

Parental Mental Distress and Adolescent Antisocial Behavior

The Mediating Role of Family Conflict and Cohesion

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Parental Mental Distress and Adolescent Antisocial Behavior: The Mediating Role of Family Conflict and Cohesion

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Abstract

Family climate and parental psychopathology are found to be connected to development and maintenance of antisocial behaviors (ASB) in children and adolescents. Parents' psychopathology, namely their levels of mental distress, such as symptoms of depression and anxiety, is found to impair parenting practices, as well as the interpersonal relationship with their children. Elevated levels of mental distress may therefore influence and weaken family environments, increasing the levels of conflict and coercive interactions, and further reduce support, connectedness, and cohesion in parent-adolescent relationships. Likewise, adolescent antisocial behavior is found to increase parents' mental distress, indicating that family members are in a constant bidirectional interaction with each other, where changes and/or impairments in one part will cause changes in the other.

The current article-based Master Thesis aims to investigate and explore if parental mental distress may affect their adolescents' levels of antisocial behavior through family conflict and cohesion. To investigate this relationship, the following research question was established, "Do family conflict and family cohesion mediate the association between parental mental distress and adolescent antisocial behavior?". We hypothesize that elevated levels of mental distress will increase family conflict, and decrease cohesion. This will further mediate the effect between parental mental distress and antisocial behavior, increasing the levels of adolescent antisocial behaviors. Our thesis consists of two parts, an extended summary and an article manuscript. The title for the article is "Parental Mental Distress and Adolescent Antisocial Behavior: The Mediating Role of Family Conflict and Cohesion", and is written for *Journal of Child and Family Studies*.

To investigate the mediating role of family conflict and cohesion on the relationship between parental mental distress and adolescent antisocial behavior, we conducted a mediation analysis using Structural Equation Modeling. Analyses are based on data from a clinical sample consisting of 159 Norwegian adolescents and their primary caretakers. The overall results from our analyses show that family conflict has a mediating role on the relationship between parental mental distress and adolescent antisocial behavior. However, we did not find a similar role of family cohesion. Results also indicate that parental mental distress has a direct influence on adolescent antisocial behavior, with elevated symptoms of distress increasing levels of antisocial behavior. Further, results show that elevated levels of mental distress in parents increases levels of family conflict and reduces cohesion among family members, reported by the parents.

Sammendrag

Familieklima og foreldres psykopatologi er ifølge forskning knyttet til utvikling og opprettholdelse av antisosial atferd (ASB) blant barn og unge. Foreldrenes psykopatologi, som symptomer av depresjon og angst, kan negativt påvirke hvordan foreldre møter barna sine, hvilke oppdragsstrategier de benytter seg av og øke forekomsten av uheldig samhandling innad i familien. Videre viser mye forskning at høye nivåer av depresjon og angst hos foreldre kan fungere som en katalysator for hyppigere situasjoner med konflikt innad i familien og mellom familiemedlemmer, som igjen svekker familiesamholdet. Et svekket familiesamhold kan også oppstå på bakgrunn av manglende involvering og omtanke fra foreldre som strever psykisk. På samme tid kan ungdommers antisosiale atferd også være en årsak til at familieklima svekkes, gjennom gjentatte ganger med regelbrytende atferd, kriminelle handlinger og verbale trusler. I denne sammenheng tenker vi på at et negativt familieklima kjennetegnes av lavt samhold, og høyt konfliktnivå. Når en ser alle disse faktorene i sammenheng, reflekterer det hvordan familiemedlemmer påvirker hverandre i et transaksjonelt perspektiv, hvor endringer i en parts atferd vil forårsake endringer hos den andre.

Denne artikkelbaserte masteroppgaven har som formål å undersøke om psykiske vansker hos foreldre har en påvirkning på ungdommers antisosiale atferd, og om denne relasjonen medieres av konflikt- og samholds nivå i familien. Problemstillingen for masteroppgaven er: «Medierer familiekonflikt og -samhold relasjonen mellom foreldres psykiske vansker og ungdommers antisosiale atferd?». Våre hypoteser er at økte nivåer av psykiske vansker hos foreldre vil resultere i økt familiekonflikt og redusert familiesamhold. Vi antar også at økt konfliktnivå vil resultere i økt forekomst av antisosial atferd hos ungdommen, mens hvis familiesamhold er høyt, at det vil være mindre antisosial atferd. For å undersøke disse sammenhengene benytter vi oss av data fra 159 norske ungdommer og deres primære omsorgsgiver. Disse er hentet fra et klinisk utvalg. Masteroppgaven består av to deler, en kappe og et artikkelmanuskript. Artikkelen har tittelen “Parental Mental Distress and Adolescent Antisocial Behavior: The Mediating Role of Family Conflict and Cohesion”, og er skrevet for *Journal of Child and Family Studies*.

Vi gjennomførte en medieringsanalyse ved å bruke strukturell ligningsmodellering (SEM). Resultater fra undersøkelsene viste at familiekonflikt har en medierende rolle i relasjonen mellom foreldres psykiske vansker og ungdommens antisosiale atferd. Vi fant derimot ikke den tilsvarende sammenhengen med familiesamhold. Videre viste resultatene at psykiske vansker hos foreldre har en direkte påvirkning på antisosial atferd hos ungdommen. I likhet fant vi at økte psykiske vansker blant foreldre resulterte i forhøyede nivåer av familiekonflikt og redusert familiesamhold.

Forord

Wow! Tenk at vi nå er ferdige. Årene som studenter har vært en lang, spennende, krevende, morsom og minneverdig epoke. Våre fem år på Blindern og Helga Engs hus er nå forbi, og nye kapitler i livet står i kø og venter på oss. I løpet av denne tiden har de fineste og av de beste relasjoner blitt til. Det har resultert i en bratt læringskurve, både på det personlige og faglige plan, og vi elsker det. Fra vi begynte å studere Bachelor i Spesialpedagogikk i 2017, har interessen for fagfeltet i sin helhet vært gjennomgående. Likevel fant vi begge en særlig interesse for barn og unges psykososiale utvikling og utfordringer, som igjen førte oss inn på masterprogrammet med fordypning i psykososiale vansker. Her utviklet vi ett nytt, solid og forhåpentligvis livslangt vennskap, som nå også har resultert i en masteroppgave som vi selv er veldig stolte av å ha skrevet.

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1 Introduction

Human development is the process of individual adaptation to complex and ever-changing environments (Jenkins et al., 2015), and for most people, this adaptation takes place without major hindrances. However, there exists sizable variations in how much adversity each person encounters during childhood and adolescence, with some experiencing substantially more than others. Consequently, some individuals fail to make this adaptation, resulting in poor life outcomes (e.g., academic failure, mental illness, delinquency). Developmental psychopathology is the study of the etiology and cause of individual differences in behavioral patterns (von Tetzcher, 2012). These studies aim to understand risk factors in childhood and adolescence that increase individuals' chance to develop psychopathology (Lipschutz & Bick, 2021), but also protective factors or resilience, which in turn plays a role in restraint or to avoid poor life outcomes (Borge, 2019).

Adolescence is a developmental period with both risk and opportunities, often characterized by experimentation and sensation-seeking associated with impulsivity (Pérez-Fuentes et al., 2019). Most youth develop essential prosocial skills during adolescence, such as social skills, and perspective taking (Blankenstein et al., 2020). For others, however, adolescence becomes a continuation or escalation of more turbulent developmental trajectories. For instance, adolescent antisocial behavior might be a continuation of problematic behaviors that already started early in childhood, that increases during adolescence (Dishion & Patterson, 2006; Moffitt, 2015). The individual and societal long-term consequences for life-long or severe exhibition of antisocial behavior include academic failure, involvement in crime, violence, drug abuse, and disturbances in social relationships (Moffitt, 1993). Additionally, they are a major burden on the healthcare systems (Hiatt & Dishion, 2008).

Parental practices and parental psychopathology are well documented risk factors, both for early and later antisocial behavior (Cummings & Davis, 1994; Elgar et al., 2007; Moffitt, 2015). Findings indicate both a genetic and social effect in transmission of antisocial behavior within the family (Moffitt, 2015; Fosco & LoBraico, 2019). On one hand, symptoms of depression and anxiety in parents may hinder parental practices and in-depth engagement with their teenagers' lives (Hawes & Dadds, 2005), therefore exposing their children to developing antisocial behaviors. On the other hand, living with aggressive and rule-breaking children and teenagers can also have a large impact on parents' psychopathology (Gross et al., 2009). Therefore, it has become popular in psychological research to study family dynamics and relationships contributing to adolescents' antisocial behavior, and evaluate how this may have reciprocal influences between parent and child.

The background and aim of the current Master Thesis is to examine if family environment factors, such as family conflict and cohesion, mediate the relationship between parental mental distress, and adolescent antisocial behavior. In general, adolescents tend to seek autonomy and liberation from parental control and supervision (Coleman & Hagell, 2007), which in turn, often results in substantial shifts in family relationships (Bear, 2002; Van Petegem et al., 2020). This process may either lead to

or heighten already strained relationships within the family, or they can contribute to healthy and positive problem-solving and social skills. Levels of conflict and cohesion within the family, and family members' characteristics may influence the development and maintenance of antisocial behavior in adolescence. For example, family conflict in early life may influence youths to enter or befriend deviant peer groups, where the adolescent is exposed to antisocial and other delinquent behaviors (Church II et al., 2012). While, family cohesion is regarded as a reductive or protective factor, with cohesion leading to more parental behavioral control and adolescent self-disclosure (Vieno et al., 2009).

1.1 Terminology

As we say in Norway, “Kjært barn har mange navn”, highlighting that one term or concept may be known and understood by other names and definitions. Especially in psychological and educational research, where the goal often is to examine abstract constructs and phenomena, it is critical to be specific when theoretically defining and operationalizing construct measurements in different studies (Kleven, 2002). We aim to study how diverse and abstract concepts interact and influence each other. These concepts include measures of antisocial behavior, mental distress, as well as family conflict and cohesion.

The term *antisocial behavior* refers to a range of behaviors children and adolescents can exhibit during their development. Including aggression, non-aggressive rule-breaking, externalizing behaviors, bullying, verbal threats and delinquency (Dishion & Patterson, 2006; Scott, 2015). These types of behaviors are considered normative, hence, what's perceived as antisocial actions will naturally depend on the context and individuals observing these (Ogden, 2015). In this thesis, the measurements used to report levels of antisocial behaviors consist of parents' perception of their adolescents aggressive and rule-breaking behavior, this includes both diagnosed and undiagnosed behavior. These two subtypes combined make up the construct of antisocial behavior.

Mental distress and *mental health* are two other psychological phenomena that include a range of different behaviors and symptoms (Reneflot, 2018; WHO, 2019). In our measurements, the construct of mental distress includes symptoms of depression and anxiety. Additionally, these are self-reported symptoms, and cannot be understood as clinical diagnoses. In the current thesis, we use literature concerning a broad range of mental health impairments, including both diagnosed and undiagnosed symptoms of depression and anxiety, and mental health issues as a broader construct.

The last two concepts, *family conflict* and *cohesion* are complex and subjective experiences of family environments (Lucia & Breslau, 2005). Family conflict is understood as frequent expression of anger, hostility, and resentments between family members (LoBraico et al., 2020), while shared support, connection and helpfulness among family members are understood as cohesion (Baer, 2002). These measurements are normative and contextual dependent, thus, some levels of conflicts within

one family may not necessarily be experienced as conflict-filled by another. The same can be understood for levels of cohesion. Further exploration of these terms will be clarified in their specific sections.

1.2 Structure

The current thesis is divided into two parts, consisting of an extended summary or “kappe”, and a journal manuscript. This is required by the University of Oslo when writing an article-based Master Thesis. The extended summary/“kappen” constitutes a framework for the article, and is used to contextualize and explain choices made when writing the journal manuscript. “Kappen” consists of extended exploration and explanation of theoretical and methodological perspectives and considerations, while the journal article follows the set manuscript structure of *Journal of Child and Family Studies* (See Appendix A for author instructions). Both “kappen” and journal manuscript follows guidelines provided in the 7th edition of the APA Publication Manual. All attachments relevant for the Master thesis will be presented after the journal manuscript in appendix. Appendix A contains shortened instructions for authors and guidelines for publishing in *Journal of Child and Family Studies*. Appendix B, contains descriptive statistics of the intended study variable, consisting of both parental and adolescents reports on family conflict, cohesion, and adolescent ASB. These variables were not utilized in the statistical analyses for this Master Thesis, hence why they are found in appendix. Ethical approval from Regional Committees for Medical and Health Research Ethics (REK) can be found in Appendix C. Mplus analysis is presented in Appendix D.

The first part, “kappen”, follows a similar structure as the article, with introduction of topic, relevant research and literature, followed by a methodologic chapter that explains and explores the methodological choices made when writing the thesis. The introduction within the extended summary will contain a more extensive discussion of theory, explaining *adolescent antisocial behavior*, *parental mental distress*, and *family conflict and cohesion*, and the development and interaction between the study variables. The aim, research question and the hypotheses will be presented before methodological aspects. The methods section will include discussion of statistical analyses. This part will also include further discussions of the limitations of the study.

The journal manuscript part, will follow the prescribed structure of the chosen journal, including exploration of the central topics, their relation and development. Structure of the article manuscript will be organized by introduction, method, results and discussion. Firstly, relevant theory and literature relevant for statistical analysis and results, will be introduced. Participants, measures, data analysis and results will be presented within the Methods section. Results from statistical analysis will thereafter be reported, followed by discussion of study results in relation to previous research and theoretical perspectives. Limitations, and implications for future research will round up the journal

manuscript. Based on the Institute for Special Needs Educations (ISP) thesis format, our article will contain number points in subheadings.

1.2.1 *Journal of Child and Family Studies*

The article manuscript is written for the *Journal of Child and Family Studies* (JCFS), published by Springer. JCFS is an international, peer reviewed journal that explores issues related to the behavioral health and well-being of children, adolescents, and their families. Some topic areas for JCFS include: enhancing child, youth, parent, caregiver and/or family functioning; and, cumulative effects of risk and protective factors on behavioral health, development, and well-being, making this a suitable journal for publication of the current thesis, for the aim of this study is to explore the mediation role of family conflict and cohesion on the association between parental mental distress and adolescent antisocial behavior. JCFS follows APA 7th guidelines, and has a maximal length of 30 pages, including all tables, figures, and references.

2 Adolescent Antisocial Behavior (ASB)

Antisocial behavior (ASB) is defined as behaviors that violate norms and rules about how persons and property should be treated (Scott, 2015). It is often destructive and insensitive to other people's rights. Such behaviors may be criminal or noncriminal, covert or overt, and can include aggression, substance use, bullying, sexual precocity, and vandalism (Dishion & Patterson, 2006). When referring to criminal behavior in childhood and adolescence professionals often use the term delinquency (Hiatt & Dishion, 2008). ASB is one of the most common behavioral problems during childhood and adolescence (Borge, 2019), hence researchers and professionals' historical concern and interest with the topic (Costello & Angold, 2000). Additionally, it has the most significant symptoms of psychiatric disorders, which can be very demanding to reverse or treat (Waldman & Lahey, 2013). Further, research implies that ASB among youth is heterogeneous (Frick & Viding, 2009).

ASB should not be viewed isolated, but as elements of a complex spectrum that may develop into Antisocial Personality Disorder (ASPD), Oppositional Defiant Disorder (ODD), or Conduct Disorder (CD) (Fonagy, 2021). In a clinical view, professionals often use ODD for younger children, and CD for older children and adolescents (Scott, 2015). ASB is a key symptom and subtype of CD, as defined in DSM-5 and ICD-10 (Otto et al., 2021). Clinical diagnoses are positive as it contributes to simplify estimations of prevalence. However, in reality, there are a lot of youth that exhibit ASB symptoms without this ever being documented (Burt et al., 2016). Nøkleby et al. (2020) estimations of Norwegian youth, indicates that around 2.5% of 9-12-year-olds exhibit ASB. In addition, their estimations for undiagnosed problem behaviors (that met the clinical cut-off) lay between 4.9% and 14 %. More global estimations of epidemiology of CD, show relatively stable prevalence over time, indicating that among 5-19-year-olds 3.6% males and 1.5% girls are affected (Erskine et al., 2013). In Norway there also has been an increase in self-reported delinquency among youths since 2016 (primarily within violence, abuse, and sexual offenses), however, the overall trend in delinquency among youth is decreasing (Meld. St. 34 (2020-2021)). Professionals use different operational definitions describing the range of disruptive, aggressive, oppositional, criminal, emotional, antisocial, and anger-related behaviors (Fonagy, 2021). In this thesis the term antisocial behavior is utilized, and includes both individuals with and without a clinical diagnosis.

Longitudinal studies, such as the Dunedin-study (Moffitt, 1993) reported that 60% of the ASPD-cases in adulthood had prior diagnosis of CD (Kim-Cohen et al., 2003). This is consistent with Robins' (1978) longitudinal study as well. Persistent ASB has major long-term consequences both for the individual and society. For the individual, the behavior is related to academic failure, drug abuse, violence, and disturbances in social relationships (Moffitt, 1993). In a societal perspective, even a small group of individuals with persistent ASB can cost the society large sums (Meld. St. 34 (2020-2021); Moffitt, 2018). They fail to maintain consistent employment, fulfill obligations to family, they

are involved in crime and violence, and they are a major burden on the healthcare systems (Hiatt & Dishion, 2008).

2.1 Typology of Adolescent Antisocial Behavior

Growing research advocates for distinguishing between different subtypes for adolescent ASB (Burt, 2012; Burt et al., 2009; Kornienko et al., 2019). This is explained by the broad range of actions and attitudes that are defined as antisocial, ranging from more or less normative behaviors, such as lying and underage drinking, to more severe and criminal behaviors, such as assault and theft (Burt, 2012). The main distinction is between aggressive and non-aggressive rule-breaking behaviors (Burt et al., 2016), however, some also include risk-taking behaviors (Mishra & Lalumière, 2008).

Aggressive or overt behaviors are often understood as verbal or physical aggression directed at another person with the intent to harm, but can also include oppositionality, bullying, and violence (Hyde et al., 2015; Kornienko et al., 2019; Little et al., 2003). *Non-aggressive, rule-breaking or covert behaviors* on the other side, can include more hidden forms of antisocial behavior, like theft, vandalism, and relational aggression, peer rejection and exclusion (Andershed & Andershed, 2007; Kornienko et al., 2019; Little et al., 2003).

Different developmental trajectories have emerged for aggressive and rule-breaking ASB, with aggressive behaviors emerging at an earlier age and being more consistent over time compared to rule-breaking (Burt, 2012; Niv et al., 2013). Early aggression is a predictor of later ASB and violent behavior (Loeber & Hay, 1997), and highly aggressive children are more likely to be aggressive as adolescents and adults (Burt, 2012; Moffitt, 2015). Contrary, rule-breaking behaviors are more frequent and increase in magnitude in adolescence (Burt, 2012; Trembley, 2010). Niv and colleagues (2013) found that rule-breaking significantly increases during adolescence, while aggression decreases, with peers attributing to the higher levels of rule-breaking behaviors. Peer networks are also affected by the display of different ASB subgroups, with peers being more likely to reject aggressive youth, while rule-breaking behaviors increase social status and popularity in adolescence (Burt et al., 2009; Kornienko et al., 2019).

Both aggressive and rule-breaking behaviors may be understood as distinct subtypes of ASB, while risk-taking behaviors are thought of as more normative in adolescence (Jaworska & MacQueen, 2015; Moffitt, 2018; Sundell et al., 2019). Actually, these types of behaviors are more frequent and prevalent during adolescence, compared to any other age groups (Boyer, 2006; Dishion & Patterson, 2006). *Risk-taking behavior* is defined as engagement in actions that are associated with potentially adverse consequences (Boyer, 2006; Collman & Hagell, 2007). Many behaviors may qualify as risky, and frequently associated with teenagers is alcohol consumption, unsafe sexual activity, interpersonal aggression, dangerous driving and tobacco use (Boyer, 2006). Risk-taking is not necessarily illegal or dangerous, but includes actions where the outcome is uncertain, and where the potential consequences

can be both positive or negative (Ciranka & van den Bos, 2021). Risk-taking behavior and ASB holds many of the same characteristics, both involving impulsive, immediately rewarding, reckless, and self-serving behavior (Mishra & Lalumiere, 2008). Multiple factors make adolescents more likely to engage in risk-taking behaviors. Steinberg (2004) points out that adolescents are very susceptible to peer pressure, making them more likely to engage in similar activities and behaviors as their peers (Ciranka & van den Bos, 2021). They are also more oriented about the present than future, and are less able to control their emotions due to the slow development of self-regulatory capability (Steinberg, 2004; Plessen & Kabincheva, 2010).

The role and influence of peers increases in importance during adolescence (Scholte et al., 2006; Sijtsema & Lindenberg, 2018). During childhood, most activities with peers are constructed around school or home, while when getting older, they gain more mobility and personal freedom. This gives greater agency in selection of social happenings, and better autonomy when interacting with them (Steinberg, 2011). Expansion of activity fields in adolescence, lead to contact with broader range of social contexts, where peers have increased roles in where they spend time and what they do (Osgood et al., 2005). The association with deviant peers in combination with more mobility and autonomy, can contribute to delinquent and/or risk-taking behaviors, enhance their position in antisocial groups, as well as distance them from prosocial peers (Carroll et al., 2009; Church II et al., 2012). Antisocial youth who are rejected by prosocial peers, tend to find others with similar behaviors and attitudes who tolerate their behaviors (Fosco & LoBraico, 2019). This affiliation with deviant peers then places them at an elevated risk for delinquent behavior (Loeber & Hay, 1997).

2.1.1 Trajectories Towards Adolescent ASB

A well-known longitudinal study concerning the development of ASB, is Moffitt's (1993) taxonomy, based on findings from the Dunedin-study. Here, the goal was to identify and characterize different trajectories towards antisocial behavior (Moffitt, 2015). Historically, her findings have received empirical support (e.g., Jennings & Reingle, 2002; McGee et al., 2015). Jennings and Reingle (2002) found in their review that many studies find approximately the same results as Moffitt (1993; 2015), even though it exists variability across the samples (e.g., length of observations, geographical contexts and number and shape of trajectories across samples). However, some have argued that the taxonomy is in need for a revision, based on the possibility for the existence of more than two primary trajectories (e.g., Fairchild et al., 2013). Since the taxonomy first was presented, several studies have conducted research on more specific fields (e.g., specific snares contributing to continuity, characteristics of adolescent delinquency abstainers) (McGee et al., 2015; Pedersen et al., 2020, respectively). Reflecting the importance of having a holistic and complex perspective on the development of ASB (including individual differences, heterogeneity). Therefore, it is worth mentioning that Moffitt (2018, pp. 184) herself suggests that the taxonomy should remain sufficiently

flexible to stay as relevant tomorrow as yesterday, and at the same time keeping its defining principles. As a result, the theory provides a good overall theoretical framework, and with a concern about the heterogeneity in ASB.

Based on observations and data, Moffitt (1993; 2015) proposed that on an overall level, that there exist two trajectories of what “pool” young people towards ASB. The first one, the life-course-persistent (LCP) antisocial group, is characterized by its onset in childhood which develops into persistent antisocial behavior to adulthood (Moffitt, 2015). According to Moffitt (2018), the LCP-group is hypothesized to be rare, with pathological risk factors and poor life outcomes. Risk factors have its roots in neurobiological individual differences (e.g., temperament), which in turn, from an early stage, challenges interactions between the child and its environment (Moffitt, 2015).

The second group, called the adolescence-limited (AL) antisocial group, refers to the emerging ASB and risky behavior in adolescence. Most teens take part in minor delinquent and rule breaking behavior (Borge, 2019), with a peak age for offending between 15-19 years (Kim-Cohen et al., 2003). According to self-reports, upwards 90% of males break laws during this period (Moffitt, 2018). AL has its onset during puberty due to a ‘maturity gap’, which refers to a gap between teenager’s biological and social maturity (Moffitt, 1993; 2015), and ends when social adulthood is attained (Moffitt, 2018). Despite that most of ASB in adolescence is limited to adolescence, several researchers have examined what contributes to more persistent ASB from adolescence into adulthood (e.g., McGee et al., 2015; Moffitt, 2018; Sundell et al., 2019). According to Moffitt (2015), the LCP-group trajectory was different from the AL-group, considering parental risk factors, including maternal psychopathology, mothers who were harsh and neglectful, and elevated family conflict. Despite the AL-teenagers' involvement in ASB and delinquency, they tend to have more normative backgrounds (e.g., socioeconomic status (SES) and family risk), compared to the LCP-group (Moffitt & Caspi, 2001). Indicating that the severity and stability of ASB is related to the age at which problematic behaviors become evident in the child.

2.2 Risk and Protective Factors

To understand the development of ASB, and the mediating role family cohesion and conflict may have on the relation between parental mental distress and adolescent ASB, it is important to consider risk and protective factors. Andershed & Andershed (2007) explain a risk factor as a trait, a situation or specific personal or environmental characteristics that increases the probability for ASB, aggression or another form for maladjustment. They further distinguish between: a) *dynamic* risk factors, which are possible to change (e.g. parental strategies), b) non-changeable *static* risk factors (e.g. early aggressive temperament), c) *initial* risk factors that direct or indirect contributes to a individuals ASB, and d) *sustaining* risk factors, factors which contributes to the maintenance of antisocial behavior over time. On the other hand, we have protective factors, the opposite of a risk

factor. These factors function as a mechanism that alters the effects of being exposed to risk, and increases the likelihood of a positive outcome (Rutter, 1990). Protective factors are related to the term resilience, defined as the process of, capacity for, or outcome of successful adaptation despite challenging and risky circumstances (Cummings et al., 2003; Rutter, 1990). This is related to how different individuals cope with different situations and challenges (Rutter, 1990).

Risk factors for developing ASB are biopsychological (genes, neural pathways), individual (temperament), familial (parenting, sibling relations), and environmental (school, peers) (Fosco & LoBraico, 2019), and many risk factors have roughly the same effect in low-income and high-income countries (Murray et al., 2018). Every teenager, with her or his own unique biological characteristics and history, responds differently to developmental tasks they face by the particular context in which she or he lives.

In a biopsychological perspective of risk factors, epigenetics is important to be aware of. Epigenetics has demonstrated that even individuals with the same genetic “code” can have totally different outcomes, due to environmental stimuli that may influence the expression of genes or which genes “turn on” (Lipschutz & Bick, 2021). An example is the MAO-A gene. Longitudinal studies suggest it is significantly associated with antisocial behavior, as in Fergusson et al. (2011) study. They found that the MAO-A gene in interaction with exposure to abuse in childhood, significantly increased the risk of developing antisocial behaviors. This addresses the importance of focusing on environmental factors, because this is where we actually can implement change (as we don’t operate with changing genes, yet).

Individual risk factors for ASB can include difficult and undercontrolled temperament, cognitive impairment, and low social competence (Andershed & Andershed, 2007; Nordahl et al., 2005). Difficult temperament may include hyperactivity, impulsivity, aggression, difficulty with emotional regulation, and fearlessness (Nordahl et al., 2005). Behavioral activation system (BAS) and behavioral inhibition system (BIS) may also influence development and maintenance of ASB (Dadds & Salmon, 2003). An overactive BAS may result in undercontrolled and impulsive temperament, while underactive BIS increase fearlessness. Therefore, these systems may alone and combined increase the risk for ASB. Peers may be a social risk factor for ASB and delinquent behavior, with socialization with deviant peers possible leading to engagement in antisocial behaviors (Carroll et al., 2009; Church II et al., 2012; Moffitt, 2015). Peers also become an increased risk factor during adolescence, as peers gain a bigger influence simultaneously with less parental control (Sijtsema & Lindenberg, 2018).

Family conflict and cohesion can be understood as both risk and protective factors for development of adolescent ASB. Cohesive families characterized by warmth, openness, emotional connection, and flexibility, are found to have offspring with better psychological and behavioral adjustment than conflicted families, that are more distant, hostile, and aggressive (Coe et al., 2018; Richmond & Stocker, 2006; Sun et al., 2021). Parent-adolescent relationships categorized by elevated

levels of conflict, lack of closeness and acceptance may increase the risk for involvement in ASB (Deković et al., 2003). Cohesive families with *parental involvement*, which is the degree parents spend time with their child and participate in joint activities, and *parental knowledge*, indicated by awareness of adolescents activities and whereabouts, are strong protective factors for adolescent behavior problems, engagement in deviant peer groups, and substance use (LaBraico et al., 2020). Families with high levels of cohesion can function as a protective factor between parental psychopathology and adolescent antisocial behavior, with this type of family climate facilitating adolescent adaptation through feeling of support, affection and openness to discuss and disclose personal issues (Richmond & Stocker, 2006). Maternal closeness and behavioral control were found in an Italian sample to facilitate adolescent self-disclosure and decrease the probability for adolescent engagement in antisocial behavior (Vieno et al., 2009).

Parental mental distress may function as a risk factor for increased conflict levels and lower cohesion within families. Both Garber (2005) and Slee (1996) found that depressed mothers report that their family environments more often are less cohesive and more conflict-filled, compared to non-affected mothers. Likewise, Pérez and colleagues (2018) report that higher levels of maternal depression was associated with lower levels of family cohesion, reported by both mother and adolescent. Mental health issues are found to influence parental capacity to function as a parent, and influence their parenting strategies (Elgar et al., 2007; Harold et al., 2011). Depression and anxiety in parents may impair their parenting styles and interactions with their children through increased physical and psychological aggression and control (Marçal, 2021), or lack of monitoring and supervision (Avenevoli et al., 2005). Although offsprings of depressed parents are at increased risk for maladjustment, living with an antisocial or delinquent child or adolescent may have reciprocal adverse consequences on parental mental functioning (Hails et al., 2018). Gross et al., (2009) found that child noncompliance was the most robust predictor for higher and more persistent levels of depressive symptoms among mothers.

3 Parental Mental Health

Mental health is more than the absence of mental disorders. Good mental health is essential for individual well-being and life quality (Bru et al., 2016), for interaction with others and to be able to cope with the normal stress of everyday life (WHO, 2018). However, mental health problems have become one of today's most pressured issues, with symptoms of depression and anxiety being the two most prominent mental health problems (Kessler & Bromet, 2013; Remes et al., 2016). Depression is often categorized by sadness, loss of pleasure or interest (WHO, 2019), often accompanied by feelings of guilt, low self-worth, and self-blame (Reneflot, 2018; Penninx, 2006). Other symptoms may include disrupted sleep and appetite. Anxiety disorders are often defined by excess worry, hyperarousal, and fear that is counterproductive and debilitating (Remes et al., 2016). It might lead to physical symptoms, such as muscle tensions and discomfort, increased heart rate, shortness of breath, excessive sweating, and shakiness (Reneflot, 2018; Hantsoo & Epperson, 2017).

The connection between maternal mental health issues are well established as risk factors for child and adolescent outcomes (e.g. see Elgar et al., 2007; Joyner & Beaver, 2021; Marmorstein & Iacono, 2004; Sellers et al., 2014). This relationship has been the focus for most previous and existing research on the association between parental mental distress and offspring outcomes (Cummings et al., 2005; Sweeney & MacBeth, 2016). Therefore, less focus has been implied on the influence and role of paternal symptoms of mental distress on child and adolescent outcomes. Research shows that mothers may have a bigger influence on their child's outcome, with higher levels of mental health issues predicting higher levels of maladjustment in offspring compared to fathers (See e.g., Harold et al., 2011; Vera et al., 2012). One reason for this may lie in social expectations and traditional childrearing, where mothers often have a more central role compared to fathers (Hautmann et al., 2015). Therefore, any form of maternal impairment may have a greater impact on the child (Marmorstein & Iacono, 2004). Conversely, Kane and Garber (2004) found that depression in fathers is positively significantly associated with internalizing and externalizing problems in offsprings, as well as increased father-child conflict. Additionally, a meta-analysis by Connell and Goodman (2002) did not find that mothers' and fathers' psychopathology differ in their influence on offsprings' externalizing behavior, only for internalizing behavior. Likewise, research implies that maternal and paternal mental health struggles may be comorbid, with fathers levels of depression being higher when the mother is depressed (Fisher, 2017).

The prevalence of mental health issues are consistently higher for women compared to males, with females being twice as likely to experience depression and anxiety (Gross et al., 2009; Remes et al., 2016). The gender gap seems to be consistent in low-income to high-income countries (Kuehner, 2017; Remes et al., 2016). Both psychosocial and biological factors may explain the female predominance for mental distress (Hantsoo & Epperson, 2017; Kuehner, 2017; Yoon & Kim, 2018). Social and societal expectations, as well as gender norms and roles may make females more

susceptible for life stress, making them vulnerable for mental health issues (Kuehner, 2017; Yoon & Kim, 2018). Interpersonal relationships may also place females at a greater risk for developing and maintaining mental health problems, with women being at a greater risk of being victims of coercive, sexual, and physical violence than men (Kuehner, 2017). Additionally, female victims are twice as likely to develop depression and substance-related issues compared to non-affected women (Kuehner, 2017). It is estimated that 35% of gender differences in adult depression can be explained by higher incidence of assault and neglect towards girls in childhood (Yoon & Kim, 2018).

3.1 Mental Distress and Parenthood

Parents with mental health issues often have attitudes and behaviors that may contribute to child psychopathology, through various social learning processes. This includes modeling and reinforcement, which in turn may lead to development of negative cognitions and maladaptive responses to stress (Garber, 2005). Offsprings of parents with mental distress may more often experience negative emotions, such as anger, fear, and sadness, which may place them at increased risk for both internalizing and externalizing problems (Van Loon et al., 2014). Mental health issues are also associated with dysfunctional parenting practices and impaired relationships with their children, compared to parents without mental health struggles (Joyner & Beaver, 2021). Mental distress in parents are also associated with more family and marital conflict and discord (Garber, 2005), with this having a significant impact on parent-child interaction through poor parenting practices (Elgar et al., 2007). Further, conflict and tension between parents may have a spillover effect onto their children (Timmons & Margolin, 2015). Mental health issues in parents are also associated with low levels of family cohesion and higher levels of family conflict (Van Loon et al., 2014; Pérez et al., 2018).

Parental depression symptoms have been associated with child externalizing behavior, with evidence indicating that this relationship is partially accounted for by parenting practices (Haws & Dadds, 2005; Joyner & Beaver, 2021). That is, depression negatively impacts parenting behaviors, the parent-child relationship, and other aspects of the family climate. Family environments with depressed caregivers are often characterized by negative patterns of interpersonal interactions, lax monitoring, and inconsistent discipline and display of affection (Avenoli et al., 2005; Elgar et al., 2007; Korhonen et al., 2014). Joyner and Beaver (2021), found that depressed mothers and non-depressed mothers differ significantly on characteristics that are likely to be tied to different developmental trajectories in children. Depressed mothers were more likely to live in disadvantaged neighborhoods with higher levels of crime and lower levels of neighborhood safety (Joyner & Beaver, 2021). Cummings and colleagues (2005), found that parental depressive symptoms were linked to poor child adjustment, both internalizing and externalizing problems, peer rejection and lack of prosocial behavior, and that greater parental symptoms were associated with intrusiveness, control

through guilt, and less parental warmth. However, Marmorstein and Iacono (2004), found that adolescent CD was associated with rates of maternal depression, but not significantly with paternal depression. Korhonen et al. (2014) investigated whether it is the timing, recurrence or chronicity of maternal depression that puts the offspring's wellbeing at risk. Their findings indicated that maternal concurrent depressive symptoms were significantly associated with adolescents' poorer psychosocial health, including self-reported externalizing behaviors. In addition, they found a transactional influence between maternal depression and offspring behavior problems. Indicating that higher levels of adolescent externalizing behaviors are associated with chronic trajectories of maternal depressive symptoms.

Parental anxiety is also connected with parenting practices, family environment, and adolescent development (e.g., Elgar et al., 2004). Vera and colleagues (2012), found that anxiety symptoms in mothers were directly related to ASB in offspring, and that maternal rejection and overprotection partially mediated this association. Anxious parents are often more controlling and overprotective, they tend to parent their offsprings closely, expecting disclosure of information, and allowing less autonomy (Jones et al., 2021; Vera et al., 2012). Anxiety symptoms in mothers are also associated with negative criticism towards offspring (Hirshfeld et al., 1997), and lower levels of affirmation towards their adolescent, which in turn predicted higher levels of externalizing behaviors (Bellina et al., 2020). Klahr et al. (2014) findings suggest that maternal negativity was both genetically and environmentally related to aggression in offspring', whereas the relation to non-aggressive rule-breaking behavior was entirely environmental in origin. Additionally, Elgar et al. (2004) results found that tension-anxiety mood in mothers one day, significantly predicted their children's ASB the same and the next day for offsprings' with ODD and CD. For offsprings' without diagnoses, mothers' tension-anxiety one day only predicted their ASB the next day. Meanwhile, Burstein and colleagues (2010) failed to find a connection between parental anxiety and early adolescent externalizing problems. Transactional research shows that decreased ODD symptoms through child-based treatment had a reducing influence on parental mental health issues (Katzmann et al., 2018). This highlights the importance of understanding children and their parents' transactional influence on each other.

4 Family Conflict and Cohesion

Developmental psychology theories address that psychological maturing and lifelong development happens in a continuous and interaction with the environment, and a big concern is with identifying the dynamic processes that underlie the course of development (Cummings et al., 2000). The complexity of interrelationships among family subsystems, genetic inheritance, and broader context makes the study of family factors challenging (Cummings et al., 2000). The entire family environment is important to consider as an underlying factor and trigger for adolescent outcomes (Van Loon et al., 2014; Xu et al., 2017). Family conflict and cohesion can be understood as aspects of family functioning that influence interpersonal relationships and environment within the family system (Lucia & Breslau, 2005; Xu et al., 2017). *Cohesion* is a way of explaining the separation and/or connectedness within family systems and among family members, and a way of communication within the family (Garber, 2005; Richmond & Stocker, 2006), while family *conflict* can involve frequent expression of anger, hostility, and resentment (LoBraico et al., 2020). Likewise, it is important to understand the adolescents influence on the family environment, with the transition into adolescence creating shifts within the family as a whole, but also in specific relationships dyads (e.g., parent-teenagers, teenagers-sibling), triads and interparental (Fosco & LoBraico, 2019).

Family environments characterized with parental responsiveness, warmth, and family cohesion are associated with positive outcomes, while harsh and inconsistent discipline, family conflict, and lack of parental monitoring are found to predict child and adolescent maladjustment (Fosco & Lydon-Staley, 2020; Elgar et al., 2007; Haws & Dadds, 2005). Living with parents who have mental health problems does not only affect the interaction between parent and offspring, but also the interactions between all family members and the overall climate within the family system (LoBraico et al., 2020). Burt and colleagues (2003) found that a shared family environment also places siblings at risk for maladjustment. They examined more than 700 11-year old twin pairs and their mothers, and found that shared environmental influences accounted for 12% of the total variance in offspring's externalizing disorders. Longitudinal results from the same sample suggested that this association persists over time (Burt et al., 2005). Similar results are found among adoptees, where the adolescent do not share genetics with other family members (e.g., Klahr et al., 2011; Glover et al., 2010). Likewise, Richmond and Stocker (2006) found that hostile interactions between parent-child in multiple offspring houses, are associated with adolescent externalizing behavior in both siblings. The within-family differences between siblings were explained by one adolescent experiencing more parent-child hostility than the other. Results like this underlines the importance of focusing on the family environment and family interactions when understanding the development of ASB.

4.1 Family Conflict

Adolescents' desire for autonomy and liberation from parental control in adolescence may often be a source for frustration, friction and conflict in the relationship with their parents (Buehler, 2006; Saxbe et al., 2014). Conflict between parents and offspring tends to increase during adolescent years, peaking during early adolescence (then decreases linearly), putting strain on their relationship (Sun et al., 2016; Weymouth & Buehler, 2016; Weymouth et al., 2016). In addition to parent-adolescent conflict, other forms for family conflict can include marital conflict and conflict between siblings (Xu et al., 2017). Timmons and Margolin (2015) suggest that conflict in one family subsystem or dyad, will increase the likelihood of conflict in other family subsystems.

Parent-adolescent conflict may be rooted in different aspects of family life, and different models suggest different mechanisms as underlying. It may function as a transformational process, in which the youth attempts to adjust parent-adolescent boundaries, renegotiate parental authority, and increase their own autonomy and independence (Weymouth et al., 2016). High levels of family conflict is associated with emotional and behavioral problems, such as symptoms of depression and anxiety, aggression, delinquency, and school problems (Fosco & Lydon-Staley, 2020; Sun et al., 2021; Weymouth et al., 2016; Xu et al., 2017). Highly conflicted families are often characterized by angry, aggressive and hostile patterns of interaction that may lead to coercive processes between family members (Cummings et al., 2005; Marmorstein & Iacono, 2004). Parental practices and parenting strategies might be one of the underlying mechanisms for conflict in the relationship between parents and offspring. Strict, harsh and controlling parenting behaviors may be experienced as intrusive, hostile and inconsistent by the adolescents (Romm & Alvis, 2022; Sun et al., 2021). Thus, leading to externalizing behaviors, oppositional defiance or withdrawal by the teenager. Parents who perceive themselves as incompetent in their parental role might have troublesome relationships with their children, and have less initiative and more conflict in these interactions (Sun et al., 2021). Romm and Alvis (2022) article found that parental practices that include psychological control, undermines autonomy through behaviors, such as excessive control, emotional blackmail, and withdrawal of affection and attention, or the induction of guilt on the offspring may drive adolescents towards behavioral problems. Further, they found that love withdrawal was strongly associated with greater substance use, delinquency, physical aggression, and relational aggression. Showing that parental rejection may result in anger and frustration, as well as difficulties in emotional coping.

Hostile interactions between parent and adolescent or within the entire family system may be both a source for conflict or a result of it. Weymouth and colleagues (2016, pp. 96) explain hostility as overt behavior and communication between family members that include arguing, angry comments, contempt, yelling and swearing, name-calling, and/or physical aggression. Families that engage in more hostile behaviors, in the form of fighting and aggression, may damage both trust and secure attachments between parent and adolescent (Buehler, 2006; Weymouth et al., 2016), which can result

in emotional and behavioral dysregulation. All these factors of parent-adolescent interactions may function as catalysts for increased and chronic family conflict. However, adolescent ASB may also be a cause for more conflict between parent-adolescents and within the family as a whole. This reflects bidirectional processes, where individual factors or behaviors affect the other ones (Branje, 2018).

A meta-analysis by Weymouth and colleagues (2016) found positive associations between parent-adolescent conflict and youth maladjustment, and that disagreement is found to be significantly associated with greater depression and delinquency. Similar results were found by Xu et al., (2017), with association between adolescent self-report on impairment and increased family conflict. These results show that both parent and youths report on conflict increases the risk of adolescent maladjustment. Conflict level in the family is also connected to risky behavior, with increased levels of conflict leading to heightened engagement in risky behaviors (Skinner & McHale, 2016). Research shows that parental mental distress is related to higher levels of family conflict (Elgar et al., 2007; Garber, 2005; Reuben & Shaw, 2016). Mental health issues are also related to coercive interactions, high levels of behavioral and psychological control, intrusiveness and hostile approach towards the adolescent.

4.1.1 Coercion Theory

One of the most influential theories related to family conflict is Patterson's coercive family process theory, or *coercion theory* (Patterson, 1982). This theory is in line with the transactional and ecological perspective, and emphasizes that conflict within families occurs in the everyday interaction between dyads within the family and families as a whole (Fosco & LoBraico, 2019; Mitnick et al., 2020). Coercion theory may be the most established theory of family processes as a risk for developing ASB (LoBraico et al., 2020 Saxbe et al., 2014). LoBraico et al. (2020) identified subgroups of family constellations of family risk for long-term adolescent ASB, results indicating that adolescents in coercive families experienced the most robust risk across ASB outcomes.

The term *coercion* is defined as an interpersonal strategy that results in avoidance or escape of an aversive social experience (Snyder & Dishion, 2016). "Aversive" events refer to experiences which activate negative affective or behavioral responses (Patterson, 2016), e.g. withdrawal or aggression. Coercion describes a process where aversive events are used to control another person's behavior (Patterson, 2016). Youth may for example use aversive behavior to end parental intrusion by reacting parents demand by ignoring or refusing it, which over time can escalate into more aggressive youth behavior (Saxbe et al., 2014). In the beginning, this type of youths' aversive behavior may contribute to what Patterson (2016) refers to as parental "escape conditioning". This can be that parents respond to their offspring's aggressive behavior with withdrawal. Over time, with multiple similar experiences, the parent will begin what Patterson (2016) calls "avoidance conditioning" - a condition where the parent becomes proficient at anticipating situations where their child may exhibit

aggressive behavior. Consequently, parents may in general become increasingly absent from their offsprings'. On top of that, another consequence is that the parents also don't recognize and comment on their youths' prosocial behavior. LoBraico et al. (2020) found that coercive families were characterized by low parental involvement, and low adolescent positive engagement within the family. These findings reflect Patterson's (1982) coercion theory regarding the escape condition as a consequence in coercive families.

Young children may respond with anger and acting out in family conflict, while adolescents may act as a stereotypical grumpy teen. This may lead to a demand-withdrawal dynamic, in which one part escalates demands in response to the other one's withdrawal (Saxbe et al., 2014). This coercive and avoidant behaviors are not necessarily solely occurring between parent-adolescent, but may reflect responses and interaction patterns in the overall family climate during conflicts. Within families, when coercive interactions between members dominate, ASB emerges and then stabilizes over development (Granic & Patterson, 2006). Further, depressed mothers are at higher risk for taking a step back and becoming passive in confrontation with their offsprings (Yarrow, 1990).

Parental depression may contribute to coercive interactions, as they are more likely to consider themselves as less competent parents, and struggle to put knowledge of parenting tasks into action, react to parenting challenges in an overly emotional manner, and lack persistence in parenting (Reuben & Shaw, 2016). Symptoms of parental mental health issues were positively related to coercive family interactions in a study conducted by Elgar et al., (2007), which contributed to externalizing behavioral problems in children. Likewise, high levels of aggressive conflict may lead to increased levels of coercive interactions. Saxbe and colleagues (2014) found that mothers with previous aggressive behavior during family conflicts became more coercive when adolescents were avoidant. These results were not found for fathers, indicating that mothers have more direct influence on the youth.

4.2 Family Cohesion

Family cohesion can be defined as the level of shared affection, support, helpfulness, and caring among family members (Baer, 2002; Barber & Buehler, 1996; Moos & Moos, 1983; Lin & Yi, 2019). The emotional bonding that cohesion brings to the family dynamics may facilitate the experience of individual autonomy (Barber & Buehler, 1996). However, the degree of cohesiveness can also be limiting and detrimental for family climate and individual autonomy, with high levels of cohesion functioning as forms of control and enmeshment, resulting in poor individual autonomy and foreclosed psychosocial maturity (Baer, 2002; Barber & Buehler, 1996). Meanwhile, low levels of cohesion can be associated with disengagement and failure in affective involvement (Baer, 2002).

Mothers of children with conduct disorder report to a higher extent that their family environment is less cohesive, and higher in conflict (Slee, 1996). Similar results are found by Lucia and Breslau

(2006) when comparing between delinquent and non-delinquent children's perception of their family, with delinquent children reporting lower levels of family cohesion compared to their non-delinquent counterparts. Further, they also found that maternal ratings of family cohesion at age 6 was significantly associated with internalizing, externalizing and attention problems at age 6 and 11. Higher levels of family cohesion reflected fewer internalizing and attention problems, while lower family cohesion and higher family conflict were associated with more externalizing problem behavior (Lucia & Brenslau, 2006). These findings reflect that cohesion functions as a key domain of family social environment in relation to children's behavior problems (Richmond & Stocker, 2006). Lin and Yi (2019) found decreasing family cohesion levels in adolescents among Taiwanese youth. However, the decrease in family cohesion levels were lower and had less impact on adolescent life satisfaction among the teenagers that reported high cohesion in early adolescence. Meanwhile, for the youth initially reporting low levels for family cohesion reported more delinquent behavior in later adolescence (Lin & Yi, 2019). Likewise, Coe et al. (2018) and Richmond and Stocker (2006), found that low family cohesion was a predictor for externalizing behavior in forms of conduct problems, oppositional defiance and hostility. Cohesive families were on the other hand found to be more resilient towards life adversity, with parents in cohesive families being able to successfully contain distress and provide resources (e.g., protection, warmth and support) to their offspring (Coe et al., 2018). Fosco and Lydon-Staley (2020), also found that adolescents within families with high levels of cohesion, reported feeling more positive, more satisfied with life, and less angry, depressed and anxious. Reflecting that family cohesion can function as a protective factor against life difficulties.

4.3 Current Study

In this thesis we aim to examine the mediating role of family climate constructs, measured by family conflict and cohesion, on the relationship between parental mental distress and adolescent ASB. Earlier research has shown that family conflict positively predicts adolescent ASB (Deković et al., 2003; Skinner & McHale, 2016; Weymouth et al., 2016), and that parental mental health issues may increase levels of conflict within the family system (Elgar et al., 2007; Garber, 2005; Reuben & Shaw, 2016). On the other hand, research indicates that the role of family cohesion is negatively associated with adolescent ASB (Church II et al., 2012; Richmond & Stocker, 2006; Vieno et al., 2009), functioning as a buffer against adjustment problems (Coe et al., 2018; Fosco & Lydon-Staley, 2020). However, family cohesion may as well as conflict be affected by parents' mental distress (Pérez et al., 2018). To further investigate these issues and relations, we have established an overall research question we aim to explore in this Master Thesis:

“Do family conflict and family cohesion mediate the association between parental mental distress and adolescent antisocial behavior?”

We hypothesize that higher levels of parental mental distress will lead to increased levels of family conflict and decreased levels of family cohesion. Further, we hypothesize that elevated levels of family conflict is related to higher levels of adolescent ASB, while elevated levels of cohesion will lead to lower levels of adolescent ASB. We also expect that if conflict levels are high within the family, the levels of cohesion will be lower, reflecting a covariance between the two mediators. On the contrary, we expect that high levels of cohesion will decrease levels of family conflict. In addition, we expect to find an indirect effect from parental mental distress via family conflict and cohesion on adolescent ASB. We aim to examine these issues by utilizing a Norwegian clinical sample, participating in a randomized controlled trial: “Evaluation of Functional Family Therapy (FFT) in Norway” (Bjørnebekk, 2013).

5 Choice of Methods

5.1 Data Collection and the Current Sample

Data used for this study is derived from a randomized control trial of Functional Family Therapy (FFT) in Norway, by The Norwegian Center for Child Behavioral Development (NUBU) (Bjørnebekk, 2013). A randomized control trial (RCT) is one of the simplest, most powerful, and revolutionary tools for sampling data in research (Jadad & Enkin, 2007). Participants are in RCT studies divided into an *intervention* or *experimental* group, who all receive the intervention/treatment, and a control group, receiving an alternative intervention/treatment. In RCT studies, the goal usually is to measure and compare different events, called “outcomes”. These outcomes are measured before and after participants have received one kind of treatment or intervention (Jadad & Enkin, 2007). Participants were measured at three points during the study: T1 - before participants were sampled into different groups, T2 - after intervention/treatment, and T3 – follow-up one year after intervention/treatment. The current study utilized data collected from the first point of measure (T1), making it a cross-sectional design. Hence, the relationships between the study variables will not be affected by intervention/treatment. In addition, we utilized participants from both intervention and control group, i.e., the total sample.

Families referred to Child Welfare Services were asked to participate. A total of 157 adolescents between 11 and 19 years old with their families completed our full sample. The inclusion criteria for adolescents who participated in the study were: age between 11 and 19 years old, aggressive (both verbally and physically) and violent behavior, delinquency with severe risk for future offenses, vandalism, severe rule breaking behavior at home, school or in the local community, and substance use.

Exclusion criteria were adolescents with Autism Specter Disorder (ASD), imminent risk of suicide or recently had experienced an acute psychotic episode were excluded. In addition, home environments considered as not safe for the therapist, cases with ongoing investigation by the local child welfare service, and cases that already participated in interventions or treatments that were incompatible with FFT (Bjørnebekk, 2013). We aimed to use both primary caretaker and youth reports in our sample, but ended up with using only data reported from the primary caretaker. For most of the teenagers in this sample, primary caretaker refers to a biological parent, mother or father (Thøgersen et al., 2020). However, there is a portion whose primary caretaker is an adoptive or foster parent. Further, will the primary caretaker consequently be referred to as “parent”, regardless of the relationship between adult and youth.

5.2 Ethical Considerations

To ensure acceptable principles of ethical and professional conduct, the current study received approval by Regional Committees for Medical and Health Research Ethics (REK) to utilize data gathered by the study “Evaluation of Functional Family Therapy in Norway” (Bjørnebekk, 2013). Application number given by REK for the current study is: 2010/497 (See Appendix C). All participants, both parents and adolescents were asked to give written informed consent. Consent forms included information about participants' right to withdraw from the study at any given time, and ensured participants confidentiality. Participants consent forms were presented for Norwegian Center for Research Data (NSD) and Norwegian Data Protection Authority (Bjørnebekk, 2013). All data were collected, stored, and processed within Services for sensitive data (TSD).

Authors for the current thesis have carefully read “Forskningsetiske retningslinjer for samfunnsvitenskap, humaniora, juss og teologi (NESH)» (NESH, 2016), due to multiple reasons. Only two will be further explained here. There will always be ethical dilemmas that can occur when conducting research, and especially with concerns to those studies including children and youth. A possible ethical dilemma that can occur when using questionnaires, is the time it takes to fill out the schemas, and the possibility for sensitive contents. Therefore, a research assistant was available for guidance when filling out the questionnaires. Another possible dilemma includes the participation of children and adolescents, as these are considered more vulnerable in research than adults. In addition, since we are studying a clinical sample that participates in family therapy, these youth may be considered as extra vulnerable, due to higher levels of individual and familial issues. However, in studies like this, they get the opportunity to get professional help and follow-up. Additionally, it contributes to quality control and knowledge for helping several individuals and families in the future.

5.3 Structural Equation Modeling (SEM)

The definition of *Structural equation modeling* (SEM) does not specify a single statistical method or technique, but includes a family of related procedures (Kline, 2016). SEM is a multivariate quantitative technique designed to describe relationships between observed and non-observable variables (Silva et al., 2020; Thakkar, 2020), which allows researchers to examine different constructs that emerge out of sets of variables, and the relationships among the constructs (Thakker, 2020). The main reason for using SEM is the opportunity to test a theory by specifying a model that represents relations between different variables (Hayduk et al., 2007). Further, there are some central terms to be aware of. The first one is *latent variables*, which refers to variables that can not be observed directly, but are measured by one or multiple observable indicators that reflect the latent construct (Silva et al., 2020; Thakkar, 2020). The inference on latent variables is indirect, and must be made based on a set of variables that are actually measured: the *observed variables*. These variables are what researchers

use to define or measure latent variables (Thakkar, 2020). An example is when measuring mental distress, which is not a directly observable phenomenon.

Similarly to other research methods, there are both pros and cons in conducting a SEM analysis. For example, a SEM analysis allows the use of latent variables (Silva et al., 2020), which is typically what psychological research wants to do. This also facilitates the possibility to use multi-informants when creating measurement variables. Likewise, SEM allows for simultaneous estimation of multiple equations by considering the relationship between constructs and measured indicators (Thakker, 2020). However, a major limitation with SEM is that the method is a large-sample technique. This may have a large impact for findings in smaller samples, such as standard errors for effects of latent variables (Kline, 2016). In general, if the sample is representative for the population, bigger samples provide a better approximation of what's actually happening in the population (Field, 2016). Based on normality theory, which assume that what we measure, actually derives from a normal distributed population (Field, 2016). In psychological and social research, it is not unusual that the collected data has a non-normal distribution, or generally contains missing data (Bentler & Yuan, 1999). Issues like this can largely affect the statistical inferences, leading to inferences that no longer reflect reality (Field, 2016).

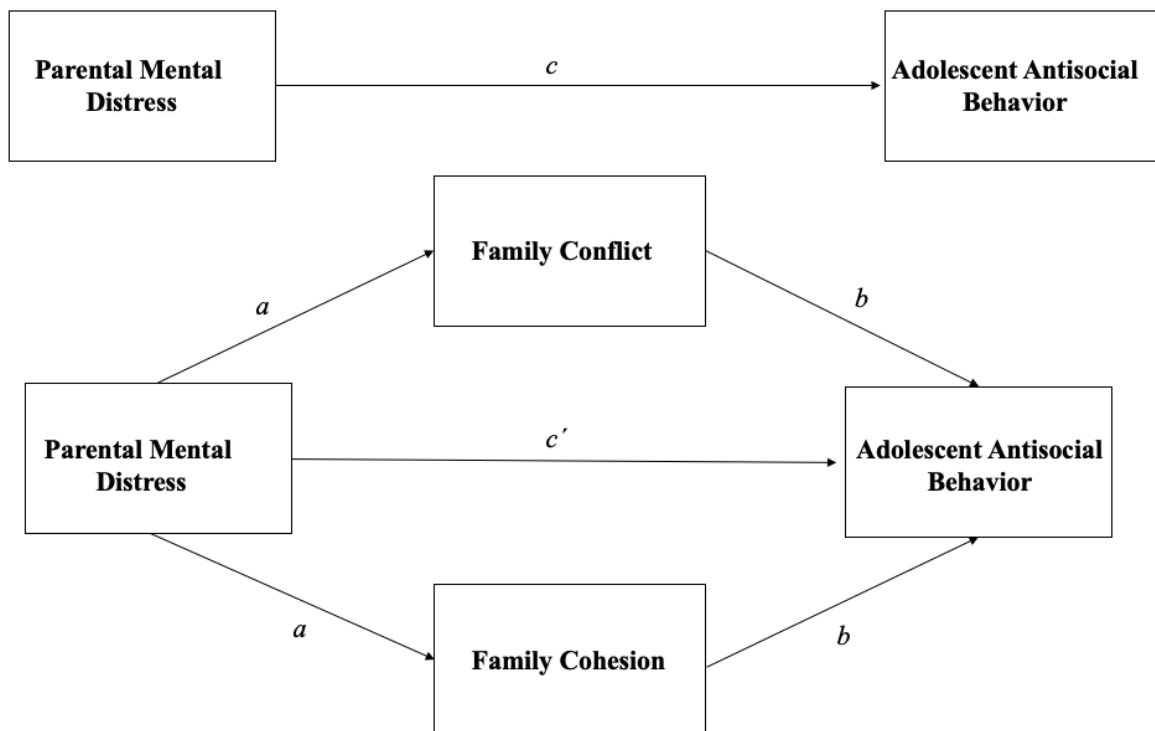
In the current study, we opted to use a maximum likelihood with robust standard errors (MLR) estimator, due to a significant Shapiro-Wilk test on all of the study variables, which suggests that normality is violated (see “Results”). MLR is commonly used in SEM, for analyzing continuous data, thanks to robustness against non-normality (Bentler & Yuan, 1999; Kline, 2016). The MLR estimator is one of several variations of the maximum likelihood (ML) estimation (Kline, 2016). ML is a statistical method for estimating population parameters, that maximizes the likelihood that the data were drawn from this population – assuming multivariate normality (Kline, 2016), which our data did not meet. MLR accommodates a corrected normal theory model, which means that the original data are analyzed with this theory, but it uses robust standard errors and corrected model test statistics (Savalei, 2014).

5.3.1 Mediation Analysis

A growing group of researchers have begun to study what mediates outcomes of statistical associations, when the goal is to understand psychopathology in general. Rutter's (2005) findings suggest that there is robust evidence for environmentally mediated risk for psychopathology. According to MacKinnon (2008), to conduct a mediation analysis, SEM is an appropriate method, due to the goal of examining *how* or *if* an independent variable is related to an outcome variable, through one or more mediator variables. In other words, we ask the question if a statistical relationship between X and Y , actually can be explained by other factors, M . For our analysis, we use a simple mediation model, with two mediators, described by MacKinnon (2008), and Rucker et al. (2011). This

model contains X , which represents the predictor variable, Y represents the outcome variable, and M the intervening or mediating variable (Rucker et al., 2011). It is not atypical to operate with multiple mediators (MacKinnon, 2008). A mediating effect is decided by the significant total indirect effect that predictor variable has on the outcome variable, through one (or more) mediators (MacKinnon, 2008).

Figure 1
Conceptual Simple Mediating Model



Traditionally, Baron and Kenny's (1986) causal step approach to a mediating analysis has been the most used. This approach involves testing for significant relationships stepwise, with a lot of different criteria, that has to be met before concluding any mediating effect. An example is before anyone can "start" the analysis, there has to be a statistical association between X and Y (Baron & Kenny, 1986), which according to Rucker et al. (2011) also is called the total effect, c . In our case, the total effect establishes the statistical association between parental mental distress and adolescent ASB, before introducing any mediating variables. Anyway, this causal step approach has been criticized in recent years, and Rucker et al. (2011) suggest that the attention should be drawn more towards the indirect effects, rather than direct and total effects. Therefore, we included a test for indirect effects in our model.

The letters between the variables in Figure 1 each represent specific relationships between different variables, also known as paths (Kline, 2016). For example, " a " stands for the statistical association between parental mental distress, X , and family conflict and family cohesion, M , and " b "

represents the link between family conflict and family cohesion, M , and adolescent ASB, Y . Further, there are some important terms to be aware of when planning to conduct a mediation analysis.

Therefore, these different paths will be further explained one by one.

When the mediating variables are included in the model, we can split the total effect into two parts: the direct and indirect effects. The *direct effect*, c' , is the relationship between parental mental distress and adolescent ASB, after controlling for the proposed mediator (Rucker et al., 2011). In other words, it is the path between the predictor variable and the outcome variable, controlling for scores on family conflict or cohesion. The results will give us insight if parental mental distress still predicts adolescent ASB, after controlling for family environment. In the model, a represent the association between parental mental distress and family conflict and cohesion, while b represents the relation between family conflict and cohesion and adolescent ASB. Further, and as mentioned earlier, we are particularly interested in the *indirect effects* in a mediating analysis, defined as $a \times b$ (Rucker et al., 2011). The letters represent the paths between parental mental distress and adolescent ASB, through family conflict or cohesion, and can be substantiated with the research question: Do parents' self-reported mental health issues influence the level of conflict that occurs within the family, which in turn increases the likelihood for the adolescent to exhibit ASB? In our thesis, we hypothesize that family climate (measured as family conflict and cohesion) mediates the relationship between parental mental distress and adolescent ASB. Since we included a test for indirect effects and their standard errors in Mplus (Muthèn & Muthèn, 2017). We are able to obtain estimates over the *total indirect effect* (Robins, 2003), also called *natural indirect effect* (Pearl, 2014) for our model. This refers to the underlying mediating effect from one variable to another, mediated by at least one additional variable (MacKinnon, 2008; Pearl, 2014).

5.4 Statistical Procedure

At the planning stage for this thesis, we wished to include both parental and adolescent-reported measures on most of the variables. The use of multi-informant measures on individual and family behavior is a growing theme in psychological research. An advantage with use of multi-informants is to gain a more holistic and comprehensive understanding of youth development and family functioning as a whole. For instance, De Los Reyes and colleagues (2009) found that antisocial youth may display different behaviors across different settings, such as the offspring may fight with siblings at home or argue with their parents, but behave well at school and other social arenas. Therefore, a possible and common bias in research conducted on youth behavior and development is that many studies rely on data and information from other people than the individuals themselves, like parents and teachers (Klahr et al., 2011; Pérez et al., 2018; Van Petegem et al. 2020). Several studies have found discrepancies between parent and adolescent reports in different samples considering adolescent psychopathology (e.g., De Los Reyes, 2011; Robinson et al., 2019). This phenomenon can

be seen with depressed parents, as they tend to report more negative views of their children compared to non-depressed parents (Korhonen et al., 2014).

Using SEM can be a good solution for creating latent variables consisting of multi-informant responses. However, this procedure requires a generally large sample size (Kline, 2016). Therefore, due to our sample size ($N = 157$), when we tried to create latent variables for conflict, cohesion, and adolescent antisocial behavior in Mplus, we encountered a problem. The latent variables we attempted signaled large factor loadings from parental reports, but very small loadings for the adolescent reports. The latter were not included in the analysis. In addition, we received the scales already calculated into sum scores, and received which specific items made up the certain subscales at a late point in the process. Therefore, we did not have the time to create latent variables, consisting of single items. Based on this evidence and resource constraints, we decided to conduct our analysis with manifest variables. These variables consisted of only parental reports. However, in the correlation matrix for the planned study variables (Table 1, Appendix B), parents' mental distress scores significantly correlated with adolescents self-reported family conflict ($r = .25, p < .001, 95\% \text{ CI } [0.09, 0.40]$), but not with youth reported family cohesion ($r = -.16, p = .129, 95\% \text{ CI } [-0.28, 0.04]$). In addition, parent-reports on conflict significantly correlate with their offspring scores ($r = .31, p < .001, 95\% \text{ CI } [0.15, 0.45]$). Lastly, adolescent self-reported delinquency significantly correlated with parent-report on both rule-breaking behavior ($r = .40, p < .001, 95\% \text{ CI } [0.24, 0.53]$), and antisocial behavior. ($r = .27, p < .001, 95\% \text{ CI } [0.11, 0.42]$).

We consider our modelling choice appropriate for answering our research question based on the following reasons. First, it gave us the opportunity to conduct a mediating analysis with multiple mediators. Second, we could introduce the covariance between the two mediating variables. This is particularly relevant because conflict and cohesion are not independent from each other, with higher levels of conflict within the family increasing the probability of lower levels of cohesion. Third, using Mplus for SEM analysis made it possible to examine robust estimations, such as bootstrapping and MLR on our data. Although, it is not yet possible to combine bootstrapping and MLR in the same Mplus code, we ran the estimates separately and obtained similar significant levels on all paths. We decided on using MLR due to its robustness.

6 Limitations

Conducting research is not a problem-free process, and every research endeavor contains imperfections. It is therefore vital to consider a set of evaluation criteria to assess its quality. The term *validity* refers to the approximate truth of an inference (Shadish et al., 2002). In other words, it addresses how accurately a chosen research method actually measures what it is intended to measure - are the conclusions based on reality? These types of questions should be raised in every research project, because research is conducted by human beings, which is one of many biases in science fields as a whole (Field, 2016). We will here discuss several limitations of our study, including questions concerning validity and causal inferences.

6.1 Validity and Reliability

Cook and Campbell (1979) have proposed a validity system for causal research, which has been revised by Shadish et al. (2002). This system is well established in quantitative social science (Shadish, 2010). The validity system consists of four types of validity: First, we have *statistical conclusion validity*, which concerns the extent to which conclusions researchers draw from a statistical test are accurate and reliable. This is related to both sample size, and choice of statistical tests (Cohen et al., 2018). In this study, the sample size is relatively small ($N = 157$). This may then function as a threat to statistical power, also called Type II error (Field, 2016). A consequence of Type II error is a higher probability of failing to reject a null hypothesis that is actually false (Poldrack, 2019). In order to test how well the chosen model fits the given data, The Chi-Square Test of Model Fit (X^2) has historically been frequently used for these issues, but this test statistics is not problem or bias free (Peugh & Feldon, 2020). Since we used an MLR estimator in our SEM analysis, the Chi-Square Test is not a beneficial indicator for model fit. Therefore, we used Comparative Fit Index (CFI), Tucker Lewis Index (TLI) and Root Mean Square Error of Approximation (RMSEA) as model fit indices. For the CFI and TLI, good fit is suggested to be $> .95$ (Kline, 2016; Xia & Yang, 2019). Whereas for RMSEA, a value $< .05$ is considered a good fit (Fabrigar et al., 1999; Kline, 2016). Considering the small sample size, these indicators for model fit showed acceptable results for our model (see “Results” in article manuscript). Additionally, there is some variance in the number of missing reports on some of the variables. Due to limited resources and time, as we received access to data at a late stage of the master process, we had to prioritize certain aspects. One of them was that we did not impute missing values. However, we assume that using MLR accounts for some of the errors this may have provided.

Second, *internal validity* is defined as the validity of inferred and found associations between the different elements of the research design and outcomes (Cohen et al., 2018; Shadish et al., 2002). In other words, to what extent a researcher can be confident that the relationship between cause and

effect (causality) in a given study, cannot be explained by other factors (Lin et al., 2021). According to Lund (2021), internal validity is concerned with study operations, as well as the relationship between the predictor and outcome. In addition, he also states that this is the central validity in the system, and that threats against internal validity are reasons why inferences can be incorrect. Statistical and design control, as well as theoretical/rational arguments can reduce the risk for incorrect inferences (Lund, 2021). In our case, the data were collected prior to randomization to treatment condition, which makes it a cross-sectional nature of the design. This might be one of the major limitations of the current thesis. Due to the cross-sectional design, it is not possible to establish causal interpretations of the mediating role of family conflict and cohesion play on the relationship between parental mental distress and adolescent ASB. However, studies like ours can still inform literature and policy by highlighting the markers with strong correlations, replicating earlier findings. Lastly, we are not unable to exclude the possibility of reverse causality between the variables. It is equally convincing to advocate that adolescent ASB both directly and indirectly through family conflict and cohesion, could impair parents' symptoms of mental distress.

Third we consider *construct validity*, a salient issue in psychological and educational science. Shadish et al. (2002) define construct validity as the inference made about the origin and manifestations of theoretical aspects, that is, if the measures actually measure what it is meant to measure. Here, the researchers' knowledge and procedures are central. Psychological and educational research is extra vulnerable regarding this validity type, due to the quality of measures on abstract and non-observable phenomena. It is therefore important to test and evaluate the relationship between theoretical and empirical concepts (Cronbach & Meehl, 1955; Smith, 2005). This is done by conducting specific and knowledge-based analyses of the different targets in the measures (Kleven, 2002). In our thesis, all key variables represent non-observable phenomena. Consequentially, one limitation is the use of measures from one informant only, and the inclusion of manifest rather than latent variables when examining complex phenomena. We are constrained to this study design since we received the scales as pre-calculated sum scores, and received the specific items for subscales at a late time in the process. Therefore, due to limited time we had to use these scores in our analyses. Sample size considerations also contributes to the usage of manifest rather than latent variables. Furthermore, ASB was measured by two symptom scales, "aggressive" and "rule-breaking" behavior. This approach is attractive methodologically because it incorporates the two most important subtypes of antisocial behavior. We make no claim that this is a perfect solution to the measurement error problem, since ASB spans a wide spectrum of attitudes and actions in addition to aggression and rule-breaking behavior. Such disclaimer appears more important in the current study, due to our inability to include multi-informant measurements.

On the other hand, as an effort to counterbalance possible sources of measurement error in a study, we have a measure of quality within science. The term *reliability* refers to the overall consistency, or trustworthiness of a measure (Cohen et al., 2018). This is also related to replication of

a study, that is, how consistent the measures are across multiple publications. There exists several types of reliability. *Internal consistency* is the extent to which a set of items all measure the same underlying construct. A standard estimation for internal consistency is Cronbach's alpha (α), that gives us the average inter-correlations between all items included in the measure (Cohen et al., 2018). This is measured by a number between 0 (totally unreliable), and 1 (fully reliable). Our analyses have shown good or acceptable reliability for the consistency between the items (ranging from $\alpha = .73$ to $\alpha = .92$). However, natural sources of variation between studies exist. This implies that, one study's reliability findings might be conflicted with another. To illustrate, the Family Environment Scale (FES) has in multiple studies showing acceptable validity and reliability (Moos & Moos, 2009). Conversely, Roosa and Beals (1990) suggest that reliability for FES were somewhat lower than originally reported, and they asked questions about the validity of the subscales. Results like this illustrate the importance of examining reliability and validity independently in every study.

The last type of validity is *external validity*. This refers to the extent that research findings can be generalized to other situations, samples, settings, and measures (Cohen et al., 2018; Shadish et al., 2002). Results from studies results can with high external validity withstand in other and broader contexts. Data in our study is collected from a clinical sample, potentially limiting its possibility to generalize results to the general population (Cohen et al., 2018). Clinical samples often have the disadvantage of oversampling individuals with stronger impairment, and with caregivers who are seeking support and help from professionals (Pruchno et al., 2008). This can cause problems to the inferential statistics in the form of parameter estimates that are not representative to the general population. On the positive side, a benefit with clinical samples is the access and possibility to collect in-depth data on multiple areas from a targeted group of people. This allows researchers to examine and explore how phenomena like family conflict and cohesion affect and are affected by parental mental distress and adolescent development – a phenomenon more difficult to examine and gather data on in the general population. Compared to the general population, a clinical sample provides the possibility to examine a targeted group of individuals with symptoms more suitable for the study aim.

Lastly, *good* validity is not the same as *perfect* validity (Lund, 2002). It is not possible to conduct a study without mistakes, both due to natural human limits or methodological constraints. According to Lund (2002), these different types of validity may end up in conflict with one another. For example, experimental studies conducted in laboratories, may have high statistical and internal validity, but lower external validity. Further, there are several trade-offs a researcher must make to balance both validity and reliability when conducting a study, but there will always be natural noise or biases in all kinds of study (Field, 2016). Therefore, it is especially important and a sign of quality when articles and studies are transparent (Cohen et al., 2018; Field, 2016). Overall, we believe this study has provided important insight using transparent and replicable research designs that has good balance between validity and reliability.

References

- Andershed, H. & Andershed, A-K. (2007). *Normbrytende atferd hos barn – hva sier forskningen?*. Gyldendal Akademisk.
- Avenevoli, S., Conway, K. P., & Merikangas, K. R. (2005). Familial risk factors for substance use disorders. In J.L. Hudson & R.M. Rapee (eds.), *Psychopathology and the Family* (pp. 167-192). Elsevier.
- Baer, J. (2002). Is family cohesion a risk or protective factor during adolescent development?. *Journal of Marriage and Family*, 64(3), 668-675. <http://www.jstor.org/stable/3599933>
- Bellina, M., Grazioli, S., Garzitto, M., Mauri, M., Rosi, E., Molteni, M., Brambilla, P., & Nobile, M. (2020). Relationship between parenting measures and parents and child psychopathological symptoms: a cross-sectional study. *BMC Psychiatry*, 20(1), 377. <https://doi.org/10.1186/s12888-020-02778-8>
- Barber, B. K., & Buehler, C. (1996). Family cohesion and enmeshment: Different constructs, different effects. *Journal of Marriage and the Family*, 58(2), 433–441. <https://doi.org/10.2307/353507>
- Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51, 1173-1182. <https://doi.org/10.1037/0022-3514.51.6.1173>
- Bentler, P. M., & Yuan, K.-H. (1999). Structural equation modeling with small samples: Test statistics. *Multivariate Behavioral Research*, 34(2), 181–197. <https://doi.org/10.1207/S15327906Mb340203>
- Bjørnebekk, G. (2013). Evaluating of Functional Family Therapy (FFT) in Norway. ISRCTN. <https://doi.org/10.1186/ISRCTN58861782>
- Blankenstein, N. E., Telzer, E. H., Do, K. T., van Duijvenvoorde, A., & Crone, E. A. (2020). Behavioral and Neural Pathways Supporting the Development of Prosocial and Risk-Taking Behavior Across Adolescence. *Child development*, 91(3), e665–e681. <https://doi.org/10.1111/cdev.13292>
- Borge, A. I. H. (2019). *Resiliens - risiko og sunn utvikling* (3th ed.). Gyldendal.
- Boyer, T. W. (2006). The development of risk-taking: A multi-perspective review. *Developmental Review*, 26(3), 291–345. <https://doi.org/10.1016/j.dr.2006.05.002>
- Branje, S. (2018). Development of parent–adolescent relationships: Conflict interactions as a mechanism of change. *Child Development Perspectives*, 12(3), 171-176.
- Bru, E., Idsøe, E. C. & Øverland, K. (2016). Psykisk helse i skolen. In E. Bru, E. C. Idsøe & K. Øverland (Eds.), *Psykisk helse i skolen* (pp. 15 - 27). Universitetsforlaget.
- Buehler, C. (2006). Parents and Peers in Relation to Early Adolescent Problem Behavior. *Journal of Marriage and Family*, 68(1), 109–124. <https://doi.org/10.1111/j.1741-3737.2006.00237.x>
- Burstein, M., Ginsburg, G. S., & Tein, J. Y. (2010). Parental anxiety and child symptomatology: an examination of additive and interactive effects of parent psychopathology. [corrected]. *Journal of Abnormal Child Psychology*, 38(7), 897–909. <https://doi.org/10.1007/s10802-010-9415-0>
- Burt S. A. (2012). How do we optimally conceptualize the heterogeneity within antisocial behavior? An argument for aggressive versus non-aggressive behavioral dimensions. *Clinical Psychology Review*, 32(4), 263–279. <https://doi.org/10.1016/j.cpr.2012.02.006>
- Burt, S. A., Brent Donnellan, M., Slawinski, B. L., & Klump, K. L. (2016). The Phenomenology of Non-Aggressive Antisocial Behavior During Childhood. *Journal of Abnormal Child Psychology*, 44(4), 651–661. <https://doi.org/10.1007/s10802-015-0076-x>

- Burt, S. A., McGue, M., Krueger, R. F., & Iacono, W. G. (2005). How are parent-child conflict and childhood externalizing symptoms related over time? Results from a genetically informative cross-lagged study. *Development and Psychopathology*, *17*(1), 145–165. <https://doi.org/10.1017/s095457940505008x>
- Burt, S. A., Mikolajewski, A. J., & Larson, C. L. (2009). Do aggression and rule-breaking have different interpersonal correlates? A study of antisocial behavior subtypes, negative affect, and hostile perceptions of others. *Aggressive Behavior*, *35*(6), 453–461. <https://doi.org/10.1002/ab.20324>
- Carroll, A., Houghton, S., Durkin, K. & Hattie, J. A. (2009). *Adolescent Reputations and Risk*. Springer.
- Church II, W. T., Tomek, S., Bolland, K. A., Hooper, L. M., Jagers, J., & Bolland, J. M. (2012). A longitudinal examination of predictors of delinquency: An analysis of data from the Mobile Youth Survey. *Children and Youth Services Review*, *34*(12), 2400-2408. <https://doi.org/10.1016/j.childyouth.2012.09.007>
- Ciranka, S., & van den Bos, W. (2021). Adolescent risk-taking in the context of exploration and social influence. *Developmental Review*, *61*, 100979. <https://doi.org/10.1016/j.dr.2021.100979>
- Coe, J. L., Davies, P. T., & Sturge-Apple, M. L. (2018). Family cohesion and enmeshment moderate associations between maternal relationship instability and children’s externalizing problems. *Journal of Family Psychology*, *32*(3), 289–298. <https://doi.org/10.1037/fam0000346>
- Cohen, L., Manion, L., & Morrison, K. (2018). *Research Methods in Education* (8th ed.). Routledge.
- Coleman, J., & Hagell, A. (2007). The Nature of Risk and Resilience in Adolescence. In J. Coleman & A. Hagell (Eds.), *Adolescence, Risk and Resilience - Against the Odds* (pp. 1-16). John Wiley & Sons Ltd.
- Connell, A. M., & Goodman, S. H. (2002). The association between psychopathology in fathers versus mothers and children's internalizing and externalizing behavior problems: A meta-analysis. *Psychological Bulletin*, *128*(5), 746–773. <https://doi.org/10.1037/0033-2909.128.5.746>
- Cook, T. D., & Campbell, D. T. (1979). *Quasi-experimentation: Design and analysis issues for fields settings*. Houghton Mifflin Company.
- Costello, E., & Angold, A. (2000). Bad behaviour: An historical perspective on disorders of conduct. In J. Hill & B. Maughan (Eds.), *Conduct Disorders in Childhood and Adolescence* (pp. 1-31). Cambridge University Press. doi:10.1017/CBO9780511543852.002
- Cronbach, L. J., & Meehl, P. E. (1955). Construct validity in psychological tests. *Psychological Bulletin*, *52*(4), 281–302. <https://doi.org/10.1037/h0040957>
- Cummings, E. M., & Davies, P. T. (1994). Maternal depression and child development. *Journal of child psychology and psychiatry, and allied disciplines*, *35*(1), 73–112. <https://doi.org/10.1111/j.1469-7610.1994.tb01133.x>
- Cummings, E. M., Davies, P. T., & Campbell, S. B. (2000). *Developmental psychopathology and family process: Theory, research, and clinical implications*. Guilford Press.
- Cummings, E. M., Keller, P. S., & Davies, P. T. (2005). Towards a family process model of maternal and paternal depressive symptoms: exploring multiple relations with child and family functioning. *Journal of child psychology and psychiatry, and allied disciplines*, *46*(5), 479–489. <https://doi.org/10.1111/j.1469-7610.2004.00368.x>
- Dadds, M. R., & Salmon, K. (2003). Punishment insensitivity and parenting: temperament and learning as interacting risks for antisocial behavior. *Clinical child and family psychology review*, *6*(2), 69–86. <https://doi.org/10.1023/a:1023762009877>

- Deković, M., Janssens, J. M., & Van As, N. M. (2003). Family predictors of antisocial behavior in adolescence. *Family process*, 42(2), 223–235. <https://doi.org/10.1111/j.15455300.2003.42203.x>
- De Los Reyes, A. (2011). Introduction to the special section: More than measurement error: Discovering meaning behind informant discrepancies in clinical assessments of children and adolescents. *Journal of clinical child and adolescent psychology*, 40(1), 1–9. <https://doi.org/10.1080/15374416.2011.533405>
- De Los Reyes, A., Henry, D. B., Tolan, P. H., & Wakschlag, L. S. (2009). Linking informant discrepancies to observed variations in young children's disruptive behavior. *Journal of abnormal child psychology*, 37(5), 637–652. <https://doi.org/10.1007/s10802-009-9307-3>
- Dishion, T. J. & Patterson, G. R. (2006). The Development and Ecology of Antisocial Behavior in Children and Adolescents. In D. Cicchetti & D. J. Cohen (Eds.), *Developmental Psychopathology: Volume Three: Risk, Disorder, and Adaptation*. (pp.503-541). John Wiley & Sons, Inc.
- Elgar, F. J., Mills, R. S., McGrath, P. J., Waschbusch, D. A., & Brownridge, D. A. (2007). Maternal and paternal depressive symptoms and child maladjustment: the mediating role of parental behavior. *Journal of abnormal child psychology*, 35(6), 943–955. <https://doi.org/10.1007/s10802-007-9145-0>
- Elgar, F. J., Waschbusch, D. A., McGrath, P. J., Stewart, S. H., & Curtis, L. J. (2004). Temporal relations in daily-reported maternal mood and disruptive child behavior. *Journal of abnormal child psychology*, 32(3), 237–247. <https://doi.org/10.1023/b:jacp.0000026138.95860.81>
- Erskine, H. E., Ferrari, A. J., Polanczyk, G. V., Flaxman A. D., Vos, T., Whiteford, H. A., Scott, J. G. (2013). Epidemiological modelling of attention-deficit/hyperactivity disorder and conduct disorder for the Global Burden of Disease Study 2010. *The Journal of Child Psychology and Psychiatry*, 54(12), 1263-1274, <https://doi.org/10.1111/jcpp.12144>
- Fabrigar, L. R., Wegener, D. T., MacCallum, R. C., & Strahan, E. J. (1999). Evaluating the use of exploratory factor analysis in psychological research. *Psychological Methods*, 4(3), 272–299. <https://doi.org/10.1037/1082-989X.4.3.272>
- Fairchild, G., van Goozen, S. H., Calder, A. J., & Goodyer, I. M. (2013). Research review: evaluating [and reformulating the developmental taxonomic theory of antisocial behaviour. *Journal of child psychology and psychiatry, and allied disciplines*, 54(9), 924–940. <https://doi.org/10.1111/jcpp.12102>
- Fergusson, D. M., Boden, J. M., Horwood, L. J., Miller, A. L., & Kennedy, M. A. (2011). MAOA, abuse exposure and antisocial behaviour: 30-year longitudinal study. *The British journal of psychiatry: the journal of mental science*, 198(6), 457–463. <https://doi.org/10.1192/bjp.bp.110.086991>
- Field, A. (2016). *An Adventure in Statistics: The Reality Enigma*. SAGE Publications Ltd.
- Fisher S. D. (2016). Paternal Mental Health: Why Is It Relevant?. *American journal of lifestyle medicine*, 11(3), 200–211. <https://doi.org/10.1177/1559827616629895>
- Fonagy, P. (2021). Emergence of Antisocial Behavior in Middle Childhood. In Venta, A., Sharp, C., Fletcher, J. M. & Fonagy, P. (Eds.), *Developmental Psychopathology*, (pp. 157-181). Wiley Blackwell.
- Fosco, G. M., & LoBraico, E. J. (2019). A family systems framework for adolescent antisocial behavior: The state of the science and suggestions for the future. In B. H. Fiese, M. Celano, K. Deater-Deckard, E. N. Jouriles, & M. A. Whisman (Eds.), *APA handbook of contemporary family psychology: Applications and broad impact of family psychology* (pp. 53–68). American Psychological Association. <https://doi.org/10.1037/0000100-004>

- Fosco, G. M., & Lydon Staley, D. M. (2020). Implications of family cohesion and conflict for adolescent mood and wellbeing: Examining within and between family processes on a daily timescale. *Family Process*, 59(4), 1672-1689. <https://doi.org/10.1111/famp.12515>
- Frick, P. J., & Viding, E. (2009). Antisocial behavior from a developmental psychopathology perspective. *Development and psychopathology*, 21(4), 1111–1131. <https://doi.org/10.1017/S0954579409990071>
- Garber, J. (2005). Depression and the Family. In J. L. Hudson & R. M. Rapee (Eds.), *Psychopathology and the Family* (pp. 225-280). Elsevier.
- Glover, M. B., Mullineaux, P. Y., Deater-Deckard, K., & Petrill, S. A. (2010). Parents' Feelings Towards Their Adoptive and Non-Adoptive Children. *Infant and child development*, 19(3), 238– 251.
- Goodman, S. H. & Tully, E. (2006). Depression in Women Who Are Mothers. In C. L. M. Keys & S. H. Goodman (Eds.), *Women and Depression* (pp. 241-280).
- Gross, H. E., Shaw, D. S., Burwell, R. A., & Nagin, D. S. (2009). Transactional processes in child disruptive behavior and maternal depression: a longitudinal study from early childhood to adolescence. *Development and psychopathology*, 21(1), 139–156. <https://doi.org/10.1017/S0954579409000091>
- Hails, K. A., Reuben, J. D., Shaw, D. S., Dishion, T. J., & Wilson, M. N. (2018). Transactional Associations Among Maternal Depression, Parent-Child Coercion, and Child Conduct Problems During Early Childhood. *Journal of clinical child and adolescent psychology*, 47(1), S291–S305. <https://doi.org/10.1080/15374416.2017.1280803>
- Hantsoo, L., & Epperson, C. N. (2017). Anxiety Disorders Among Women: A Female Lifespan Approach. *Focus (American Psychiatric Publishing)*, 15(2), 162–172. <https://doi.org/10.1176/appi.focus.20160042>
- Harold, G. T., Rice, F., Hay, D. F., Boivin, J., van den Bree, M., & Thapar, A. (2011). Familial transmission of depression and antisocial behavior symptoms: disentangling the contribution of inherited and environmental factors and testing the mediating role of parenting. *Psychological medicine*, 41(6), 1175–1185. <https://doi.org/10.1017/S0033291710001753>
- Hautmann, C., Eichelberger, I., Hanisch, C., Plück, J., Walter, D., & Döpfner, M. (2015). Association between parental emotional symptoms and child antisocial behaviour: What is specific and is it mediated by parenting?. *International Journal of Behavioral Development*, 39(1), 43-52.
- Hayduk, L., Cummings, G., Boadu, K., Pazderka-Robinson, H., & Boulianne, S. (2007). Testing! Testing! One, two, three--Testing the theory in structural equation models! *Personality and Individual Differences*, 42(5), 841–850. <https://doi.org/10.1016/j.paid.2006.10.001>
- Hawes, D.J. & Dadds, M.R. (2005). Oppositional and Conduct Problems. In J. L. Hudson & R. M. Rapee (Eds), *Psychopathology and the Family* (pp.73-91). Elsevier.
- Hiatt, K. D. & Dishion, T. J. (2008). Antisocial Personality Development. In T. P. Beauchaine & S. P. Hinshaw (Eds.), *Child and adolescent psychopathology* (pp. 370-404). John Wiley & Sons, Inc.
- Hirshfeld, D. R., Biederman, J., Brody, L., Faraone, S. V., & Rosenbaum, J. F. (1997). Expressed emotion toward children with behavioral inhibition: associations with maternal anxiety disorder. *Journal of the American Academy of Child and Adolescent Psychiatry*, 36(7), 910–917. <https://doi.org/10.1097/00004583-199707000-00012>
- Hu, L.-t., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, 6(1), 1–55. <https://doi.org/10.1080/10705519909540118>

- Hyde, L. W., Burt, S. A., Shaw, D. S., Donnellan, M. B., & Forbes, E. E. (2015). Early starting, aggressive, and/or callous-unemotional? Examining the overlap and predictive utility of antisocial behavior subtypes. *Journal of abnormal psychology, 124*(2), 329–342. <https://doi.org/10.1037/abn0000029>
- Jadad, A. R. & Enkin, M. W. (2007). *Randomized Controlled Trials: Questions, Answers, and Musings*. (2th ed.). Blackwell Publishing.
- Jaworska, N. & MacQueen, G. (2015). Adolescence as a unique developmental period. *Journal of Psychiatry and Neurosci, 40*(5), pp. 291-293. <https://doi.org/10.1503/jpn.150268>
- Jennings, W. G., & Reingle, J. M. (2012). On the number and shape of developmental/life-course violence, aggression, and delinquency trajectories: A state-of-the-art review. *Journal of Criminal Justice, 40*(6), 472–489. <https://doi.org/10.1016/j.jcrimjus.2012.07.001>
- Jones, L. B., Hall, B. A., & Kiel, E. J. (2021). Systematic review of the link between maternal anxiety and overprotection. *Journal of Affective Disorders, 295*, 541-551. <https://doi.org/10.1016/j.jad.2021.08.065>
- Joyner, B., & Beaver, K. M. (2021). Maternal Depression and Child and Adolescent Problem Behaviors: a Propensity Score Matching Approach. *The Psychiatric quarterly, 92*(2), 655–674. <https://doi.org/10.1007/s11126-020-09842-2>
- Kane, P., & Garber, J. (2004). The relations among depression in fathers, children's psychopathology, and father-child conflict: a meta-analysis. *Clinical psychology review, 24*(3), 339–360. <https://doi.org/10.1016/j.cpr.2004.03.004>
- Kessler, R. C., & Bromet, E. J. (2013). The epidemiology of depression across cultures. *Annual review of public health, 34*, 119–138. <https://doi.org/10.1146/annurev-publhealth-031912-114409>
- Kim-Cohen, J., Caspi, A., Moffitt, T. E., Harrington, H., Milne, B. J., & Poulton, R. (2003). Prior juvenile diagnoses in adults with mental disorder: developmental follow-back of a prospective-longitudinal cohort. *Archives of general psychiatry, 60*(7), 709–717. <https://doi.org/10.1001/archpsyc.60.7.709>
- Klahr, A. M., Klump, K. L., & Burt, S. A. (2014). The etiology of the association between child antisocial behavior and maternal negativity varies across aggressive and non-aggressive rule-breaking forms of antisocial behavior. *Journal of abnormal child psychology, 42*(8), 1299–1311. <https://doi.org/10.1007/s10802-014-9886-5>
- Klahr, A. M., Rueter, M. A., McGue, M., Iacono, W. G., & Burt, S. A. (2011). The Relationship between Parent-Child Conflict and Adolescent Antisocial Behavior: Confirming Shared Environmental Mediation. *Journal of Abnormal Child Psychology, 39*(5), 683-694. <https://doi-org.ezproxy.uio.no/10.1007/s10802-011-9505-7>
- Kleven, T. A. (2002). Begrepsoperasjonalisering. I T. Lund (Eds.), *Innføring i forskningsmetodologi* (pp. 141-184). Unipub forlag.
- Kline, R. B. (2016). Principles and Practice of Structural Equation Modeling (4th ed.). *The Guildford Press*.
- Korhonen, M., Luoma, I., Salmelin, R., & Tamminen, T. (2014). Maternal depressive symptoms: associations with adolescents' internalizing and externalizing problems and social competence. *Nordic journal of psychiatry, 68*(5), 323–332. <https://doi.org/10.3109/08039488.2013.838804>
- Kornienko, O., Davila, M., & Santos, C. E. (2019). Friendship network dynamics of aggressive and rule-breaking antisocial behaviors in adolescence. *Journal of Youth and Adolescence, 48*(10), 2065–2078. <https://doi.org/10.1007/s10964-019-01109-9>
- Kuehner C. (2017). Why is depression more common among women than among men?. *The lancet. Psychiatry, 4*(2), 146–158. [https://doi.org/10.1016/S2215-0366\(16\)30263-2](https://doi.org/10.1016/S2215-0366(16)30263-2)

- Lin, H., Werner, K. M., & Inzlicht, M. (2021). Promises and Perils of Experimentation: The Mutual-Internal-Validity Problem. *Perspectives on psychological science : a journal of the Association for Psychological Science*, 16(4), 854–863. <https://doi.org/10.1177/1745691620974773>
- Lin, W. H., & Yi, C. C. (2019). The effect of family cohesion and life satisfaction during adolescence on later adolescent outcomes: A prospective study. *Youth & Society*, 51(5), 680-706. <https://doi.org/10.1177/0044118X17704865>
- Lipschutz, R., & Bick, J. (2021). Developmental Psychopathology. In Venta, A., Sharp, C., Fletcher, J. M. & Fonagy, P. (Eds.), *Developmental Psychopathology*, (pp. 18-34). Wiley Blackwell.
- Little, T., Henrich, C., Jones, S. & Hawley, P. (2003). Disentangling the “whys” from the “whats” of aggressive behaviour. *International Journal of Behavioral Development*, 27(2), 122-133. <https://doi.org/10.1080/01650250244000128>
- LoBraico, E. J., Bray, B. C., Feinberg, M. E., & Fosco, G. M. (2020). Constellations of family risk for long-term adolescent antisocial behavior. *Journal of family psychology : JFP : journal of the Division of Family Psychology of the American Psychological Association (Division 43)*, 34(5), 587–597. <https://doi.org/10.1037/fam0000640>
- Loeber, R., & Hay, D. (1997). Key issues in the development of aggression and violence from childhood to early adulthood. *Annual review of psychology*, 48, 371–410. <https://doi.org/10.1146/annurev.psych.48.1.371>
- Lucia, V. C., & Breslau, N. (2006). Family cohesion and children's behavior problems: a longitudinal investigation. *Psychiatry research*, 141(2), 141–149. <https://doi.org/10.1016/j.psychres.2005.06.009>
- Lund, T. (2002). Metodologiske prinsipper og referanserammer. I T. Lund (Eds.), *Innføring i forskningsmetodologi* (pp. 79-124). Unipub AS.
- Lund, T. (2021). A Revision of the Campbellian Validity System. *Scandinavian Journal of Educational Research*, 21(3), 523-535. <https://doi.org/10.1080/00313831.2020.1739126>
- MacKinnon, D. P. (2008). *Introduction to Statistical Mediation Analysis*. Routledge.
- Marçal K. E. (2021). Pathways to Adolescent Emotional and Behavioral Problems: An Examination of Maternal Depression and Harsh Parenting. *Child abuse & neglect*, 113, 104917. <https://doi.org/10.1016/j.chiabu.2020.104917>
- Marmorstein, N. R., & Iacono, W. G. (2004). Major depression and conduct disorder in youth: associations with parental psychopathology and parent-child conflict. *Journal of child psychology and psychiatry, and allied disciplines*, 45(2), 377–386. <https://doi.org/10.1111/j.1469-7610.2004.00228.x>
- McGee, T. R., Hayatbakhsh, M. R., Bor, W., Aird, R. L., Dean, A. J. & Najman, J. M. (2015). The impact of snares on the continuity of adolescent-onset antisocial behaviour: A test of Moffitt's developmental taxonomy. *Journal of Criminology*, 48(3), 345-366. <https://doi-org.ezproxy.uio.no/10.1177/0004865815589828>
- Meld. St. 34 (2020-2021). *Sammen mot barne-, ungdoms- og gjengkriminalitet*. Justisdepartementet. <https://www.regjeringen.no/no/dokumenter/meld.-st.-34-20202021/id2857691/>
- Mishra, S., & Lalumière, M. L. (2008). Risk-taking, antisocial behavior, and life histories. In J. D. Duntley & T. K. Shackelford (Eds.), *Evolutionary forensic psychology: Darwinian foundations of crime and law* (pp. 139–159). Oxford University Press.
- Mitnick, D. M., Lorber, M. F., Smith Slep, A. M., Heyman, R. E., Xu, S., Bulling, L. J., Nichols, S. R., & Eddy, J. M. (2021). Self-report measures of coercive process in couple and parent-child dyads. *Journal of Family Psychology*, 35(3), 388–398.

- Moffitt, T. E. (1993). Adolescence-limited and life-course-persistent antisocial behavior: A developmental taxonomy. *Psychological Review*, *100*(4), 674–701.
<https://doi-org.ezproxy.uio.no/10.1037/0033-295X.100.4.674>
- Moffitt, T. E. (2015). Life-Course-Persistent versus Adolescence-Limited Antisocial Behavior. In D. Cicchetti & D. J. Cohen (Eds.), *Developmental Psychopathology: Volume Three: Risk, Disorder, and Adaptation* (2th ed.), pp. 570-598, John Wiley & Sons, Inc.
<https://doi-org.ezproxy.uio.no/10.1002/9780470939406.ch15>
- Moffitt, T. E. (2018). Male antisocial behaviour in adolescence and beyond. *Nature Human Behaviour*, *2*, 177-186. <https://doi.org/10.1038/s41562-018-0309-4>
- Moffitt, T. E. & Caspi, A. (2001). Childhood predictors differentiate life-course persistent and adolescence-limited antisocial pathways among males and females. *Developmental Psychopathology*, *13*(2), 355-375. [10.1017/s0954579401002097](https://doi.org/10.1017/s0954579401002097)
- Moos, R. H., & Moos, B. S. (1976). A typology of family social environments. *Family process*, *15*(4), 357–371. <https://doi.org/10.1111/j.1545-5300.1976.00357.x>
- Moos, R., & Moos, B. (2009). *Family Environment Scale manual and sampler set: Development, applications and research* (4th ed.). Mind Garden.
- Murray, J., Shenderovich, Y., Gardner, F., Mikton, C., Derzon, J. H., Liu, J., & Eisner, M. (2018). Risk Factors for Antisocial Behavior in Low- and Middle-Income Countries: A Systematic Review of Longitudinal Studies. *Crime and justice (Chicago, Ill.)*, *47*(1), 255–364.
<https://doi.org/10.1086/696590>
- Muthèn, L. K. & Muthèn, B. O. (1998-2017). *Mplus User's Guide* (8th ed.). Muthèn & Muthèn.
 Retrieved from: http://www.statmodel.com/download/usersguide/MplusUserGuideVer_8.pdf.
- Niv, S., Tuvblad, C., Raine, A., & Baker, L. A. (2013). Aggression and Rule-breaking: Heritability and stability of antisocial behavior problems in childhood and adolescence. *Journal of criminal justice*, *41*(5), 10.1016/j.jerimjus.2013.06.014. <https://doi.org/10.1016/j.jerimjus.2013.06.014>
- Nordahl, T., Sørli, M-A., Manger, T. & Tveit, A. (2005). *Atferdsproblemer blant barn og unge – teoretiske og praktiske tilnærminger*. Fagbokforlaget Vigmostad & Bjørke.
- Nøkleby, H., Johansen, B. T., Jardim, P. S. J. & Muller, A. E. (2020). *Prevalence and treatment of conduct disorders: a rapid review*. Folkehelseinstituttet.
<https://www.fhi.no/publ/2020/forekomst-og-behandling-av-atferdsforstyrrelser/>
- Ogden, T. (2015). *Sosial kompetanse og problematferd hos barn og unge*. Gyldendal Akademisk.
- Osgood, D. W., Anderson, A. L., & Shaffer, J. N. (2005). Unstructured Leisure in the After-School Hours. In J. L. Mahoney, R. W. Larson, & J. S. Eccels (Eds.), *Organized activities as contexts of development: Extracurricular activities, after-school and community programs* (pp. 45-64). Lawrence Erlbaum Associates Publishers.
- Otto, C., Kaman, A., Erhart, M., Barkmann, C., Klasen, F., Schlack, R., & Ravens-Sieberer, U. (2021). Risk and resource factors of antisocial behaviour in children and adolescents: results of the longitudinal BELLA study. *Child and adolescent psychiatry and mental health*, *15*(1), 61. <https://doi.org/10.1186/s13034-021-00412-3>
- Patterson, G. R. (1982). *Coercive Family Process*. Castalia Publishing Company.
- Patterson, G. R. (2016). Coercion theory: The study of change. In T. J. Dishion & J. J. Snyder (Eds.), *The Oxford handbook of coercive relationship dynamics* (pp. 7–22). Oxford University Press.
- Granic, I., & Patterson, G. R. (2006). Toward a comprehensive model of antisocial development: A dynamic systems approach. *Psychological Review*, *113*(1), 101–131.
<https://doi.org/10.1037/0033-295X.113.1.101>
- Pearl, J. (2014). Interpretation and identification of causal mediation. *Psychological Methods*, *19*(4), 459–481. <https://doi.org/10.1037/a0036434>

- Pedersen, W., Hart, R. K., Moffitt, T. E., & von Soest, T. (2020). Delinquency abstainers in adolescence and educational and labor market outcomes in midlife: A population-based 25-year longitudinal study. *Developmental Psychology*, *56*(11), 2167–2176. <https://doi-org.ezproxy.uio.no/10.1037/dev0001117>
- Penninx, B. W. (2006). Women's Aging and Depression. In C. L. Keyes & S. H. Goodman (Eds.), *Women and Depression* (pp.129-144). Cambridge University Press.
- Pérez, J. C., Coo, S., & Irrarázaval, M. (2018). Is maternal depression related to mother and adolescent reports of family functioning?. *Journal of adolescence*, *63*, 129–141. <https://doi.org/10.1016/j.adolescence.2017.12.013>
- Pérez-Fuentes, M., Molero Jurado, M., Barragán Martín, A. B., & Gázquez Linares, J. J. (2019). Family Functioning, Emotional Intelligence, and Values: Analysis of the Relationship with Aggressive Behavior in Adolescents. *International journal of environmental research and public health*, *16*(3), 478. <https://doi.org/10.3390/ijerph16030478>
- Peugh, J. & Feldon, D. F. (2020). “How Well Does Your Structural Equation Model Fit Your Data?”: Is Marcoulides and Yuan's Equivalence Test the Answer? *CBE - Life Science Education*, *19*(3), 19:es5, 1-19:es5, 8. <https://doi.org/10.1187/cbe.20-01-0016>
- Plessen, K. J., & Kabincheva, G. (2010). Hjernen og følelser - fra barn til voksen. *Tidsskrift Norske Legeforening*, *9*(130), 932–935. doi: 10.4045/tidsskr.09.0255
- Poldrack, R. A. (2019). *Statistical Thinking for the 21st Century*. Russell Poldrack. Retrieved from: <https://statstinking21.github.io/statstinking21-core-site/index.html>.
- Pruchno, R. A., Brill, J. E., Shands, Y., Gordon, J. R., Genderson, M. W., Rose, M., & Cartwright, F. (2008). Convenience samples and caregiving research: how generalizable are the findings?. *The Gerontologist*, *48*(6), 820–827. <https://doi.org/10.1093/geront/48.6.820>
- Remes, O., Brayne, C., van der Linde, R., & Lafortune, L. (2016). A systematic review of reviews on the prevalence of anxiety disorders in adult populations. *Brain and behavior*, *6*(7), e00497. <https://doi.org/10.1002/brb3.497>
- Reneflot, A., Aarø, L. E., Aase, H., Reichborn-Kjennerud, T., Tambs, K. & Øverland, S. (2018). *Psykisk helse i Norge*. Folkehelseinstituttet. https://www.fhi.no/globalassets/dokumenterfiler/rapporter/2018/psykisk_helse_i_norge2018.pdf
- Reuben, J. D. & Shaw, D. S. (2016). Parental Depression and the Development of Coercion in Early Childhood. In T. J. Dishion & J. J. Snyder (Eds.), *The Oxford Handbook of Coercive Relationship Dynamics* (pp. 69-85). Oxford University Press.
- Richmond, M. K., & Stocker, C. M. (2006). Associations between family cohesion and adolescent siblings' externalizing behavior. *Journal of Family Psychology*, *20*(4), 663–669. <https://doi.org/10.1037/0893-3200.20.4.663>
- Robins, J. (2003). Semantics of causal DAG models and the identification of direct and indirect effects. In P. Green, N. Hjort & S. Richardson (Eds.), *Highly structured stochastic systems* (pp. 70-81). Oxford University Press.
- Robins, L. N. (1978). Sturdy childhood predictors of adult antisocial behaviour: Replications from longitudinal studies. *Psychological Medicine*, *8*(4), 611–622. <https://doi.org/10.1017/S0033291700018821>
- Robinson, M., Doherty, D. A., Cannon, J., Hickey, M., Rosenthal, S. L., Marino, J. L., & Skinner, S. R. (2019). Comparing adolescent and parent reports of externalizing problems: A longitudinal population-based study. *The British journal of developmental psychology*, *37*(2), 247–268. <https://doi.org/10.1111/bjdp.12270>
- Romm, K. F., & Alvis, L. M. (2022). Maternal and Paternal Psychological Control Dimensions: Relations with Adolescent Outcomes. *Journal of Child and Family Studies*, *31*, 962-977. <https://doi.org/10.1007/s10826-021-02174-0>

- Roosa, M. W., & Beals, J. (1990). Measurement issues in family assessment: the case of the Family Environment Scale. *Family process*, 29(2), 191–198.
<https://doi.org/10.1111/j.1545-5300.1990.00191.x>
- Rucker, D. D., Preacher, K. J., Tormala, Z. L., & Petty, R. E. (2011). Mediation Analysis in Social Psychology: Current Practices and New Recommendations. *Social and Personality Psychology Compass*, 5(6), 359-371. <https://doi.org/10.1111/j.1751-9004.2011.00355.x>
- Rutter, M. (1990). Psychosocial resilience and protective mechanisms. In J. E. Rolf, A. S. Masten, D. Cicchetti, K. H. Nuechterlein, & S. Weintraub (Eds.), *Risk and protective factors in the development of psychopathology* (pp. 181–214). Cambridge University Press.
<https://doi.org/10.1017/CBO9780511752872.013>
- Rutter M. (2005). Environmentally mediated risks for psychopathology: research strategies and findings. *Journal of the American Academy of Child and Adolescent Psychiatry*, 44(1), 3–18.
<https://doi.org/10.1097/01.chi.0000145374.45992.c9>
- Savalei, V. (2014). Understanding Robust Corrections in Structural Equation Modeling. *Structural Equation Modeling: A Multidisciplinary Journal*, 21, 149-160.
<https://doi.org/10.1080/10705511.2013.824793>
- Saxbe, D. E., Ramos, M. R., Timmons, A. C., Rodriguez, A. R., & Margolin, G. (2014). A path modeling approach to understanding family conflict: Reciprocal patterns of parent coercion and adolescent avoidance. *Journal of Family Psychology*, 28(3), 415.
- Scholte, R. H. & Aken, M. A. (2006). Peer relations in adolescence. In S. Jackson & L. Goossens (Eds.), *Handbook of Adolescent Development* (pp. 175-199). Psychology Press.
- Scott, S. (2015). Oppositional and conduct disorders. In A. Thapar, D. S. Pine, J. F. Leckman, S. Scott, M. J. Snowling, & E. Taylor (Eds.). *Rutter's Child and Adolescent Psychiatry* (6th ed., pp. 913-930). John Wiley & Sons, Ltd.
- Sellers, R., Harold, G. T., Elam, K., Rhoades, K. A., Potter, R., Mars, B., Craddock, N., Thapar, A., & Collishaw, S. (2014). Maternal depression and co-occurring antisocial behaviour: testing maternal hostility and warmth as mediators of risk for offspring psychopathology. *Journal of child psychology and psychiatry, and allied disciplines*, 55(2), 112–120.
<https://doi.org/10.1111/jcpp.12111>
- Shadish, W. R. (2010). Campbell and Rubin: A primer and comparison of their approaches to causal inference in field settings. *Psychological Methods*, 15(1), 3–17.
<https://doi.org/10.1037/a0015916>
- Shadish, W. R., Cook, T. D., & Campbell, D. T. (2002). *Experimental and quasi-experimental designs for generalized causal inference*. Houghton, Mifflin and Company.
- Sijtsema, J. J., & Lindenberg, S. M. (2018). Peer influence in the development of adolescent antisocial behavior: Advances from dynamic social network studies. *Developmental Review*, 50(Part B), 140–154. <https://doi.org/10.1016/j.dr.2018.08.002>
- Silva, B. C., Bosancianu, C. M. & Littvay, L. (2020). *Multilevel Structural Equation Modeling*. SAGE.
- Skinner, O. D., & McHale, S. M. (2016). Parent-Adolescent Conflict in African American Families. *Journal of youth and adolescence*, 45(10), 2080–2093. <https://doi.org/10.1007/s10964-016-0514-2>
- Slee P. T. (1996). Family climate and behavior in families with conduct disordered children. *Child psychiatry and human development*, 26(4), 255–266. <https://doi.org/10.1007/BF02353242>
- Smith, G. T. (2005). On Construct Validity: Issues of Method and Measurement. *Psychological Assessment*, 17(4), 396-408. doi:10.1037/1040-3590.17.4.396

- Snyder, J. J. & Dishion, T. J. (2016). Introduction: Coercive Social Processes. In T. J. Dishion & J. J. Snyder (Eds.), *The Oxford Handbook of Coercive Relationship Dynamics* (pp. 1-6). Oxford University Press.
- Steinberg L. (2004). Risk taking in adolescence: what changes, and why?. *Annals of the New York Academy of Sciences*, 1021, 51–58. <https://doi.org/10.1196/annals.1308.005>
- Steinberg, L. (2011). *Adolescence* (9th ed.). McGraw Hill.
- Sun, L., Ju, J., Kang, L., & Bian, Y. (2021). “More control, more conflicts?” Clarifying the longitudinal relations between parental psychological Control and parent-adolescent Conflict by disentangling between-family effects from within-family effects. *Journal of adolescence*, 93, 212-221. <https://doi.org/10.1016/j.adolescence.2021.11.004>
- Sundell, K., Eklund, J., & Ferrer-Wreder, L. (2019). Stability and Change in Patterns of Adolescent Antisocial Behavior. *Journal for person-oriented research*, 5(1), 1–16. <https://doi.org/10.17505/jpor.2019.01>
- Sweeney, S., & MacBeth, A. (2016). The effects of paternal depression on child and adolescent outcomes: A systematic review. *Journal of affective disorders*, 205, 44–59. <https://doi.org/10.1016/j.jad.2016.05.073>
- Thakkar, J. J. (2020). *Structural Equation Modelling: Application for Research and Practice (with AMOS and R)*. Springer.
- Thøgersen, D. M., Andersen, M. E., & Bjørnebekk, G. (2020). A multi-informant study of the validity of the Inventory of Callous-Unemotional Traits in a sample of Norwegian adolescents with behavior problems. *Journal of Psychopathology and Behavioral Assessment*, 42(3), 592-604. <https://doi.org/10.1007/s10862-020-09788-6>
- Timmons, A. C., & Margolin, G. (2015). Family conflict, mood, and adolescents' daily school problems: moderating roles of internalizing and externalizing symptoms. *Child development*, 86(1), 241–258. <https://doi.org/10.1111/cdev.12300>
- Tremblay, R. E. (2010). Developmental origins of disruptive behaviour problems: the ‘original sin’ hypothesis, epigenetics and their consequences for prevention. *Journal of child psychology and psychiatry*, 51(4), 341-367.
- Van Loon, L., Van de Ven, M. O., Van Doesum, K., Witteman, C. L., & Hosman, C. M. (2014). The relation between parental mental illness and adolescent mental health: The role of family factors. *Journal of Child and Family Studies*, 23(7), 1201-1214. <https://doi.org/10.1007/s10826-013-9781-7>
- Van Petegem, S., Antonietti, J. P., Eira Nunes, C., Kins, E., & Soenens, B. (2020). The Relationship between Maternal Overprotection, Adolescent Internalizing and Externalizing Problems, and Psychological Need Frustration: A Multi-Informant Study Using Response Surface Analysis. *Journal of youth and adolescence*, 49(1), 162–177. <https://doi.org/10.1007/s10964-019-01126-8>
- Vera, J., Granero, R., & Ezpeleta, L. (2012). Father's and mother's perceptions of parenting styles as mediators of the effects of parental psychopathology on antisocial behavior in outpatient children and adolescents. *Child psychiatry and human development*, 43(3), 376–392. <https://doi.org/10.1007/s10578-011-0272-z>
- Vieno, A., Nation, M., Pastore, M., & Santinello, M. (2009). Parenting and antisocial behavior: a model of the relationship between adolescent self-disclosure, parental closeness, parental control, and adolescent antisocial behavior. *Developmental psychology*, 45(6), 1509–1519. <https://doi.org/10.1037/a0016929>
- Von Tetzchner, S. (2012). *Utviklingspsykologi*. Gyldendal Akademisk.

- Waldman, I. D. & Lahey, B. B. (2013). Oppositional Defiant Disorder, Conduct Disorder, and Juvenile Delinquency. In T. P. Beauchaine & S. P. Hinshaw, *Child and Adolescent Psychopathology* (2th ed.), (pp. 411-452). John Wiley & Sons, Inc.
- Weymouth, B. B., & Buehler, C. (2016). Adolescent and Parental Contributions to Parent-Adolescent Hostility Across Early Adolescence. *Journal of youth and adolescence*, 45(4), 713–729. <https://doi.org/10.1007/s10964-015-0348-3>
- Weymouth, B. B., Buehler, C., Zhou, N., & Henson, R. A. (2016). A meta-analysis of parent–adolescent conflict: Disagreement, hostility, and youth maladjustment. *Journal of Family Theory & Review*, 8(1), 95–112. <https://doi.org/10.1111/jftr.12126>
- World Health Organization. (2018, 20th March). *Mental Health: Strengthening our response*. WHO.int. <https://www.who.int/news-room/fact-sheets/detail/mental-health-strengthening-our-response>
- World Health Organization. (2019, 28th November). *Mental Disorders*. WHO.int. <https://www.who.int/news-room/fact-sheets/detail/mental-disorders>.
- Xia, Y., Yang, Y. (2019). RMSEA, CFI, and TLI in structural equation modeling with ordered categorical data: The story they tell depends on the estimation methods. *Behav Res* 51, 409–428 (2019). <https://doi.org/10.3758/s13428-018-1055-2>
- Xu, Y., Boyd, R. C., Butler, L., Moore, T. M., & Benton, T. D. (2017). Associations of parent-adolescent discrepancies in family cohesion and conflict with adolescent impairment. *Journal of Child and Family Studies*, 26(12), 3360-3369. <https://doi.org/10.1007/s10826-017-0825-2>
- Yarrow, M. R. (1990). Family Environments of Depressed and Well Parents and Their Children: Issues of Research Methods. In G. R. Patterson (Eds.), *Depression and Aggression in Family Interaction* (pp. 169-184). Routledge.
- Yoon, S. & Kim, Y-K. (2018). Gender Differences in Depression. In Y.-K. Kim (Eds.), *Understanding Depression: Volume 1. Biomedical and Neurobiological Background* (pp. 297-307). Springer Singapore.

Article Manuscript

Parental Mental Distress and Adolescent Antisocial Behavior: The Mediating Role of Family Conflict and Cohesion

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Abstract

Antisocial behavior (ASB) may have severe outcomes, both for individuals and society. Therefore, it is an essential focus in research to figure out which mechanisms contribute to individuals' exhibition of ASB. The association between parents' mental distress and adolescents' ASB is well documented. However, we ask if this association partially can be explained by family conflict and cohesion as mediating factors. The sample in our study consisted of 157 adolescents and their primary caregiver. The mean age for adolescents was 14.74 (range 11-18), while the mean for primary caregiver was 43.93 (range 29-78). Findings revealed a significant mediating effect between parental mental distress and adolescent ASB, through family conflict. Indicating that higher levels of symptoms of depression and anxiety in parents influence conflict within the family, which in turn are associated with the adolescents' exhibition of aggressive and rule-breaking behavior. The indirect effects through family cohesion were not significant.

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Abstract

Antisocial behavior (ASB) may have severe outcomes, both for individuals and society. Therefore, it is an essential focus in research to figure out which mechanisms contribute to individuals' exhibition of ASB. The association between parents' mental distress and adolescents' ASB is well documented. However, we ask if this association partially can be explained by family conflict and cohesion as mediating factors. The sample in our study consisted of 157 adolescents and their primary caregiver. The mean age for adolescents was 14.74 (range 11-18), while the mean for primary caregiver was 43.93 (range 29-78). Findings revealed a significant mediating effect between parental mental distress and adolescent ASB, through family conflict. Indicating that higher levels of symptoms of depression and anxiety in parents influence conflict within the family, which in turn are associated with the adolescents' exhibition of aggressive and rule-breaking behavior. The indirect effects through family cohesion were not significant. This study contributes to research by providing insight and confirmation of previous findings on the association between mechanisms in the family, parental mental distress and adolescent ASB within a clinical sample.

Keywords

Adolescent Antisocial Behavior (ASB), Parental Mental Distress, Family Conflict, Family Cohesion, Mediation.

Highlights

- Parental mental distress had a significant direct influence on adolescent ASB, family conflict and cohesion.
- Family conflict had a significant mediating role on the relationship between parental mental distress and adolescent ASB.
- Family cohesion did not have a mediating role on the relationship between parental mental distress and adolescent ASB.

1 Introduction

Parental mental distress is found to be connected to maladjustment and problem behaviors in children and adolescents (Elgar et al., 2007; Joyner & Beaver, 2021). However, which mechanisms who are underlying for this influence is not confined to direct influence of mental distress and adjustment problems. Factors in the family environment and interpersonal relationships between family members are highlighted as certain aspects that may exacerbate this influence. The entire family environment is therefore important to consider as an underlying factor and trigger for adolescent outcomes (Van Loon et al., 2014; Xu et al., 2017). Aspects of family environment and interaction that may be influenced by parental levels of mental distress, is conflict and cohesion. Korhonen et al. (2014) found a transactional influence between maternal depression and offspring behavior problems. Indicating that higher levels of adolescent externalizing behaviors were associated with chronic trajectories of maternal depressive symptoms. On the other hand, Elgar et al. (2007) findings are one of many studies that highlights parental mental health issues contributing to their children's maladjustment. Emphasizing the reciprocal influence individuals have on each other, especially considering the impact parent-child-relationships and family climate have on child and adolescent psychopathology (e.g., Xu et al., 2017).

1.1 Adolescent Antisocial Behavior

Antisocial behavior (ASB) is characterized as behaviors that violate norms and rules about how persons and property should be treated (Scott, 2015). These behaviors are destructive and insensitive to other people's rights, it can be both criminal and noncriminal, overt and covert, and may include aggression, substance use, bullying, sexual precocity, and vandalism (Dishion & Patterson, 2006). Criminal behavior in childhood and adolescence is often referred to as delinquency (Hiatt & Dishion, 2008). Clinical diagnoses, like Oppositional Defiant Disorder (ODD), and Conduct Disorder (CD) are sometimes utilized to describe antisocial behavior in literature (Fonagy, 2021). ODD is more often used for younger children, and CD for older children and adolescents (Scott, 2015).

Persistent ASB can have major long-term consequences both for the individual and society (LoBraico et al., 2020), such as academic failure, drug abuse, and violence (Moffitt, 1993). In turn, consequences like these also inflict significant social and economic costs on society (Moffitt, 2018). ASB is one of the most common behavioral problems during childhood and adolescence (Borge, 2019), leading to historical concern and interest with the topic among researchers and professionals (Costello & Angold, 2000). Further, research implies that adolescent ASB is heterogeneous (Frick & Viding, 2009). Moffitt's taxonomy (1993) has established two trajectories of what "pools" young people towards ASB. The first one, the "Life-Course-Persistent (LCP)"

group, is characterized by its onset in childhood which develops into persistent antisocial behavior to adulthood (Moffitt, 2015). Secondly, “Adolescent-Limited (AL)” ASB refer to the general trend of emerging ASB and risky behavior in adolescence. According to Moffitt (2015), the LCP-group trajectory differs from the AL-group, considering parental risk factors, including maternal psychopathology, mothers who were harsh and neglectful, and elevated family conflict. Despite the normative adolescents' involvement in ASB and delinquency, the AL-group tend to have more normative backgrounds (e.g., socioeconomic status and family risk), compared to the LCP-group (Moffitt & Caspi, 2001).

Growing research advocates for distinguishing between different subtypes for adolescent ASB (Burt, 2012; Burt et al., 2009; Kornienko et al., 2019). The main distinction is between aggressive and non-aggressive rule-breaking behaviors (Burt et al., 2016). *Aggressive behaviors* are often understood as verbal or physical aggression directed at another person with the intent to harm, but can also include oppositionality, bullying, and violence. *Non-aggressive rule-breaking* include more hidden forms of aggression, like theft, vandalism, and relational aggression, peer rejection and exclusion (Kornienko et al., 2019; Little et al., 2003). Some also include *risk-taking behaviors* (Mishra & Lalumière, 2008), defined as engagement in actions that are associated with potentially adverse consequences (Boyer, 2006). Risk-taking behaviors are thought of as more normative in adolescence (Moffitt, 2018; Sundell et al., 2019). These are not necessarily illegal or dangerous, but include actions where the outcome is uncertain, and where the potential consequences can be both positive and negative (Ciranka & van den Bos, 2021). Steinberg (2004) points out that adolescents are very susceptible to peer pressure, making them more likely to engage in similar activities and behaviors as their peers (Ciranka & van den Bos, 2021).

1.2 Parental Mental Distress

Several mechanisms, such as genes (Burt et al., 2003; Moffitt, 2015), individual temperament (Dadds & Salmon, 2003), modeling (Garber, 2005; Van Loon et al., 2014), parenting practices (Romm & Alvis, 2022; Sun et al., 2021), and family climate (Cummings et al., 2000; Patterson, 1982) have been found to elevate risk for adolescents developing ASB (Fosco & LoBraico, 2019). Additionally, there are few mechanisms that have received as much attention as parent-child-relationships, parental psychopathology, and parenting. The connection between parental mental health issues, such as symptoms of depression and anxiety, are well established risk factors for child and adolescent outcomes (e.g., Cummings & Davis, 1994; Elgar et al., 2007; Goodman et al., 2011; Hails et al., 2018; Haws & Dadds, 2005), indicating for instance that mental distress reduces parents' ability to engage in proactive and positive parenting (Elgar et al., 2007; Joyner & Beaver,

2021). In addition, they often have attitudes and behaviors that may contribute to child psychopathology, through various social learning processes (Garber, 2005).

Family environments with depressed caregivers are often characterized by negative patterns of interpersonal interactions, lax monitoring, and inconsistent discipline and display of affection (Elgar et al., 2007; Korhonen et al., 2014). Cummings and colleagues (2005) found that parental depressive symptoms were linked to poor child adjustment, both internalizing and externalizing problems, peer rejection and lack of prosocial behavior, and that greater parental symptoms were associated with intrusiveness, control through guilt, and less parental warmth. However, Marmorstein and Iacono (2004), found that adolescent CD was associated with rates of maternal depression, but not significantly with paternal depression. Korhonen et al. (2014) investigated whether it is the timing, recurrence or chronicity of maternal depression that puts the offspring's wellbeing at risk. Their findings indicated that maternal recurrent depressive symptoms were significantly associated with adolescents' poorer psychosocial health, including self-reported externalizing behaviors. Vera and colleagues (2012) found that depression and anxiety symptoms in mothers were directly related to ASB in offspring, but not for fathers. However, parents' mental distress increased parental rejection and overprotection, which in turn functioned as a mediator between parental psychopathology and offspring ASB. Anxious parents are often more controlling and overprotective, they tend to parent their offspring's closely, expecting disclosure of information, and allowing less autonomy (Jones et al., 2021; Vera et al., 2012). Anxiety symptoms in mothers are also associated with negative criticism towards offspring (Hirshfeld et al., 1997), and lower levels of affirmation towards their adolescent, which in turn predicted higher levels of externalizing behaviors (Bellina et al., 2020). Meanwhile, Burstein and colleagues (2010) failed to find a connection between parental anxiety and early adolescent externalizing problems.

The connection between maternal mental health issues, such as symptoms of depression and anxiety, are well established risk factors for child and adolescent outcomes (Joyner & Beaver, 2021; Korhonen et al., 2014; Marmorstein & Iacono, 2004). However, less focus has been implied on the influence and role of paternal mental distress on offspring outcomes (Cummings et al., 2005; Sweeney & MacBeth, 2016). Research is somewhat conflicted on the role of mothers and fathers separate influence on offspring adjustment. Notably, Vera and colleagues (2012) found that mothers had a greater influence on child outcomes, with higher levels of maternal mental health issues predicting higher levels of maladjustment in offspring compared to fathers. Similarly, adolescent CD was associated with rates of maternal depression, but not with paternal, as reported by Marmorstein and Iacono (2004). Conversely, a meta-analysis conducted by Connell and Goodman (2002) did

not find differences in mothers' and fathers' psychopathology on externalizing behavior. However, the same meta-analysis found that parents' gender may predict internalizing behavior, with mothers having a greater influence.

1.3 Family Conflict and Cohesion as Mediators

Parental mental distress may function as a risk factor for increased conflict levels and lower levels of cohesion within families. As depressed mothers report that their family environments more often are less cohesive and more conflict-filled, compared to non-affected mothers (Slee, 1996). *Cohesion* is a way of explaining the separation and/or connectedness within family systems and among family members, and a way of communication within the family (Garber, 2005; Richmond & Stocker, 2006), while family *conflict* involves more frequent expression of anger, hostility, and resentment (LoBraico et al., 2020). During adolescence, shifts in interpersonal relationships may influence how parent-adolescents communicate and interact, leading to changing levels of conflict and cohesion within dyads and family as a whole.

Adolescents' desire for autonomy and liberation from parental control in adolescence may often be a source for frustration, friction, and conflict in the relationship with their parents (Buehler, 2006; Saxbe et al., 2014). Conflict between parents and offspring tends to increase during adolescent years, peaking during early adolescence, as they attempt to adjust boundaries, renegotiate parental authority, and increase their own autonomy and independence (Weymouth et al., 2016). High levels of family conflict are associated with emotional and behavioral problems, such as symptoms of depression and anxiety, aggression, delinquency, and school problems (Fosco & Lydon-Staley, 2020; Sun et al., 2021; Xu et al., 2017). A meta-analysis by Weymouth and colleagues (2016) found positive associations between parent-adolescent conflict and youth maladjustment, and that disagreement is found to be significantly associated with greater depression and delinquency. Similar results were found by Xu et al., (2017), with association between adolescent self-report on impairment and increased family conflict. These results show that both parent and youths report on conflict increases the risk of adolescent maladjustment. Conflict level in the family is also connected to risky behavior, with increased levels of conflict leading to heightened engagement in risky behaviors (Skinner & McHale, 2016). Further, Romm and Alvis (2022) found that love withdrawal was strongly associated with greater substance use, delinquency, physical aggression, and relational aggression. Showing that parental rejection may result in anger and frustration, as well as difficulties in emotional coping. Elevated levels of conflict may increase the use of coercive strategies in parent-adolescent interactions (LoBraico et al., 2020). The term

coercion is defined as an interpersonal strategy that results in avoidance or escape of an aversive social experience (Snyder & Dishion, 2016). These coercive behaviors may also reflect responses and interaction patterns in the overall family climate during conflicts. In families where coercive interactions dominate, ASB emerges and then stabilizes over development (Granic & Patterson, 2006).

However, family climate may also function as a buffer (or protective factor) against adolescents' exhibition of ASB. Family cohesion is characterized by warmth, openness, emotional connection, and flexibility, and offspring in such families are found to have better psychological and behavioral adjustment than conflicted families, that are more distant, hostile, and aggressive (Coe et al., 2018; Richmond & Stocker, 2006; Sun et al., 2021). High and stable levels of family cohesion may then function as a buffer, making family members less adversely affected by parental mental health issues, adolescent ASB, or other life challenges (Coe et al., 2018). Adolescents who feel connected to their family, are more likely to seek guidance and disclose information to their parents, and they are more likely to spend more time with their families, leaving them with less opportunity to affiliate with delinquent and deviant peers (Fosco & LoBracio, 2019; Vieno et al., 2009). During adolescence, family cohesion levels tend to decrease (Deković et al., 2003; Lin & Yi, 2019). This decrease can be interpreted as shifts in family relationships as a function of adolescent development and liberation process (Bear, 2002). Lin and Yi (2019) found decreasing family cohesion levels in Taiwanese youth. The decrease was lower and had less impact on life satisfaction among the teenagers who initially reported high levels of cohesion, while low family cohesion in early adolescence resulted in more delinquent behavior in later adolescence (Lin & Yi, 2019). Likewise, Coe et al. (2018) and Richmond and Stocker (2006) found that low family cohesion was a predictor for externalizing behavior in forms of conduct problems, oppositional defiance, and hostility. Pérez and colleagues (2018) report that higher levels of maternal depression were associated with lower levels of family cohesion, reported by both mother and adolescent. Fosco and Lydon-Staley (2020) found that adolescents within families with high levels of cohesion, reported feeling more positive, more satisfied with life, and less angry, depressed, and anxious. Reflecting that family cohesion can function as a protective factor against life difficulties.

1.4 The Current Study

In the current study, we aim to investigate whether family conflict and cohesion mediate the effect of parental mental distress on adolescent antisocial behavior. We hypothesize that higher symptoms of parental mental distress will increase levels of family conflict and decrease levels of family cohesion. Further, we hypothesize that elevated levels of family conflict is related to higher levels of adolescent ASB, while elevated

levels of cohesion is associated with lower adolescent ASB. We also expect that if conflict levels are high within the family, the levels of cohesion will be lower, reflecting a covariance between the two mediators. In addition, we expect to find an indirect effect from parental mental distress via family conflict and cohesion on adolescent ASB.

2 Methods

2.1 Participants

In our study, we utilized data from a randomized controlled trial of Functional Family Therapy in Norway (Bjørnebekk, 2013). Adolescents between the age of 11 and 19 years old and their families ($N = 159$) participated in a combined randomized control- and process-outcome design which sought to treat moderate to severe antisocial behavior (Bjørnebekk, 2013). The inclusion criteria for participation were adolescents between 11 and 19 years, which displayed, or were at risk for one or more of the following behavior problems: aggressive (both verbally and physically) and violent behavior, delinquency with severe risk for future offenses, vandalism, severe rule breaking behavior at home, school or in the local community, and substance use. Exclusion criteria include adolescents with Autism Specter Disorder (ASD), imminent risk of suicide or recently had experienced an acute psychotic. Additional exclusion criteria were home environments considered as not safe for the therapist, cases with ongoing investigation by the local child welfare service, and cases that already participated in interventions or treatments that were incompatible with FFT.

Due to a large amount of missing data in two observations, these families were excluded. Leading to, the eligible sample in this study thus consisted of 157 adolescents (M age = 14.74 SD = 1.47, range from 10.80 to 17.88) and their primary caretaker (M age = 43.93 SD = 6.90, range from 29 to 78). There was a slight higher proportion of males ($n = 85$, 52.1 %) compared to females ($n = 72$, 45.9 %). Conversely, among primary caretakers this trend was opposite, with 89.8 % mothers and 10.2 % fathers ($n = 141$, $n = 16$, respectively). Most adolescents lived with single parents ($n = 59$, 37.6 %), while the remaining lived with both parents, adoptive parents, or in foster care (See Table 1).

2.2 Procedures

Participants were measured three times during the study: T1 - before participants were sampled into different groups, T2 - after intervention/treatment, and T3 – follow-up one year after intervention/treatment. The current study utilized data collected from the first point of measure (T1), making it a cross-sectional design. Hence, the relationships between the study variables will not be affected by intervention/treatment.

Both parents and adolescents completed all questionnaires on portable computers, programmed in Ci3 software (Sawtooth Software, n.d.). The participants completed the questionnaires in their home, or at a municipality office. A research assistant was available for assistance and gave general instructions on how to use the Ci3 system. Families received a minor compensation (around 50 USD.), and a light snack for participation (Thøgersen et al., 2020).

2.3 Measures

2.3.1 Adolescent Antisocial Behavior (ASB)

Child Behavior Checklist 6-18 (CBCL; Achenbach & Rescorla, 2001) was used to assess adolescent ASB, which is one of the most used parental measures of emotional and behavioral problems among youth ages 6-18 years. This was filled out by primary caretaker, and consisted of 113 items, answered on a 3-point Likert scale: 0 (not true), 1 (true or sometimes true), and 2 (very true or often true) (Achenbach & Rescorla, 2001). Parents respond based on their adolescent's behavior the last six months. Historically, CBCL has shown acceptable reliability and validity (Achenbach & Rescorla, 2001; Naar-King et al., 2004; Pandolfi et al., 2014), also in Norwegian samples (Lurie, 2006). To measure our outcome variable, ASB, we used the subscale "Externalizing Behavior", which further consists of two syndrome scales: "Aggressive Behavior" ("Attacks other people physically") and "Rule-Breaking Behavior" ("Breaks rules at home, at school, or other places") (Achenbach & Rescorla, 2001). Satisfactory reliability was found for parent-reported ASB: Externalizing Behavior (35 items; $\alpha = .92$), Aggressive Behavior (18 items; $\alpha = .92$), and Rule-Breaking Behavior (17 items, $\alpha = .81$).

2.3.2 Parental Mental Distress

To collect data on parental mental distress, parents reported with the Norwegian version of Symptoms Checklist (SCL-8). This is a brief, self-reported questionnaire for measuring mental illness and distress (Fink et al., 2004a). SCL-8 is a short version of the Hopkins Symptom Checklist (SCL-90; Derogatis et al., 1974), which is a well-designed assessment for overall mental distress (Siqveland et al., 2016). Parents answer eight items about the presence and intensity related to symptoms of anxiety and depression the last 14 days (e.g., "Sudden fear without any clear reason"), on a 4-point scale: 1 (Not bothered), 2 (Somewhat bothered), 3 (Very bothered) and 4 (Very much bothered). The SCL-8 scale contains only emotional symptoms, and are suggested to be a valid and robust, brief screening tool (Fink et al., 2004a; Fink et al., 2004b). For all the eight items in SCL-8, the reliability coefficient was high (8 items: $\alpha = .91$).

Table 1*Sociodemographic Characteristics of the Participants (N = 157)*

Sample characteristics	<i>n</i>	Missing	Mean (SD)
Parental Gender	157		
Mother	141		
Father	16		
Parental Age	157		43.9 (6.90)
Educational Level	156	0.6%	2.28 (0.71)
<i>Primary and secondary school (≤ 10 years)</i>	23		
<i>Upper secondary school (11-14 years)</i>	67		
<i>Higher education (≥ 14 years)</i>	66		
Economic Hardship	156	0.6%	
<i>Living comfortably</i>	12		
<i>Doing alright</i>	43		
<i>Just about getting it</i>	76		
<i>Finding it quite difficult</i>	15		
<i>Finding it very difficult</i>	10		
Adolescent Gender	157		
Female	72		
Male	85		
Adolescent Age	157		14.74 (1.47)
Family Situation	153	2.5%	2.98 (1.51)
<i>Adolescent lives at home with his or her parents</i>	40		
<i>Adolescent lives partly at both parents</i>	8		
<i>Adolescent lives mainly at one parent's house, without parent having a new partner</i>	59		
<i>Adolescent lives mainly at one parent's house, whereas parent has a new partner</i>	36		
<i>Adolescent is adopted or living in foster care</i>	10		
Additional Children in the Family	157		1.25 (0.99)

2.3.3 Family Conflict and Cohesion

Family conflict and cohesion were measured using parental self-report on the Norwegian version of the Family Environment Scale (FES), which assesses the social environment of families along ten salient dimensions (Moos & Moos, 1976). FES consists of 90-true-false items distributed onto ten subscales, with conflict and cohesion consisting of nine items each. Conflict is conceptualized as the amount of openly expressed anger and aggression, and conflicted interactions are characteristics of the family (“Family members often criticize each other”). The cohesion subscale is conceptualized as the extent family members are

concerned and committed to the family and the degree of support and helpfulness between family members (“Family members really help and support one another”) (Moos & Moos, 1976; Lucia & Breslau, 2006). FES has shown acceptable validity and reliability (Moos & Moos, 2009), however, results are somewhat conflicted (Moos, 1990; Roosa & Beals, 1990). Our reliability analysis found acceptable reliability for both the conflict and cohesion subscales ($\alpha = .76$ and $\alpha = .73$, respectively).

2.3.4 Control variables

Adolescent age and gender were included as control variables. In addition, for parents, their economic interpretation of economic hardship, and educational level were controlled for. Economic hardship was measured on a 5-point Likert scale: 1 (living comfortably), 2 (Doing alright), 3 (Just about getting it), 4 (Finding it quite difficult), and 5 (Finding it very difficult). Parental educational level was measured on a 3-point Likert scale: 1 (Primary and secondary school), 2 (Upper secondary school), and 3 (Higher education).

2.4 Ethical Considerations

To ensure acceptable principles of ethical and professional conduct, the current study received approval from Regional Committees for Medical and Health Research Ethics (REK) to utilize data gathered by the study of Evaluation of Functional Family Therapy in Norway (Bjørnebekk, 2013). Application number given by REK for the current study is: 2010/497 (See Appendix C). All participants, both parents and adolescents were asked to give written informed consent. Consent forms included information about participants' right to withdraw from the study at any given time, and ensured participants confidentiality. Participants consent forms were presented for Norwegian Center for Research Data (NSD) and Norwegian Data Protection Authority [Datatilsynet] (Bjørnebekk, 2013). All data were collected, stored, and processed within a certified secure IT environment called Services for sensitive data (TSD).

2.5 Data Analyses

According to MacKinnon (2008), a mediation analysis is suitable for examine *how* or *if* one variable is related to another variable through some other variable. For our analysis, we use a simple structural equation model (SEM) with two mediators (MacKinnon, 2008; Rucker et al. 2011), containing X , which represents the independent variable, Y represents the dependent variable, and M the intervening or mediating variable (Rucker et al., 2011), as Figure 1 visualizes.

Data were analyzed using Mplus (Version 8.3; Muthén & Muthén, 2017), SPSS (Version 28), and Jamovi (Version 1.6.15). First, a series of preliminary analyses were conducted, including descriptive statistics, exploring skewness and kurtosis, missing values, and correlations between variables in SPSS. Normality check with Shapiro-Wilks was conducted in Jamovi. However, none of the variables met the criteria (normality is met with $< .05$) for Shapiro-Wilk test: parental mental distress ($W = .92, p < .001$), adolescent ASB ($W = .98, p < .012$), family conflict ($W = .94, p < .001$), family cohesion ($W = .92, p < .001$), and economic hardship ($W = .88, p < .001$). Based on this outcome, results will be reported using the non-parametric test for correlation, Spearman ρ . Two observations in the dataset had 100% missing values on all study variables, these were therefore removed before further analyses were conducted. Then, we carried out SEM analysis in Mplus to examine direct and indirect relations among parental mental distress, adolescent ASB, family conflict, and cohesion. The path between parental mental distress, family conflict, and adolescent ASB was controlled for by economic hardship (see Table 1). We employed Robust Maximum Likelihood (MLR) as the estimator based on its ability to handle non-normality data (Muthén & Muthén, 2017). Model fit was evaluated using Comparative Fit Index (CFI), Tucker Lewis Index (TLI), and the Root Mean Square Error of Approximation (RMSEA), with good fit criteria $> .95$ for CFI and TLI, and $< .05$ for RMSEA, as suggested by Hu and Bentler (1999). Standardized beta coefficients, and p values ($p < .05$) were used to assess the direct and indirect effects between variables.

3 Results

3.1 Descriptive Statistics

Means, standard deviations, and correlations between all study variables are presented in Table 2. Skewness and kurtosis analysis did not suggest meaningful issues with normality. Due to non-significant correlations with the proposed control variables, adolescent age, gender, and parental educational level, they are not reported in text. However, economic hardship correlated with both parental mental distress ($r = .17, p = .031, 95\% \text{ CI} = [.012, .326]$), and family conflict ($r = .20, p = .013, 95\% \text{ CI} = [.037, .352]$). Therefore, economic hardship was included as a control variable. Correlations show that parental mental distress were significantly associated with adolescent ASB ($r = .42, p < .001, 95\% \text{ CI} [0.27, 0.55]$). Parental mental distress was significant with family conflict ($r = .46, p < .001, 95\% \text{ CI} [0.32, 0.48]$), and family cohesion ($r = .28, p < .001, 95\% \text{ CI} [-0.43, -0.12]$). Adolescent ASB was significant with family conflict ($r = .38, p < .001, 95\% \text{ CI} [0.23, 0.52]$), and cohesion ($r = -.24, p < .001, 95\% \text{ CI} [-0.39, -0.08]$). The two mediating variables strongly correlated ($r = -.45, p < .001, 95\% \text{ CI} [-0.57, -0.31]$).

Table 2
Descriptive Statistics of Study Variables

Variable	<i>n</i>	Missing	<i>M (SD)</i>	Minimum	Maximum	1	2	3	4	5	6	7
1. Parental Mental Distress, SCL	156	0.6%	14.64 (5.18)	8.00	32.00							
2. Antisocial Behavior, CBCL	153	2.5%	22.90 (12.52)	1.00	52.00	.42**						
3. Family Conflict, FES	152	3.2%	3.85 (2.40)	1.00	9.00	.46**	.38**					
4. Family Cohesion, FES	152	3.2%	5.99 (2.33)	1.00	9.00	-.28**	-.24**	-.45**				
5. Educational Level	156	0.6%	2.28 (0.71)	1.00	3.00	.04	.04	.13	-.07			
6. Economic Hardship	156	0.6%	2.79 (0.95)	1.00	5.00	.17*	-.07	.20*	-.08	-.11		
7. Adolescent Gender	157	0.0%	1.46 (0.50)	1.00	2.00	.07	.04	.01	.03	-.13	.04	
8. Adolescent Age	157	0.0%	14.74 (1.47)	10.80	17.88	.03	.02	-.09	.16	.06	-.02	.18*

Note. Parent-reported observations on Parental Mental Distress, Antisocial Behavior and Family Conflict are significantly correlated with Adolescent-reported.

* $p < .05$. ** $p < .001$

3.2 Mediation Analysis

To investigate the effect of family conflict and cohesion on the relationship between parental mental distress and adolescent ASB, a multiple mediation analysis was performed using Mplus. The outcome variable for the analysis was adolescent ASB, while the predictor variable was parental mental distress. The two mediating variables were family conflict and cohesion. Due to sample size constraint, manifest rather than latent variables were utilized in the model. In this analysis we explicitly allow the two mediators to covary to account for their oriented dependence. Family conflict and cohesion had a significant negative covariance ($\beta = -.37$, $SE = 0.07$, $p < .001$, 95% CI = [-0.51, -0.24]). Model fit indices suggest good fit, considering the small sample size (RMSEA = 0.00, $p = .863$, CFI = 1.00, TLI = 1.10).

3.2.1 Direct Effects

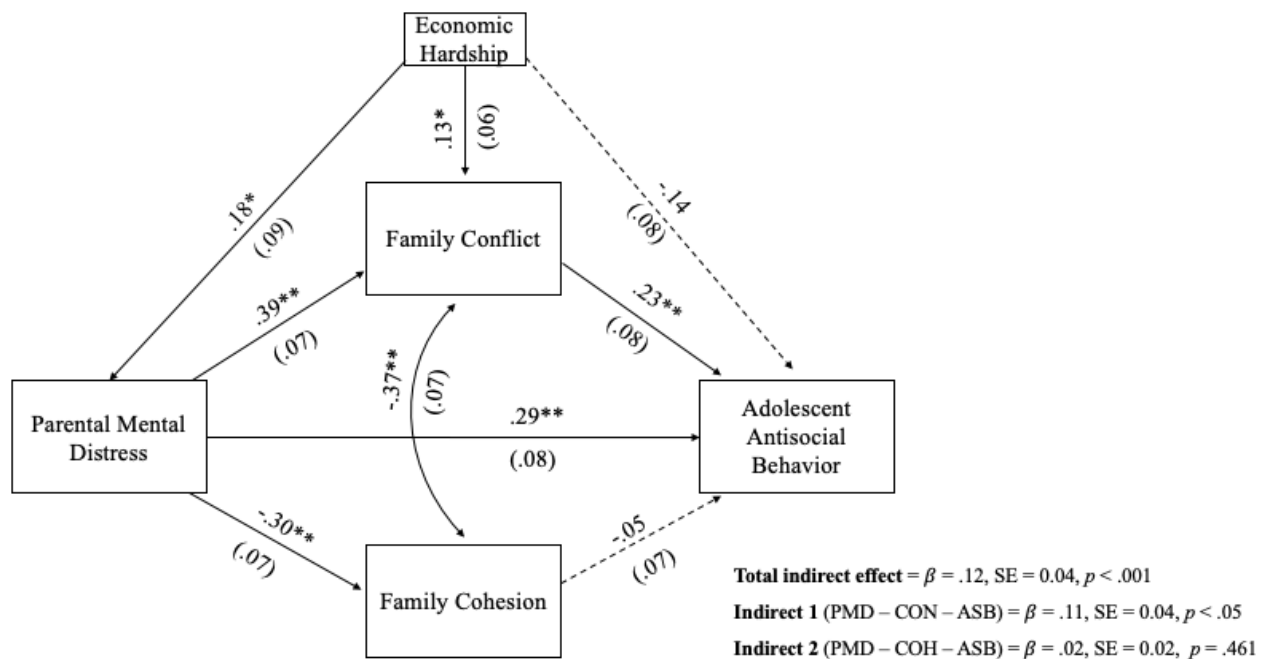
Parental mental distress was significantly related to adolescent ASB ($\beta = .29$, $SE = 0.08$, $p < .001$, 95% CI = [0.14, 0.44]). As shown in figure 1, the path between parental mental distress and family conflict was found to be significant ($\beta = .39$, $SE = 0.07$, $p < .001$, 95% CI = [0.24, 0.53]), so was the path from parental mental distress to family cohesion ($\beta = -.30$, $SE = 0.07$, $p < .001$, 95% CI = [-0.44, -0.16]). The path between family conflict and adolescent ASB was significant ($\beta = .23$, $SE = 0.08$, $p < .001$, 95% CI = [0.13, 0.44]), while to family cohesion was not ($\beta = -.05$, $SE = 0.07$, $p = .459$, 95% CI = [-0.19, 0.09]). We controlled for economic hardship, which was significant on parental mental distress ($\beta = .18$, $SE = 0.09$, $p < .05$, 95% CI = [0.01, 0.35]), family conflict ($\beta = .13$, $SE = 0.06$, $p < .05$, 95% CI = [0.02, 0.24]), but not on adolescent ASB ($\beta = -.14$, $SE = 0.08$, $p = .061$, 95% CI = [-0.29, 0.01]).

3.2.2 Indirect Effects

The indirect mediation of family conflict on parental mental distress and adolescent ASB was significant and positive ($\beta = .11$, $SE = 0.04$, $p < .05$, 95% CI = [0.09, 0.43]). In contrast, the indirect mediation path of family cohesion between parental mental distress and adolescent ASB failed to reach significance ($\beta = .02$, $SE = 0.02$, $p = .461$, 95% CI = [-0.06, 0.14]). The total indirect mediation, including both conflict and cohesion, showed a significant total indirect effect ($\beta = .12$, $SE = 0.04$, $p < .001$, 95% CI = [0.05, 0.20]).

Figure 1

Mediation Model for SEM Analysis with Control Variable



Note. Parental Mental Distress (PMD), Family Conflict (CON), Family Cohesion (COH), Adolescent Antisocial Behavior (ASB). $*p < .05$, $**p < .001$

4 Discussion

The current study aimed to investigate whether family conflict and cohesion have any mediating role on the relationship between parental mental distress, and adolescent ASB measured by parent-reported symptoms of depression and anxiety, and aggression and rule-breaking behavior, respectively. The sample utilized was gathered from a randomized controlled clinical evaluation of Functional Family Therapy (FFT) in Norway. First, we hypothesized that there would be a direct association between parental mental distress and adolescents ASB. Second, we hypothesized that elevated levels of mental distress among parents to be correlated with increased family conflict and lower family cohesion. Third, we expected elevated levels of conflict to be associated with heightened levels of adolescent ASB, while cohesion would have the opposite effect. Mediation analysis revealed that parental mental distress had a direct effect on adolescent ASB. Further, we found that family conflict had a mediating role in the relation between parental mental distress and adolescent ASB, while, family cohesion was not a significant mediator to this relationship.

Analysis results supported our first hypothesis and are consistent with previous research. This suggests that parental mental impairments are related to adolescents ASB, and that this relationship is only partially mediated

(Vera et al., 2012; Kane & Garber, 2004; Korhonen et al., 2014), indicating that parental mental distress, with all the possible behaviors or attitudes this measure includes, have a direct effect on their child's exhibition of ASB. Although our results suggest a direct effect between parental mental distress and adolescent ASB, we can not exclude other alternative mechanisms as possible causes, leaving open factors besides family conflict and cohesion as links between parental mental distress and adolescent ASB.

One of such, possible mechanisms may include parenting styles and behaviors (Hautmann et al., 2015; Vera et al., 2012), parental hostility and overprotection (Sellers et al., 2014), and coping strategies (Francisco et al., 2015). Environmental factors outside the family, such as peer relationships, and neighborhood, may also influence the relationship between parental mental distress and adolescent outcomes. On the other hand, Gross et al. (2009) found that noncompliance in offspring was the most robust predictor for higher and more persistent levels of depressive symptoms among mothers, suggesting reciprocal influences within the family system, and that living with aggressive and rule-breaking adolescents may elevate parental distress.

In regards to the second hypothesis, we found that elevated levels of parental mental distress are associated with increased levels of family conflict, and a reduction in family cohesion. These results were also consistent with previous findings (Garber, 2005; Pérez et al., 2018; Xu et al., 2017). Family environments with depressed caregivers are often characterized by negative patterns of interpersonal interactions, lax monitoring, and inconsistent discipline and display of affection (Korhonen et al., 2014). Further, this may explain why family environments with distressed caregivers may function as catalysts for adverse interaction patterns, resulting in chronic conflict-filled communication between family members (Garber, 2005). LoBraico et al. (2020) identified subgroups of family constellations of family risk for long-term adolescent ASB, with results indicating that adolescents in coercive families experienced the most robust risk across ASB outcomes. These families were characterized by high family conflict and low positive family climate, parental involvement, effective discipline, parental knowledge, and adolescent positive engagement.

Unsurprisingly, when there are elevated and chronic patterns of conflict among family members, and within specific dyads, such as between parent and adolescent, family cohesion deteriorates. Interpersonal relationships characterized by hostility and conflict can result in withdrawal by family members (Romm & Alvis, 2022). In line with previous research (Li et al., 2021; Van Loon et al., 2014), we also found that higher levels of depression and anxiety in parents were associated with lower levels of family cohesion. In general, family cohesion levels tend to decrease during adolescence (Lin & Yi, 2019). This decrease can be interpreted as shifts in family relationships as a function of adolescent development and liberation process (Bear, 2002). However, it

is reasonable to assume that within a clinical sample, where conflict levels are already high and parents have impaired mental health, any deterioration in family cohesion only escalates the situation. This view is in agreement with the transactional perspective on psychopathology, where high levels of family conflict and low family cohesion may exacerbate parental mental distress.

Regarding our third hypothesis, our overall results indicate that family conflict has a mediating role on the relationship between parental mental distress and adolescent ASB, while cohesion does not. There are several explanations for why and how family conflict has an impact on the path to adolescent ASB. Parents with increased mental distress usually have reduced capacity and ability to engage in positive and favorable parenting (Joyner & Beaver, 2021). As depression and anxiety influence parenting styles characterized by control through guilt and overprotection, hostility, criticism, and inconsistent discipline (Cummings et al., 2005; Korhonen et al., 2014). This may result in a family environment characterized by coercive and hostile attitudes and behaviors. Families that engage in more hostile behaviors, in the form of fighting and aggression, may damage both trust and secure attachments between parent and adolescent (Buehler, 2006; Weymouth et al., 2016). When this pattern of communicating becomes normative between family members, offsprings may adopt this pattern of interacting with her or his social arenas. Thus, aggressive and antisocial patterns of interaction may become stable in all social relations, encouraging affiliation with antisocial groups and peers (Carroll et al., 2009; Moffitt, 2015).

In general, the adolescence period increases the levels of conflict between parent and adolescents, as most youth attempt to adjust boundaries, renegotiate parental authority, and increase their own autonomy and independence (Weymouth et al., 2016). Additionally, during adolescence, youth tend to be more oppositional (Steinberg, 2011), which may further exacerbate the adverse patterns of communication and interaction. Developmental trends like these becomes more problematic for mentally distressed parents, compared to non-distressed. As distressed parents tend to parent their adolescent closely, expecting disclosure of information, and allow less autonomy (Vera et al., 2012). A possible explanation may be that conflicted interests between parent and adolescent, with adolescents being autonomy seeking and parents autonomy limiting, results in more friction and conflict within the family environment and their relationship. As such, family conflict can become the environmental manifestation of parental mental distress, which contribute to adolescent ASB.

As we expected, the two mediating factors covary negatively. This result implies that high reading in one mediator is associated with decrease in the other one. In our sample this is noticeable on parental reports of high family conflict reducing the appearance of cohesion within the family system. We assume that due to a clinical

sample referred to family therapy, that the levels of conflict reflect a more turbulent family situation compared to the general population, with frequent and coercive patterns of interaction. In addition, it is possible that adolescents' problem behavior and engagement in antisocial activities results in more friction and unfortunate communication with their parent. Also, mental distress in parents is associated with reduced levels of family cohesion (Pérez et al., 2018), with mental distress influencing parents' ability to positively and affectionately engage with their offspring. This may result in adolescents seeking others outside the family for emotional support. In addition, low family cohesion can be a result of long-term behavioral problems in the offspring, as we can not exclude that negative and disadvantage interaction have been present and chronic in the family for an extensive period.

During adolescence, it is not possible to disregard the influence of peers. As parents have a large modelling role on behaviors, attitudes and values in childhood, however, in adolescence this impact will gradually be replaced by peers. This is due to adolescents being susceptible to peer pressure, making them more likely to engage in converging activities and behaviors as their peers (Ciranka & van den Bos, 2021; Steinberg, 2004). In their longitudinal study examining homophily in delinquent behavior among Swedish adolescents, Richmond et al. (2019) found an increase in friend similarity in early adolescence, and a decrease from middle adolescence. Vieno and colleagues (2009) found that adolescent self-disclosure was the main influence on reducing affiliation with deviant peers and engagement in ASB, indicating that interpersonal relationships where youth feel connected to their parents reduces their involvement in antisocial activities.

In regards to this, several studies have shown that connectedness between parents and adolescents significantly enhance adolescents' prosperity to seek guidance when navigating difficult situations, value parental input, and spend time with their families. Hence, leaving them with less opportunity to engage in ASB (Ackard et al., 2006; Crawford & Novak, 2008). Therefore, we assume that high conflict levels and lack of cohesion between parent and adolescent in our sample, contribute to the youth seek affiliation with deviant peers and not parents. Furthermore, among mentally distressed parents, rejection and love withdrawal are possible factors that exacerbate the distance between parent and adolescent. Romm and Alvis (2022) report that love withdrawal by the parent was a strong predictor for adolescent substance use, physical and relational aggression, and delinquent behavior.

We examined data from a clinical sample, involving adolescents with a large age range between age 11-19. During this developmental period, there are differences in developmental tasks for teenagers in early adolescence, compared to those who are in the transition to adulthood (Steinberg, 2004). Typically, in later

adolescence, levels of conflict tend to be higher (Weymouth et al., 2016), while cohesion is lower. Meanwhile, the trend is opposite for younger adolescents (Lin & Yi, 2019). However, when controlling for age among adolescents in our sample, we did not find any relations to the variables studied. These results might be due to the sample's clinical nature, and the relatively small sample size. Compared to the general population, a clinical sample usually has higher levels of symptoms, relevant for the specific study.

When controlling for economic hardship, we found that this had an influence on parental mental distress and family conflict, but not on levels of adolescent ASB. These findings suggest that economic hardship mainly impacts parents. Previous research has also found socioeconomic disadvantage to be a strong indicator of depressive symptoms on parenting and family environment (Conger et al., 2010; Sturge-Apple et al., 2014; Vreeland et al., 2019). Therefore, we assume that living in economic disadvantage might place the parents under elevated levels of stress, which further impair their parental practices and mental distress. On the contrary, mental impairments in parents may also be a contributing factor to poorer employability, therefore more economic hardship. Resultantly, this stressor may be a reason for increased levels of family conflict with the family system, and have an indirect influence on adolescent ASB through mental distress and conflict.

4.1 Limitations

This study has several limitations. First, the sample size for this study was not particularly large. The initial goal for sample recruitment was to reach 250 participants (Thøgersen et al., 2020), however, this goal was not reached. One consequence of small sample size is lack of power to detect statistical significance for the observed associations.

Second, we only used parent-report measures. This is problematic due to well documented discrepancies between parental and adolescents' reports on family environment and antisocial behavior (De Los Reyes, 2011; Robinson et al., 2019; Van Petegem et al., 2020). We initially examined the possibility to create latent variables for the outcome variable, adolescent ASB, and mediating variables, family conflict and cohesion, to ensure a multi-informant study. But, due to skewed weighting of variables in the model, and large internal discrepancy in adolescent reports, this design was proven to be impossible. Small sample size may be an underlying cause for this weakness. Additionally, another weakness concerning the use of manifest variables, is the tendency that distressed parents report their children more negatively, compared to non-distressed parents (Korhonen et al., 2014). Lastly, measurement errors tend to be higher when only manifest variables are used.

In addition to using only one informant for all variables, self-report questionnaires introduce a potential reporting bias. Ringoot et al. (2015) documented inflated associations when using parents' self-reports for their

own depressive symptoms, and at the same time reporting on their offspring's problem behaviors. Conversely, this association was smaller when not using self-reports on depressive symptoms. Therefore, it is a limitation within this study that we only used parents' reports on parental mental distress, in addition to the other study variables. Parents and adolescents may interpret and observe each other's behaviors differently, therefore, research should attempt to also include the offspring's perspectives. Additionally, it would be interesting to control for parental gender differences. This is especially relevant due to the skewed distribution of mothers and fathers registered as primary caregiver, which we might assume somehow can influence results.

Lastly, although our study reported findings, we wish to highlight that it is based on cross-sectional data, not experimental data. This research design prevents us from drawing any causal conclusions from our findings. Further, our findings may be an artifact of our modelling choices. It is possible that if we had conducted a new analysis with opposite predictor and outcome variables (adolescent ASB as predictor and parental mental distress as outcome), we would have examined whether adolescent ASB could predict symptoms of depression and anxiety in parents via family conflict and cohesion. In addition, it would be interesting to see whether youth reports on family environment would predict relationships differently. A transactional and reciprocal dynamic like this is proposed by multiple authors (Cummings et al., 2000; Nicholson et al., 2011). Likewise, it is possible that environmental factors, such as family conflict and cohesion, or other mechanisms not accounted for in this study, can influence both parental mental distress and adolescent antisocial behavior simultaneously. In fact, living in disadvantaged neighborhoods, economic hardship, and weak or lacking interpersonal relationships may also function as factors that influence parental mental distress and adolescent ASB (Joyner and Beaver, 2021; Vreeland et al., 2019). The current study provides a small 'snapshot' of a bigger picture, however this still contributes to research, as many small 'snapshots' jointly inform the full picture.

4.2 Implications and future research

Findings from the current study have various practical implications. This study contributes to research by providing insight and confirmation of previous findings on the association between mechanisms in the family, parental mental distress and adolescent ASB within a clinical sample. These findings suggest the relevance of examining the role of family environment and way of interaction between family members when examining the relationship between parental mental distress and adolescent ASB. Results indicate that levels of family conflict and cohesion highly covary with symptoms of depression and anxiety among parents, which highlights the relevance of establishing holistic interventions, targeting environmental factors and parents' psychopathology.

Research findings also suggest that family interaction patterns, such as conflict and cohesion, have significant and distinct influences on interpersonal relationships, feelings and behaviors among family members. Further research should seek to use multi-informants and look at gender differences when examining relationships between interpersonal and environmental constructs, and also include youth reports to ensure a more nuanced understanding of influences between individuals within family systems.

References

- Achenbach, T. M., & Rescorla, L. A. (2001). *Manual for the ASEBA School-Age Forms and Profiles*. University of Vermont Research Center for Children, Youth, & Families.
- Ackard, D. M., Neumark-Sztainer, D., Story, M., & Perry, C. (2006). Parent-child connectedness and behavioral and emotional health among adolescents. *American Journal of Preventive Medicine, 30*(1), 59–66. <https://doi.org/10.1016/j.amepre.2005.09.013>
- Baer, J. (2002). Is family cohesion a risk or protective factor during adolescent development?. *Journal of Marriage and Family, 64*(3), 668–675. <http://www.jstor.org/stable/3599933>
- Bellina, M., Grazioli, S., Garzitto, M., Mauri, M., Rosi, E., Molteni, M., Brambilla, P., & Nobile, M. (2020). Relationship between parenting measures and parents and child psychopathological symptoms: a cross-sectional study. *BMC Psychiatry, 20*(1), 377. <https://doi.org/10.1186/s12888-020-02778-8>
- Bjørnebekk, G. (2013). Evaluating of Functional Family Therapy (FFT) in Norway. ISRCTN. <https://doi.org/10.1186/ISRCTN58861782>
- Borge, A. I. H. (2019). *Resiliens - risiko og sunn utvikling* (3th Ed.). Gyldendal.
- Boyer, T. W. (2006). The development of risk-taking: A multi-perspective review. *Developmental Review, 26*(3), 291–345. <https://doi.org/10.1016/j.dr.2006.05.002>
- Buehler, C. (2006). Parents and Peers in Relation to Early Adolescent Problem Behavior. *Journal of Marriage and Family, 68*(1), 109–124. <https://doi.org/10.1111/j.1741-3737.2006.00237>
- Burstein, M., Ginsburg, G. S., & Tein, J. Y. (2010). Parental anxiety and child symptomatology: an examination of additive and interactive effects of parent psychopathology. [corrected]. *Journal of Abnormal Child Psychology, 38*(7), 897–909. <https://doi.org/10.1007/s10802-010-9415-0>
- Burt S. A. (2012). How do we optimally conceptualize the heterogeneity within antisocial behavior? An argument for aggressive versus non-aggressive behavioral dimensions. *Clinical Psychology Review, 32*(4), 263–279. <https://doi.org/10.1016/j.cpr.2012.02.006>
- Burt, S. A., Brent Donnellan, M., Slawinski, B. L., & Klump, K. L. (2016). The Phenomenology of Non-Aggressive Antisocial Behavior During Childhood. *Journal of Abnormal Child Psychology, 44*(4), 651–661. <https://doi.org/10.1007/s10802-015-0076-x>
- Burt, S. A., Krueger, R. F., McGue, M., & Iacono, W. (2003). Parent-child conflict and the comorbidity among childhood externalizing disorders. *Archives of General Psychiatry, 60*(5), 505–513. <https://doi.org/10.1001/archpsyc.60.5.505>
- Burt, S. A., Mikolajewski, A. J., & Larson, C. L. (2009). Do aggression and rule-breaking have different interpersonal correlates? A study of antisocial behavior subtypes, negative affect, and hostile perceptions of others. *Aggressive Behavior, 35*(6), 453–461. <https://doi.org/10.1002/ab.20324>
- Carroll, A., Houghton, S., Durkin, K. & Hattie, J. A. (2009). *Adolescent Reputations and Risk*. Springer.
- Ciranka, S., & van den Bos, W. (2021). Adolescent risk-taking in the context of exploration and social influence. *Developmental Review, 61*, 100979. <https://doi.org/10.1016/j.dr.2021.100979>
- Coe, J. L., Davies, P. T., & Sturge-Apple, M. L. (2018). Family cohesion and enmeshment moderate associations between maternal relationship instability and children’s externalizing problems. *Journal of Family Psychology, 32*(3), 289–298. <https://doi.org/10.1037/fam0000346>
- Conger, R. D., Conger, K. J., & Martin, M. J. (2010). Socioeconomic Status, Family Processes, and Individual Development. *Journal of Marriage and the Family, 72*(3), 685–704. <https://doi.org/10.1111/j.1741-3737.2010.00725.x>
- Connell, A. M., & Goodman, S. H. (2002). The association between psychopathology in fathers versus mothers and children's internalizing and externalizing behavior problems: A meta-analysis. *Psychological Bulletin, 128*(5), 746–773. <https://doi.org/10.1037/0033-2909.128.5.746>
- Costello, E., & Angold, A. (2000). Bad behaviour: An historical perspective on disorders of conduct. In J. Hill & B. Maughan (Eds.), *Conduct Disorders in Childhood and Adolescence* (pp. 1-31). Cambridge University Press. doi:10.1017/CBO9780511543852.002
- Crawford, L. A., & Novak, K. B. (2008). Parent–Child Relations and Peer Associations as Mediators of the Family Structure–Substance Use Relationship. *Journal of Family Issues, 29*(2), 155–184. <https://doi.org/10.1177/0192513X07304461>

- Cummings, E. M., & Davies, P. T. (1994). Maternal depression and child development. *Journal of Child Psychology and Psychiatry, and Allied Disciplines*, 35(1), 73–112. <https://doi.org/10.1111/j.1469-7610.1994.tb01133.x>
- Cummings, E. M., Davies, P. T., & Campbell, S. B. (2000). *Developmental psychopathology and family process: Theory, research, and clinical implications*. Guilford Press.
- Cummings, E. M., Keller, P. S., & Davies, P. T. (2005). Towards a family process model of maternal and paternal depressive symptoms: exploring multiple relations with child and family functioning. *Journal of Child Psychology and Psychiatry, and Allied Disciplines*, 46(5), 479–489. <https://doi.org/10.1111/j.1469-7610.2004.00368.x>
- Dadds, M. R., & Salmon, K. (2003). Punishment insensitivity and parenting: temperament and learning as interacting risks for antisocial behavior. *Clinical Child and Family Psychology Review*, 6(2), 69–86. <https://doi.org/10.1023/a:1023762009877>
- Deković, M., Janssens, J. M., & Van As, N. M. (2003). Family predictors of antisocial behavior in adolescence. *Family Process*, 42(2), 223–235. <https://doi.org/10.1111/j.1545-5300.2003.42203>
- De Los Reyes, A. (2011). Introduction to the special section: More than measurement error: Discovering meaning behind informant discrepancies in clinical assessments of children and adolescents. *Journal of Clinical Child and Adolescent Psychology*: 40(1), 1–9. <https://doi.org/10.1080/15374416.2011.533405>
- Derogatis, L. R., Lipman, R. S., Rickels, K., Uhlenhuth, E. H., & Covi, L. (1974). The Hopkins Symptom Checklist (HSCL): a self-report symptom inventory. *Behavioral Science*, 19(1), 1–15. <https://doi.org/10.1002/bs.3830190102>
- Elgar, F. J., Mills, R. S., McGrath, P. J., Waschbusch, D. A., & Brownridge, D. A. (2007). Maternal and paternal depressive symptoms and child maladjustment: the mediating role of parental behavior. *Journal of Abnormal Child Psychology*, 35(6), 943–955. <https://doi.org/10.1007/s10802-007-9145-0>
- Fink, P., Ørbøl, E., Hansen, M. S., Søndergaard, L., & De Jonge, P. (2004a). Detecting mental disorders in general hospitals by the SCL-8 scale. *Journal of Psychosomatic Research*, 56(3), 371–375. [https://doi.org/10.1016/S0022-3999\(03\)00071-0](https://doi.org/10.1016/S0022-3999(03)00071-0)
- Fink, P., Ørbøl, E., Huyse, F. J., De Jonge, P., Lobo, A., Herzog, T., Slaets, J., Arolt, V., Cardoso, G., Rigatelli, M., & Hansen, M. S. (2004b). A brief diagnostic screening instrument for mental disturbances in general medical wards. *Journal of Psychosomatic Research*, 57(1), 17–24. [https://doi.org/10.1016/S0022-3999\(03\)00374-X](https://doi.org/10.1016/S0022-3999(03)00374-X)
- Fosco, G. M., & LoBraico, E. J. (2019). A family systems framework for adolescent antisocial behavior: The state of the science and suggestions for the future. In B. H. Fiese, M. Celano, K. Deater-Deckard, E. N. Jouriles, & M. A. Whisman (Eds.), *APA handbook of contemporary family psychology: Applications and broad impact of family psychology* (pp. 53–68). American Psychological Association. <https://doi.org/10.1037/0000100-004>
- Fosco, G. M., & Lydon Staley, D. M. (2020). Implications of family cohesion and conflict for adolescent mood and wellbeing: Examining within and between family processes on a daily timescale. *Family Process*, 59(4), 1672–1689. <https://doi.org/10.1111/famp.12515>
- Francisco, R., Loios, S., & Pedro, M. (2016). Family Functioning and Adolescent Psychological Maladjustment: The Mediating Role of Coping Strategies. *Child Psychiatry and Human Development*, 47(5), 759–770. <https://doi.org/10.1007/s10578-015-0609-0>
- Frick, P. J., & Viding, E. (2009). Antisocial behavior from a developmental psychopathology perspective. *Development and Psychopathology*, 21(4), 1111–1131. <https://doi.org/10.1017/S0954579409990071>
- Garber, J. (2005). Depression and the Family. In J. L. Hudson & R. M. Rapee (eds.), *Psychopathology and the Family* (pp. 225–280). Elsevier.
- Goodman, S. H. & Tully, E. (2006). Depression in Women Who Are Mothers. In C. L. M. Keys & S. H. Goodman (eds.), *Women and Depression* (pp. 241–280). Cambridge University Press.
- Granic, I., & Patterson, G. R. (2006). Toward a comprehensive model of antisocial development: A dynamic systems approach. *Psychological Review*, 113(1), 101–131. <https://doi.org/10.1037/0033295X.113.1.101>
- Gross, H. E., Shaw, D. S., Burwell, R. A., & Nagin, D. S. (2009). Transactional processes in child disruptive behavior and maternal depression: a longitudinal study from early childhood to adolescence. *Development and Psychopathology*, 21(1), 139–156. <https://doi.org/10.1017/S0954579409000091>

- Hails, K. A., Reuben, J. D., Shaw, D. S., Dishion, T. J., & Wilson, M. N. (2018). Transactional Associations Among Maternal Depression, Parent-Child Coercion, and Child Conduct Problems During Early Childhood. *Journal of Clinical Child and Adolescent Psychology, 47*(sup1), S291–S305. <https://doi.org/10.1080/15374416.2017.1280803>
- Hautmann, C., Eichelberger, I., Hanisch, C., Plück, J., Walter, D., & Döpfner, M. (2015). Association between parental emotional symptoms and child antisocial behaviour: What is specific and is it mediated by parenting?. *International Journal of Behavioral Development, 39*(1), 43-52.
- Hirshfeld, D. R., Biederman, J., Brody, L., Faraone, S. V., & Rosenbaum, J. F. (1997). Expressed emotion toward children with behavioral inhibition: associations with maternal anxiety disorder. *Journal of the American Academy of Child and Adolescent Psychiatry, 36*(7), 910–917. <https://doi.org/10.1097/00004583-199707000-00012>
- Hu, L.-t., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling, 6*(1), 1–55. <https://doi.org/10.1080/10705519909540118>
- Jones, L. B., Hall, B. A., & Kiel, E. J. (2021). Systematic review of the link between maternal anxiety and overprotection. *Journal of Affective Disorders, 295*, 541-551. <https://doi.org/10.1016/j.jad.2021.08.065>
- Joyner, B., & Beaver, K. M. (2021). Maternal Depression and Child and Adolescent Problem Behaviors: A Propensity Score Matching Approach. *The Psychiatric Quarterly, 92*(2), 655–674. <https://doi.org/10.1007/s11126-020-09842-2>
- Kane, P., & Garber, J. (2004). The relations among depression in fathers, children's psychopathology, and father-child conflict: a meta-analysis. *Clinical Psychology Review, 24*(3), 339–360. <https://doi.org/10.1016/j.cpr.2004.03.004>
- Korhonen, M., Luoma, I., Salmelin, R., & Tamminen, T. (2014). Maternal depressive symptoms: associations with adolescents' internalizing and externalizing problems and social competence. *Nordic Journal of Psychiatry, 68*(5), 323–332. <https://doi.org/10.3109/08039488.2013.838804>
- Kornienko, O., Davila, M., & Santos, C. E. (2019). Friendship network dynamics of aggressive and rule-breaking antisocial behaviors in adolescence. *Journal of Youth and Adolescence, 48*(10), 2065–2078. <https://doi.org/10.1007/s10964-019-01109-9>
- Li, M., Li, L., Wu, F., Cao, Y., Zhang, H., Li, X., Zou, J., Guo, Z., & Kong, L. (2021). Perceived family adaptability and cohesion and depressive symptoms: A comparison of adolescents and parents during COVID-19 pandemic. *Journal of Affective Disorders, 287*, 255–260. <https://doi.org/10.1016/j.jad.2021.03.048>
- Lin, W. H., & Yi, C. C. (2019). The effect of family cohesion and life satisfaction during adolescence on later adolescent outcomes: A prospective study. *Youth & Society, 51*(5), 680-706. <https://doi.org/10.1177/0044118X17704865>
- Little, T., Henrich, C., Jones, S. & Hawley, P. (2003). Disentangling the “whys” from the “whats” of aggressive behaviour. *International Journal of Behavioral Development, 27*(2), 122-133. <https://doi.org/10.1080/01650250244000128>
- LoBraico, E. J., Bray, B. C., Feinberg, M. E., & Fosco, G. M. (2020). Constellations of family risk for long-term adolescent antisocial behavior. *Journal of Family Psychology, 34*(5), 587–597. <https://doi.org/10.1037/fam0000640>
- Lucia, V. C., & Breslau, N. (2006). Family cohesion and children's behavior problems: a longitudinal investigation. *Psychiatry Research, 141*(2), 141–149. <https://doi.org/10.1016/j.psychres.2005.06.009>
- Lurie, J. (2006). Teachers' perceptions of emotional and behavioral problems in 6–12 year old Norwegian school children. NTNU Samfunnsforskning AS, BVU Midt-Norge.
- MacKinnon, D. P. (2008). *Introduction to Statistical Mediation Analysis*. Routledge.
- Marmorstein, N. R., & Iacono, W. G. (2004). Major depression and conduct disorder in youth: associations with parental psychopathology and parent-child conflict. *Journal of Child Psychology and Psychiatry, and Allied Disciplines, 45*(2), 377–386. <https://doi.org/10.1111/j.1469-7610.2004.00228.x>
- Mishra, S., & Lalumière, M. L. (2008). Risk-taking, antisocial behavior, and life histories. In J. D. Duntley & T. K. Shackelford (Eds.), *Evolutionary forensic psychology: Darwinian foundations of crime and law* (pp. 139–159). Oxford University Press.

- Moffitt, T. E. (1993). Adolescence-limited and life-course-persistent antisocial behavior: A developmental taxonomy. *Psychological Review*, *100*(4), 674–701. <https://doi-org.ezproxy.uio.no/10.1037/0033-295X.100.4.674>
- Moffitt, T. E. (2015). Life-Course-Persistent versus Adolescence-Limited Antisocial Behavior. In D. Cicchetti & D. J. Cohen (Eds.), *Developmental Psychopathology: Volume Three: Risk, Disorder, and Adaptation* (2th ed.), pp. 570-598, John Wiley & Sons, Inc. <https://doiorg.ezproxy.uio.no/10.1002/9780470939406.ch15>
- Moffitt, T. E. (2018). Male antisocial behaviour in adolescence and beyond. *Nature Human Behaviour*, *2*, 177-186. <https://doi.org/10.1038/s41562-018-0309-4>
- Moffitt, T. E. & Caspi, A. (2001). Childhood predictors differentiate life-course persistent and adolescence-limited antisocial pathways among males and females. *Developmental Psychopathology*, *13*(2), 355-375. [10.1017/s0954579401002097](https://doi.org/10.1017/s0954579401002097)
- Moos R. H. (1990). Conceptual and empirical approaches to developing family-based assessment procedures: resolving the case of the Family Environment Scale. *Family Process*, *29*(2), 199–211. <https://doi.org/10.1111/j.1545-5300.1990.00199.x>
- Moos, R. H., & Moos, B. S. (1976). A typology of family social environments. *Family process*, *15*(4), 357–371. <https://doi.org/10.1111/j.1545-5300.1976.00357.x>
- Moos, R., & Moos, B. (2009). *Family Environment Scale manual and sampler set: Development, applications and research* (4th ed.). Mind Garden.
- Muthèn, L. K. & Muthèn, B. O. (1998-2017). *Mplus User's Guide* (8th ed.). Muthèn & Muthèn. Retrieved from: http://www.statmodel.com/download/usersguide/MplusUserGuideVer_8.pdf.
- Naar-King, S., Ellis, D. A., & Frey, M. A. (2004). *Assessing children's well-being: A handbook of measures*. Lawrence Erlbaum Associates Publishers.
- Nicholson, J. S., Deboeck, P. R., Farris, J. R., Boker, S. M., & Borkowski, J. G. (2011). Maternal depressive symptomatology and child behavior: Transactional relationship with simultaneous bidirectional coupling. *Developmental Psychology*, *47*(5), 1312-1323. doi:10.1037/a0023912
- Pandolfi, V., Magyar, C. I., & Norris, M. (2014). Validity Study of the CBCL 6-18 for the Assessment of Emotional Problems in Youth With ASD. *Journal of Mental Health Research in Intellectual Disabilities*, *7*(4), 306–322. <https://doi.org/10.1080/19315864.2014.930547>
- Patterson, G. R. (1982). *Coercive Family Process*. Castalia Publishing Company.
- Granic, I., & Patterson, G. R. (2006). Toward a comprehensive model of antisocial development: A dynamic systems approach. *Psychological Review*, *113*(1), 101–131. <https://doi.org/10.1037/0033295X.113.1.101>
- Pérez, J. C., Coo, S., & Irrázaval, M. (2018). Is maternal depression related to mother and adolescent reports of family functioning?. *Journal of Adolescence*, *63*, 129–141. <https://doi.org/10.1016/j.adolescence.2017.12.013>
- Richmond, M. K., & Stocker, C. M. (2006). Associations between family cohesion and adolescent siblings' externalizing behavior. *Journal of Family Psychology*, *20*(4), 663–669. <https://doi.org/10.1037/0893-3200.20.4.663>
- Richmond, A. D., Laursen, B., & Stattin, H. (2019). Homophily in delinquent behavior: The rise and fall of friend similarity across adolescence. *International Journal of Behavioral Development*, *43*(1), 67–73. <https://doi.org/10.1177/0165025418767058>
- Ringoot, A. P., Tiemeier, H., Jaddoe, V. W., So, P., Hofman, A., Verhulst, F. C., & Jansen, P. W. (2015). Parental depression and child well-being: young children's self-reports helped addressing biases in parent reports. *Journal of Clinical Epidemiology*, *68*(8), 928–938. <https://doi.org/10.1016/j.jclinepi.2015.03.009>
- Robinson, M., Doherty, D. A., Cannon, J., Hickey, M., Rosenthal, S. L., Marino, J. L., & Skinner, S. R. (2019). Comparing adolescent and parent reports of externalizing problems: A longitudinal population-based study. *The British Journal of Developmental Psychology*, *37*(2), 247–268. <https://doi.org/10.1111/bjdp.12270>
- Romm, K. F., & Alvis, L. M. (2022). Maternal and Paternal Psychological Control Dimensions: Relations with Adolescent Outcomes. *Journal of Child and Family Studies*, *31*, 962-977. <https://doi.org/10.1007/s10826-021-02174-0>

- Roosa, M. W., & Beals, J. (1990). Measurement issues in family assessment: the case of the Family Environment Scale. *Family process*, 29(2), 191–198. <https://doi.org/10.1111/j.1545-5300.1990.00191.x>
- Rucker, D. D., Preacher, K. J., Tormala, Z. L., & Petty, R. E. (2011). Mediation Analysis in Social Psychology: Current Practices and New Recommendations. *Social and Personality Psychology Compass*, 5(6), 359–371. <https://doi.org/10.1111/j.1751-9004.2011.00355.x>
- Saxbe, D. E., Ramos, M. R., Timmons, A. C., Rodriguez, A. R., & Margolin, G. (2014). A path modeling approach to understanding family conflict: Reciprocal patterns of parent coercion and adolescent avoidance. *Journal of Family Psychology*, 28(3), 415.
- Sameroff, A. (Ed.). (2009). *The transactional model of development: How children and contexts shape each other*. American Psychological Association. <https://doi.org/10.1037/11877-000>
- Scott, S. (2015). Oppositional and conduct disorders. In A. Thapar, D. S. Pine, J. F. Leckman, S. Scott, M. J. Snowling, & E. Taylor (Eds.). *Rutter's Child and Adolescent Psychiatry* (6th ed.) (pp. 913-930). John Wiley & Sons, Ltd.
- Sellers, R., Harold, G. T., Elam, K., Rhoades, K. A., Potter, R., Mars, B., Craddock, N., Thapar, A., & Collishaw, S. (2014). Maternal depression and co-occurring antisocial behaviour: testing maternal hostility and warmth as mediators of risk for offspring psychopathology. *Journal of Child Psychology and Psychiatry, and Allied Disciplines*, 55(2), 112–120. <https://doi.org/10.1111/jcpp.12111>
- Siqveland, J., Moum, T., & Leiknes, K. A. (2016). *Måleegenskaper ved den norske versjonen av Symptom Checklist 90 Revidert (SCL-90-R) [Psychometric assessment of the Norwegian version of the Symptom Checklist 90 Revised (SCL-90-R)]* (Rapport-2016). Folkehelseinstituttet. <https://www.fhi.no/publ/2016/maleegenskaper-ved-den-norske-versjonen-av-symptom-checklist-90-revidert-sc/>
- Skinner, O. D., & McHale, S. M. (2016). Parent-Adolescent Conflict in African American Families. *Journal of Youth and Adolescence*, 45(10), 2080–2093. <https://doi.org/10.1007/s10964-016-0514-2>
- Slee P. T. (1996). Family climate and behavior in families with conduct disordered children. *Child Psychiatry and Human Development*, 26(4), 255–266. <https://doi.org/10.1007/BF02353242>
- Snyder, J. J. & Dishion, T. J. (2016). Introduction: Coercive Social Processes. In T. J. Dishion & J. J. Snyder (Eds.), *The Oxford Handbook of Coercive Relationship Dynamics* (pp. 1-6). Oxford University Press.
- Steinberg L. (2004). Risk taking in adolescence: what changes, and why?. *Annals of the New York Academy of Sciences*, 1021, 51–58. <https://doi.org/10.1196/annals.1308.005>
- Steinberg, L. (2011). *Adolescence* (9th ed.). McGraw Hill.
- Sturge-Apple, M. L., Davies, P. T., Cicchetti, D., & Fittoria, M. G. (2014). A typology of interpartner conflict and maternal parenting practices in high-risk families: examining spillover and compensatory models and implications for child adjustment. *Development and Psychopathology*, 26(4, Pt. 1), 983–998. <https://doi.org/10.1017/S0954579414000509>.
- Sun, L., Ju, J., Kang, L., & Bian, Y. (2021). “More control, more conflicts?” Clarifying the longitudinal relations between parental psychological Control and parent-adolescent Conflict by disentangling between-family effects from within-family effects. *Journal of Adolescence*, 93, 212-221. <https://doi.org/10.1016/j.adolescence.2021.11.004>
- Sundell, K., Eklund, J., & Ferrer-Wreder, L. (2019). Stability and Change in Patterns of Adolescent Antisocial Behavior. *Journal for Person-Oriented Research*, 5(1), 1–16. <https://doi.org/10.17505/jpor.2019.01>
- Sweeney, S., & MacBeth, A. (2016). The effects of paternal depression on child and adolescent outcomes: A systematic review. *Journal of Affective Disorders*, 205, 44–59. <https://doi.org/10.1016/j.jad.2016.05.073>
- Thøgersen, D. M., Andersen, M. E., & Bjørnebekk, G. (2020). A multi-informant study of the validity of the Inventory of Callous-Unemotional Traits in a sample of Norwegian adolescents with behavior problems. *Journal of Psychopathology and Behavioral Assessment*, 42(3), 592-604. <https://doi.org/10.1007/s10862-020-09788-6>
- Van Loon, L., Van de Ven, M. O., Van Doesum, K., Witteman, C. L., & Hosman, C. M. (2014). The relation between parental mental illness and adolescent mental health: The role of family factors. *Journal of Child and Family Studies*, 23(7), 1201-1214. <https://doi.org/10.1007/s10826-013-9781-7>
- Van Petegem, S., Antonietti, J. P., Eira Nunes, C., Kins, E., & Soenens, B. (2020). The Relationship between Maternal Overprotection, Adolescent Internalizing and Externalizing Problems, and Psychological Need

- Frustration: A Multi-Informant Study Using Response Surface Analysis. *Journal of Youth and Adolescence*, 49(1), 162–177. <https://doi.org/10.1007/s10964-019-01126-8>
- Vera, J., Granero, R., & Ezpeleta, L. (2012). Father's and mother's perceptions of parenting styles as mediators of the effects of parental psychopathology on antisocial behavior in outpatient children and adolescents. *Child Psychiatry and Human Development*, 43(3), 376–392. <https://doi.org/10.1007/s10578-011-0272-z>
- Vieno, A., Nation, M., Pastore, M., & Santinello, M. (2009). Parenting and antisocial behavior: a model of the relationship between adolescent self-disclosure, parental closeness, parental control, and adolescent antisocial behavior. *Developmental Psychology*, 45(6), 1509–1519. <https://doi.org/10.1037/a0016929>
- Vreeland, A., Gruhn, M. A., Watson, K. H., Bettis, A. H., Compas, B. E., Forehand, R., & Sullivan, A. D. (2019). Parenting in context: Associations of parental depression and socioeconomic factors with parenting behaviors. *Journal of Child and Family Studies*, 28(4), 1124–1133. <https://doi.org/10.1007/s10826-019-01338-3>
- Weymouth, B. B., Buehler, C., Zhou, N., & Henson, R. A. (2016). A meta-analysis of parent–adolescent conflict: Disagreement, hostility, and youth maladjustment. *Journal of Family Theory & Review*, 8(1), 95–112. <https://doi.org/10.1111/jftr.12126>
- Xu, Y., Boyd, R. C., Butler, L., Moore, T. M., & Benton, T. D. (2017). Associations of parent-adolescent discrepancies in family cohesion and conflict with adolescent impairment. *Journal of Child and Family Studies*, 26(12), 3360–3369. <https://doi.org/10.1007/s10826-017-0825-2>

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All authors are requested to include information regarding sources of funding, financial or non-financial interests, study-specific approval by the appropriate ethics committee for research

involving humans and/or animals, informed consent if the research involved human participants, and a statement on welfare of animals if the research involved animals (as appropriate).

The decision whether such information should be included is not only dependent on the scope of the journal, but also the scope of the article. Work submitted for publication may have implications for public health or general welfare and in those cases it is the responsibility of all authors to include the appropriate disclosures and declarations.

Data transparency

All authors are requested to make sure that all data and materials as well as software application or custom code support their published claims and comply with field standards. Please note that journals may have individual policies on (sharing) research data in concordance with disciplinary norms and expectations.

For articles that are based primarily on the student's dissertation or thesis, it is recommended that the student is usually listed as principal author:

[A Graduate Student's Guide to Determining Authorship Credit and Authorship Order, APA Science Student Council 2006](#)

Confidentiality

Authors should treat all communication with the Journal as confidential which includes correspondence with direct representatives from the Journal such as Editors-in-Chief and/or Handling Editors and reviewers' reports unless explicit consent has been received to share information.

Compliance with Ethical Standards

To ensure objectivity and transparency in research and to ensure that accepted principles of ethical and professional conduct have been followed, authors should include information regarding sources of funding, potential conflicts of interest (financial or non-financial), informed consent if the research involved human participants, and a statement on welfare of animals if the research involved animals.

Authors should include the following statements (if applicable) in a separate section entitled "Compliance with Ethical Standards" when submitting a paper:

- Disclosure of potential conflicts of interest
- Research involving Human Participants and/or Animals
- Informed consent

Informed consent

All individuals have individual rights that are not to be infringed. Individual participants in studies have, for example, the right to decide what happens to the (identifiable) personal data gathered, to what they have said during a study or an interview, as well as to any photograph that was taken. This is especially true concerning images of vulnerable people (e.g. minors, patients, refugees, etc) or the use of images in sensitive contexts. In many instances authors will need to secure written consent before including images.

Appendix B

Correlation Matrix for Intended Study Variables

Table 1
Spearman's correlation matrix for the planned study (latent) variables.

Variable	<i>n</i>	M (SD)	1	2	3	4	5	6	7	8
1. Parental Mental Health, SCL	156	14.64 (5.18)								
2. Aggressive Behavior, CBCL ^{a)}	154	13.90 (8.72)	.41**							
3. Rule-Breaking Behavior, CBCL	153	9.00 (5.33)	.31**	.58**						
4. Antisocial Behavior, CBCL	153	22.90 (12.52)	.42**	.94**	.81**					
5. Delinquency, SRD ^{b)}	150	19.03 (26.45)	.02	.15	.40**	.27**				
6. Family Conflict (parent score), FES	152	3.85 (2.40)	.46**	.46**	.14	.38**	.07			
7. Family Cohesion (parent score), FES	152	5.99 (2.33)	-.28**	-.22**	-.19*	-.24**	-.12	-.45**		
8. Family Conflict (youth score), FES	150	4.26 (2.47)	.25**	.28**	.14	.25**	.15	.31**	-.20*	
9. Family Cohesion (youth score), FES	150	5.17 (2.37)	-.13	-.02	.03	-.00	-.03	-.02	-.06	-.39**

* $p < .05$. ** $p < .001$

Note. a) Externalizing behavior, CBCL, b) Self-Reported Delinquency (SRD) scale for adolescent reported antisocial behavior.

Appendix C

Approval by REK



Region: REK sør-øst D	Saksbehandler: Nora Eikeland	Telefon:	Vår dato: 25.01.2022	Vår referanse: 15564
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Kristine Amlund Hagen

Prosjektsøknad: Evaluering av Funksjonell Familie Terapi (FFT)

Søknadsnummer: 2010/497

Forskningsansvarlig institusjon: Nasjonalt utviklingssenter for barn og unge AS (NUBU)

Prosjektsøknad: Endring godkjennes

Søkers beskrivelse

Funksjonell familierapi (FFT) er en evidensbasert familieintervensjon for ungdommer og familier med alvorlige atferdsvansker. Terapien retter seg mot familien til ungdom i alderen 11-18år som er karakterisert av å være kriminelle/antisosiale, fra medium til høyrisiko og lovovertredere i nedre risikoområde. Høsten 2007 ble det etablert et behandlingstilbud innenfor Funksjonell familierapi (FFT) i det statligregionale barnevernet i Norge. Det er et viktig prinsipp å gjennomføre uavhengig evalueringsforskning ved innføringen av nye behandlingstilbud for ungdom med alvorlige atferdsvansker. Det er imidlertid ikke gjennomført noen slik evaluering på FFT i Norge. For at vi skal kunne bruke betegnelsen evidensbasert terapi og kunne få mer sikker kunnskap om at FFT virkelig er effektiv for norske familier med ungdom med atferdsproblemer kreves det at det gjennomføres en randomisert kontroll studie. Det er også ønskelig med en studier hvor ungdommene blir fulgt over tid.

Vi viser til søknad om prosjektendring mottatt 21.12.2021 for ovennevnte forskningsprosjekt. Søknaden er behandlet av sekretariatet i Regional komité for medisinsk og helsefaglig forskningsetikk (REK) på delegert fullmakt fra komiteen, med hjemmel i forskningsetikkforskriften § 7, første ledd, tredje punktum. Søknaden er vurdert med hjemmel i helseforskningsloven § 11.

REKs vurdering

REK har vurdert følgende endring:

Ny prosjektmedarbeidere:

- Frida Skancke, Thea Fahle Mausehagen, Anette Salvesen, Stina Marie Lervik, Tilde Kallstad, Mona Katrine Mørk Nina Fløtra, studenter ved Universitetet i Oslo.

- Luisa Ribeiro, forsker ved Universitetet i Oslo

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Appendix D

Mplus Input – SEM Analysis

```
TITLE:
    Mental health and ASB in SEM

DATA:
    file = "N:\durable\Filer_til_studenter\Frida og Thea\notepad\SEMfinal.dat";

VARIABLE:
    names =
        PMH                ! Parental mental health
        CON                ! Family conflict
        COH                ! Family cohesion
        ASB                ! Antisocial behavior
        SES                ! Socioeconomic status
    ;

    usevar =
        PMH                ! Parental mental health
        CON                ! Family conflict
        COH                ! Family cohesion
        ASB                ! Antisocial behavior
        SES                ! Socioeconomic status
    ;

    missing = all (-99);    ! -99 is missing data

ANALYSIS:
    estimator = MLR;        ! Maximum likelihood
                           ! estimator robust to
                           ! non-normality and
                           ! non-independence of
                           ! observations

MODEL:
    ! Structural part
    CON on PMH;            ! Mediator conflict
    COH on PMH;            ! Mediator cohesion
    ASB on CON COH PMH;    ! Outcome variable
    ASB on CON COH PMH SES; ! Control variable
    PMH on SES;            ! Control variable
    CON on SES;            ! Control variable

    ! Covariance
    CON with COH;         ! Between conflict
                           ! and cohesion

MODEL INDIRECT:
    ASB ind PMH;          ! Mediation effects

OUTPUT:
    stdyx;                ! Standardized input
                           ! and output
    cinterval;            ! 95% confidence interval
```