological distress. To test this hypothesis a sensitivity analysis with neuroticism in the models was performed. The results of the sensitivity analyses showed that neuroticism did alternate most of the results in the regression- and mediation analyses.

In the regression models, neuroticism was the strongest predictor of psychological distress in both model 2 (b =0.39, 95% CI [0.37, 0.41], $p<.001$) and model 3 (b =0.37, 95% CI [0.35, 0.39], $p<.001$). Some results were no longer significant after inclusion of neuroticism, while others became significant. While aggressive parenting was associated with psychological distress in model 3, overprotective parenting was no longer a significant predictor. The most general trend in the sensitivity analysis was that most of the unstandardized coefficients decreased after neuroticism was included. In the full model, the notable changes were in supportive parenting (b =-0.09, 95% CI [-0.12, -0.06], $p<.001$), overprotective parenting (b =0.01, 95% CI [-0.02, 0.06], p =.54), gender (b = -0.07, 95% CI [-0.10, -0.03], $p<.001$) and bullying victimization (b =0.21, 95% CI [0.17, 0.24], $p<.001$). Additionally, parental anxiety and parental depression were no longer significant predictors of psychological distress in the full regression model with neuroticism in the model.

In the mediation analyses, the sensitivity analysis showed that the direct effect of overprotective parenting on psychological distress was no longer significant. Contrary, the direct effect of aggressive parenting on psychological distress was statistically significant

with neuroticism in the model. Lastly, in the parallel mediation model with neuroticism bullying victimization mediated 30.30% of the relationship between aggressive parenting and psychological distress, while the model without neuroticism increased the mediation by 11%. The percentage mediated by bullying victimization, in the association between supportive parenting and psychological distress, stayed the same.

Discussion

Using data from SPOT (n= 2453), the study investigated possible associations between parenting practice, bullying in school and psychological distress in young adults. We hypothesized that negative parenting strategies and exposure to bullying either as a victim or a bully, would be associated with more psychological distress, and that a positive parenting strategy would be associated with less psychological distress. Exploratory factor analyses of the parenting practice questionnaire revealed three distinct factors: supportive-, aggressive- and overprotective parenting. Crude correlational analyses showed that all three parenting factors as well as bullying victimization and perpetration were statistically significantly associated with psychological distress in the expected direction. The size of the correlations between parenting practice and bullying involvement varied from -.23 to .08 with the strongest correlations for supportive parenting and bullying victimization. In stepwise regression analyses all three parenting practices and bullying victimization were related to psychological distress as hypothesized. Adjusted results from the regression analyses furthermore revealed that bullying victimization, but not bullying perpetration, was associated with more psychological distress. In the final model, gender, parental depression and parental anxiety were covariates that had a significant association with psychological distress. Mediation results indicated that the associations between supportive and aggressive parenting on one hand, and psychological distress on the other hand, were partly explained by bullying victimization.

The regression analyses revealed that parenting practices may serve as a protective factor and a risk factor in relation to psychological distress in young adulthood. Our study adds to the body of research that connects parenting practices to mental health (Blaasvær & Ames, 2019; Chan & Koo, 2011; Hoskins, 2014), and show that parenting practices continue to affect mental health outcomes in adulthood (Aquilino & Supple, 2001; Enns et al., 2002; Gladstone et al., 2006; Parker et al., 1995; Pilowsky et al., 2006). Our results can be viewed in light of social learning theory (Bandura, 1977) and attachment theory (Bowlby, 1982), and indicate that children may learn how to build and maintain relationships with peers through the experiences with parents.

In line with our hypotheses, those who remembered their parents as supportive reported less psychological distress in young adulthood. In our study, supportive parenting was characterized by warmth, encouragement, boundary setting and involvement, and was thus highly related to authoritative parenting style (Baumrind, 1966), and its´ high levels of demandingness and responsiveness (Maccoby & Martin, 1983). Many researchers have previously related supportive parenting, and other parenting practices resembling authoritative parenting style, to better outcomes. Previous findings from two meta-analyses show that experiencing parents as supportive is protective against depression (Gariépy, Honkaniemi, & Quesnel-Vallée, 2016; Rueger, Malecki, Pyun, Aycock, & Coyle, 2016) and linked to higher self-esteem (Colarossi & Eccles, 2003). Supportive and authoritative-like parenting have buffering effects and are consistently linked to better health outcomes in children (Davids et al., 2017 as cited in Blaasvær & Ames, 2019). The results of our study adds to the evidence that benefaction of supportive and non-punitive parenting continues into early adulthood (Gray & Steinberg, 1999).

The hypothesis that more negative parenting was associated with higher psychological distress in young adults was partly supported. In the present study aggressive parenting was

measured as being authoritarian and correcting behaviors such as punishment and yelling. Our findings showed that having aggressive parents was associated with more psychological distress in young adulthood. However, when the results were adjusted for gender, divorced parents, parent higher education, immigrant background, parental anxiety and parental depression, the regression coefficients for aggressive parenting dropped by 0.01. When the results were additionally adjusted for bullying victimization and perpetration, the regression coefficient for aggressive parenting dropped furthermore by 0.02, and the association between aggressive parenting and psychological distress was no longer significant. This is somewhat unexpected in light of the review by Blaasvær and Ames (2019) who points out that authoritarian-like parenting styles are consistently linked to worse mental health outcomes. In addition, others have found that characteristics of aggressive parenting, i.e., parent-child conflict, yelling and arguing related to mental health outcomes such as major depressive disorder, lower self-esteem and life satisfaction (Aquilino & Supple, 2001; Pilowsky et al., 2006). One explanation of why aggressive parenting was no longer a significant predictor of psychological distress with bullying in the model, is that the effect of aggressive parenting on psychological distress is explained by bullying.

In accordance with our hypothesis, overprotective parenting, a negative parenting practice, was a risk factor for elevated psychological distress in young adulthood. Opposite to supportive parenting and its encouragement of autonomy, overprotective parenting is characterized by psychological control – the relative degree of emotional autonomy that parents allow their children (Gray & Steinberg, 1999). Overprotective parenting behaviors try to dominate the psychological experiences of children, and have especially damaging impact on mental health (Gray & Steinberg, 1999). In the current study, overprotective parenting was characterized by parents who often did things for their children, took responsibility away from them and protected them against failure. This study found associations between

overprotective parenting and increased levels of psychological distress. Although the regression coefficient had a small drop after including covariates, gender, divorced parents, parent- higher education, -anxiety, -depression, immigrant background and bullying-victimization and perpetration, the association remained significant. Our results can be viewed in support of previous studies that identified associations between overprotective parenting and psychological distress (Gray & Steinberg, 1999), depression and loneliness (Barber, 1996).

In line with the hypothesis, bullying victimization in school was associated with more psychological distress in young adulthood. These findings build on evidence of previous research that likewise linked bullying to more psychological distress (Arseneault, 2018; Takizawa et al., 2014). Moreover, a British cohort five-decades-long study found that bullying victimization in childhood, doesn't only affect psychological distress at age 23, but continues to predict depression at age 45, psychological distress at age 50, cognitive functioning at age 50 and general health at ages 23 and 50 (Takizawa et al., 2014). The study by Takizawa et al. (2014) adjusted for gender, and several childhood confounders: IQ, externalizing & internalizing problems, family social status, parental involvement, poverty and parental health. Other studies have linked bullying in childhood to increased risk for depressive disorder, anxiety and panic in young adults while accounting for early psychiatric problems and hardships (Copeland et al., 2013). However, the results of confounders were not available which makes a direct comparison between our study and Copeland et al. (2013) difficult. However, based on a high quality longitudinal study, one can expect that bullying victimization will continue to predict worse mental health at least up to age 50 (Takizawa et al., 2014).

Contrary to the hypothesized association, bullying perpetration was not a significant predictor of psychological distress according to our results. One possibility is that the sample

of participants who bullied others was too small to reveal any significant results. Out of 2453 participants, only 27 people answered that they bullied others “often” in primary school, 12 said that they bullied “often” in secondary school and 2 participants bullied “often” in high school. On the other hand, the results might also suggest that bullying others in school does not have an impact on psychological distress in young adulthood. The results in this study are supported by a review on long-term outcomes of bullying, that found bullies not at an increased risk for mental health problems in adulthood, and some studies reported that bullies had better mental and physical health in adulthood than peers (Wolke & Lereya, 2015). However, there are other studies that linked bullying perpetration to depression (Salmon et al., 1998), unhappiness (Slee, 1995) and suicidal ideation in childhood (Rigby & Slee, 1999). A plausible explanation is that bullies take another developmental pathway and show more often antisocial personality disorder (Copeland et al., 2013), antisocial behavior, and are more often involved in crime and drugs in adulthood (Wolke & Lereya, 2015).

A key finding of our study is that the association between supportive parenting practice and psychological distress in young adults was mediated by bullying victimization in school. The mediation analysis gave insight to a mechanism in how supportive parenting protects against later mental health problems. Children who had supportive parents, reported less psychological distress as young adults, because they were less likely to be bullied. Our results are in line with previous findings that identified authoritative parenting as protective of bullying victimization and following depression (Luk et al., 2016). In addition, research has shown that children who are not involved in bullying experience more often supportive or authoritative parenting (Baldry & Farrington, 2000). However, in the current study, the absence of bullying victimization in the association between supportive parenting and psychological distress, accounted only for 15.24% of the association. This indicates that other factors are at play in explaining why supportive parenting is beneficial for adult mental

health. One example is that supportive parenting may protect children against bullying through development of certain emotional and social skills. In fact, giving children psychological autonomy is a key characterization of supportive parenting (Gray & Steinberg, 1999). This autonomy can aid the perception of self as competent and confident, and can in turn protect from depression and anxiety- disorders commonly found in people with low self-esteem (Gray & Steinberg, 1999). Furthermore, children of supportive parents might be given the chance to declare their wishes, needs and encouraged to speak up for themselves, which again can make children less susceptible to bullying (Baldry & Farrington, 2005). In addition, supportive parents may contribute to less bullying victimization by allowing autonomy and acknowledging the needs of their children, which add to healthy emotional and social development (Gray & Steinberg, 1999).

Moreover, mediation analyses indicated that bullying victimization was also a significant mediator between aggressive parenting and psychological distress. According to the results in this study, having aggressive parents was associated with more psychological distress through bullying victimization. Being a victim of bullying in childhood explained almost half of the association between aggressive parenting and psychological distress in young adulthood. More specifically, when bullying victimization was included as a mediator, the association between aggressive parenting and psychological distress was reduced by 41.46%. Even though the direct effect for aggressive parenting was not statistically significant in the mediation model, this alone is not enough to conclude full mediation as absence of evidence should not be confused with evidence of absence (i.e., p-values >.05 do not proof the null-hypothesis). Our results indicate that almost half of the explanation of why children of aggressive parents experience more psychological distress is because they are more likely to be bullied. Several previous studies have linked aggressive parenting to bullying involvement. According to a mediation model by Gómez-Ortiz, Romera, and Ortega-Ruiz

(2016) it is the experience of punitive discipline, i.e. psychological aggression and physical punishment, that contributes to bullying involvement. Furthermore, our findings support the prospective study by Schwartz, Dodge, Pettit, and Bates (1997), and reviews by Nocentini et al. (2019) and Farrington (1993), that indicate exposure to aggressive behavior and punitive practice from parents poses children at greater risk for bullying victimization.

In the mediation model, the effects of overprotective parenting on psychological distress were not explained by bullying, as was the case for the other two parenting practices. A possible explanation is that the effects of overprotective parenting operate through a separate system than the effects of supportive- and aggressive parenting. Instead of learning a certain behavior or developing emotional skill, overprotective parents and their children might share an underlying risk for more anxious reaction pattern (Olweus, 1994), and in turn, the tendency to react with anxiety make parents more overprotective and children more at risk for more psychological distress. Additionally, in our study overprotective parenting was significantly correlated to bullying involvement. Children of overprotective parents might develop less autonomy that makes them easier targets for bullies (Lereya et al., 2013), but it is also possible that parents become more overprotective of their children, because they are bullied (Lereya et al., 2013).

The hypothesized parallel mediation model was partly supported. In our study, bullying victimization was the only significant mediator between parenting practices and psychological distress. It mediated the relationship between both aggressive-, supportive parenting and psychological distress. Bullying victimization accounted for some, but not all, of the relationship between parenting styles and psychological distress. The partial mediation implies two things. First, there is a significant relationship between bullying victimization and psychological distress. Second, the direct relationship between parenting styles and psychological distress remains after including mediation to the model. Thus, both bullying

victimization and parenting styles contribute to some degree independently to psychological distress. Meaning that bullying victimization accounts for some of the relationship between parenting and psychological distress. The amount that bullying victimization explained of the relationship between parenting and psychological distress depended on the parenting style.

In our study, gender was included as a covariate and proved to be an important predictor of psychological distress, as it had the second highest values in regression coefficients. Associations between gender and mental health are well-established in research. Being male decreased HSCL-25 scores by 0.28 points, and the results imply that being a female predicts higher scores in psychological distress. These results are noteworthy as the cut-off score for clinically significant psychological distress is set to 0.75. Although a world-wide study by WHO showed that boys reported bullying victimization more often than girls (Fleming & Jacobsen, 2009), it appears that gender poses an independent risk for mental health problems. Our results showed that after controlling for bullying variables, the influence of gender on psychological distress stayed the same. The results from the current study are therefore in support of the studies showing that gender is a significant predictor for mental health problems. For example, an international study of gender differences in 15 developing and developed countries across the continents found that women had more anxiety and mood disorders than men in all countries (Seedat et al., 2009).

The estimates of supportive-, aggressive-, and overprotective parenting, and bullying victimization were small, but significant in relation to psychological distress. Although direct comparison of coefficients between studies is difficult, studies report small effect sizes of parenting on bullying victimization (Lereya et al., 2013). We identified that several factors from childhood continue to affect mental health in young adulthood. Although the estimates were small, they were significant predictors of mental health, and most of the predictors remained significant after adjusting for covariates. The small estimates reflect the complexity

of mental health, and suggest that several other factors influence psychological distress. Our model explained 25% of variation in psychological distress, which indicates that friends and romantic partners, employment, economics, academic accomplishments, and success in pursuing personal ambitions, and other factors, may all influence the mental health in young adults (Aquilino & Supple, 2001).

Strengths and Limitations

This study has a number of strengths and weaknesses. Our study is limited by its cross-sectional design and its inability to establish causality. Temporal precedence, the principle that the cause must precede the effect, must be present for causality to be established. The study measured exposure to parenting practices, bullying experiences and psychological distress at the same time, posing limitations to the requirement of temporal precedence. However, meta-analyses have indicated a temporal precedence of parenting and bullying (Lereya et al., 2013), and others have shown that bullying precedes mental health problems (Moore et al., 2017). The cross-sectional study design is also likely to influence the sizes of coefficients in our results. The small sizes of coefficients are likely to partly reflect the timespan between the past experiences and current psychological distress, as the assessment of past events is separated by many years.

Another limitation is that our measure of parental practices has not been validated yet, even though it overlaps with several other existing measures in content. In particular, the first factor, supportive parenting, seems to overlap with Baumrind's authoritative parenting style. Aggressive parenting measured the dimension of parental aggression and may relate to the low levels of responsiveness and in this way be associated with authoritarian parenting. Overprotective parenting responded to the survey dimension "discouragement of independence" and can be linked to low demandingness in Baumrind´s theory. Future studies

should examine the psychometric properties of the scale more thoroughly and examine its discriminant and convergent validity with regard to other measures of parenting practice.

However, among the strengths of this study is that it used a validated measure for mental health problems, HSCL-25 (Nettelbladt et al., 1993), and assessment of bullying was based on Olweus (1993). Moreover, our study included a rich set of covariates that allowed us to adjust the analyses for several potential confounders, e.g. potential genetic effects were controlled for by including parent anxiety, parent depression as covariates in the main analyses, and neuroticism in the sensitivity analysis.

Another strength of our study is the relatively large sample size which assures more precise mean scores and minimizes the influence of outliers. Another property of a large sample size is the ability to detect statistically significant effects that are very small, but potentially less meaningful. This may have happened in the present study. The correlation analysis revealed several small but significant correlations, e.g., correlation between gender and divorced parents (r=.05), gender and aggressive parenting (r=.06), divorced parents and aggressive parenting (r=-.05), and more. Although these correlations are significant, the relationship between the variables may be of little relevance due to their small magnitude. However, the independent variables overprotective (r =.12) and aggressive parenting (r =.15) have higher, but still relatively weak correlations to psychological distress.

The descriptive analyses showed that a majority of students had a psychological distress score below cut-off. However, the sample in present analyses showed a high degree of mental health problems. Almost 40% of our sample reported clinically significant psychological distress. This makes the baseline sample in the current study, similar to Norwegian national SHoT study from 2018, that showed one in four students experience severe symptoms of mental health problems (Knapstad, Heradstveit, & Sivertsen, 2018). Psychological distress is increasing in students. The most recent report from SHoT in 2021

showed that 45% of university students in Norway experience high levels of psychological distress (Sivertsen, 2021). These results may indicate that our sample is representative, and that the results can be generalized to at least Norwegian university students.

Implications

The current study represents both practical and scientific implications. First, even though the factors we measured had small estimates on individual level, all children are exposed to parenting practices. Since parenting practices apply to all children who grow up, even small estimates may play an important role from a public health perspective. From this level of perspective, small effects accumulate and result in differences in mental health.

Second, our study has practical implications for bullying interventions that on average show 20% effectiveness (Farrington & Ttofi, 2009). Results from this study suggest that parenting practice affects bullying, and future bullying interventions should consider the role of parents´ involvement in bullying-reducing interventions. Bullying intervention programs that target parent-child relationships may result in higher effectiveness. Furthermore, parental guidance programs need to continue to focus on strengthening supportive parenting strategies.

Third, although this study did not find bullies at greater risk for psychological distress, bullying perpetration is more often related to externalizing disorders, such as antisocial behavior in young adulthood (Wolke & Lereya, 2015). Future studies investigating bullying in young adults can therefore consider measuring externalizing disorders to further gain insight in how bullying affects mental health in adulthood.

Lastly, research should continue to investigate mediation models to reveal how parenting and bullying in childhood relates to later mental health. For example, future models can include bully-victims as a mediator, or consider childhood abuse and neglect as predictors and externalizing behaviors as outcomes.

Conclusion

In sum, the findings of this study provides evidence that parenting practices and bullying victimization in school have small, but significant associations to psychological distress in young adults. Supportive parenting showed association to decreased levels of psychological distress. On the other hand, aggressive- and overprotective parenting strategies were associated with higher levels of psychological distress. Moreover, the study demonstrates that children who experience supportive parenting practices do better in terms of mental health in young adulthood, because they experience less victimization in school. Thus, increasing supportive parenting strategies in the general population might contribute to some decrease in bullying and psychological distress in a long-term perspective. By examining a possible mediation mechanism and including a large set of covariates, this study provides a more holistic and broader approach in the study of long-term associations to mental health.

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