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**Parental Mental Distress and Adolescent Antisocial Behavior**

*The Mediating Role of Family Conflict and Cohesion*

Frida Tomter Skancke & Thea Fahle Mausethagen

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

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Title: “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, measured 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 also 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 157 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 funnet å være knyttet til utvikling og opprettholdelse av antisosial atferd (ASB) blant barn og unge. Psykopatologi hos foreldre, målt som symptomer av depresjon og angst, er funnet å ha en innvirkning på foreldres oppdragelses ferdigheter, samt svekke deres relasjon til sine barn. Psykiske vansker synes å negativt svekke hvordan foreldre møter sine barn, hvilke strategier de benytter seg av og øke forekomsten av uheldig samhandling. Videre, økte nivåer av depresjon og angst hos foreldre kan dermed fungere som en katalysator for forhøyede nivåer av konflikt innad i familien og mellom familiemedlemmer, som svekker familiesamholdet. Et svekket familiesamhold kan i likhet oppstå på bakgrunn av manglende involvering av foreldre med psykiske vansker. Ungdoms antisosiale atferd kan imidlertid også være årsaken for svekket familieklima, bestående av lavt samhold og høyt konfliktnivå. Dette reflekterer den transaksjonelle effekten familiemedlemmer har på hverandre. 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 samholdsnivå i familien. Problemstillingen utarbeidet for å undersøke dette er, «Medierer familiekonflikt og -samhold relasjonen mellom foreldres psykiske problemer og ungdommers antisosiale atferd?». Våre hypoteser er at økte nivåer av psykiske vansker hos foreldre vil resultere i økt familiekonflikt og redusert familiesamhold. Videre, antar vi at økt konfliktnivå vil resultere i økt forekomst av antisosial atferd, mens økt familiesamhold vil redusere dette. For å undersøke denne sammenhengen vil data fra 157 norske ungdommer og deres primære omsorgsgiver benyttes. 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 problemer og ungdommenes antisosiale atferd. Vi fant derimot ikke denne sammenhengen med familiesamhold. Resultatene viste 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 avslutter en lang, spennende, krevende, morsom og minneverdig epoke. Fem år på Blindern og Helga Engs hus er nå forbi, og nye kapitler i livet venter. Nære, kjære og trygge relasjoner har blitt skapt. Læringskurven har vært bratt og brutal, men om det har vært ett stort høydepunkt i livene våre så langt, det er det ingen tvil om.

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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Deretter vil jeg, Thea, veldig gjerne takke deg, Frida. Og jeg, Frida, vil ikke takke deg, Thea. Du er dårlig i engelsk. Grei i statistikk. Du er også helt OK på livet.

Til sist, tusen takk til familie, venner og kjærester for å alltid være tilgjengelig og støttende, i en periode tidvis fylt med stress og sene kvelder. Vi setter pris på at dere har tatt dere tid og bry til å lese gjennom og komme med innspill.

Oslo, 15. juni 2022

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* **Table 1** – *Conceptual Simple Mediation Model*

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 happens without any major hindrances. Furthermore, there exists big variations in how much adversity each person encounters during childhood and adolescence, with some experiencing substantially more than others. Consequently, some individuals will fail to make this adaptation, which may result in poor life outcomes (e.g., mental illness, delinquency, academic failure). Developmental psychopathology is the study of the etiology and course 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 restrain or 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 central prosocial skills during adolescence, such as social skills, and perspective taking (Blankenstein et al., 2020). However, for others, adolescence becomes a continuation or escalation of more unfortunate developmental trajectories. For instance, adolescent antisocial behavior might be a continuation of problematic behaviors that started already in early childhood, which for some increase during adolescence (Dishion & Patterson, 2006; Moffitt, 2015). The individual and societal long-term consequences for life-long or severe exhibition of antisocial behavior might be academic failure, involvement in crime, violence, drug abuse, and disturbances in social relationships (Moffit, 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 transmission of antisocial behavior within the family (Moffitt, 2015; Fosco & LoBraico, 2019). On one hand, symptoms of depression and anxiety in parents might work as an impairment to parental practices and engagement in their teenagers life (Hawes & Dadds, 2005), which can have an impact on their children’s risk for 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, influence the association 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). Further, this process may lead to or heighten already established conflicts within the family systems, 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. Terminology

As we say in Norway, “Kjært barn har mange navn”. Indicating 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. Therefore, it is critical to be specific when theoretically defining and operationalizing measurement constructs 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. 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. 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, *family conflict* and *cohesion* are complex and subjective experiences of family environments. 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. 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 entire 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*. In “Appendix B”, readers will find a correlation matrix consisting of the intended study variable, consisting of both parental and adolescents reports on family conflict, cohesion, and adolescent ASB. Ethical approval from The Norwegian National Research Ethics Committees (REK) can be found in “Appendix C”. Syntax input used for statistical analysis using SEM in Mplus will be 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 second part, which is the journal manuscript, will follow the set 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, will relevant theory and literature relevant for statistical analyzes and results be introduced. Participants, measures, data analysis and results will be presented within the methods section. Results from statistical analyzes 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. Due to the use of the Institute for Special Needs Educations (ISP) thesis format, our article will contain number points in subheadings.

* + 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 relevant journal for publication of the current thesis, as 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.

1. Adolescent Antisocial Behavior (ASB)

*Antisocial behavior* (ASB) is characterized 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 a 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 APSD-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 have 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 (Moffit, 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).

* 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 aggression, 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 off 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 emotional regulation 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; Sijtsemaa & Lindenberg, 2018). During childhood, most activities with peers are constructed around the context of school or home. When getting older, they gain more mobility and personal freedom. Further, what this includes, is greater agency in their selection of social happenings, and better autonomy when interacting with them (Steinberg, 2011). Adolescents then expand their activity fields, which leads to contact with a broader range of social contexts, where peers have an increasing role in where they spend time together, and what they do (Osgood et al., 2005). The association with deviant peers in the 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). 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 may further escalate their exhibition of ASB. Church II and colleagues (2012) found that peers function as a steady influence on delinquency for males, while this influence increased with age for females. This can be connected to social learning theory, which states that adolescents through social interactions learn how to commit delinquent acts, as well as looking favorably upon delinquent behavior (Church II et al., 2012). This affiliation with deviant peers then places them at an elevated risk for delinquent behavior (Loeber & Hay, 1997).

* + 1. Trajectories Towards Adolescent ASB

A well-known theory concerning the development of ASB is Moffitt’s (1993) taxonomy, based on findings from the Dunedin-study, where the goal was to identify and characterize different trajectories towards antisocial behavior (Moffitt, 2015). Historically, the theory has received empirical support (e.g., Jennings & Reingle, 2002; McGee et al., 2015). In spite of this, Jennings and Reingle (2002) also found in their review that even if the studies are largely consistent with the taxonomy, there existed a substantial variability across the samples (e.g., length of observations, geographical contexts and number and shape of trajectories across samples). 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). Indicating that development of ASB can not be confined to a taxonomic perspective, and one theoretical point of view. However, Moffitt (2018, pp. 184) suggests that the taxonomy remains 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 exists two trajectories of what “pool” 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). 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), 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 biological maturity versus 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 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).

* 1. 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 distinguishes 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 be the result of undercontrolled and impulsive temperament, while underactive BIS increased 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 (Sijtsemaa & 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 offsprings 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.

1. 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).

* 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 childrens’ 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.

1. 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.

* 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 incomptent 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.

* + 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.

* 1. 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.

* 1. 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 controlled randomized study, called “Evaluering av Funksjonell Familieterapi (FFT)”.

1. Choice of Methods
   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, 2014). A randomized control trial (RCT) is one of the simplest, most powerful, and revolutionary tools for sampling data in research (Jadad & Enkin, 2007). 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 - during the intervention/treatment, and T3 - 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.

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 11-19-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. 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, were also excluded (Bjørnebekk, 2014). We aimed to use both primary caretaker and youth reports in our sample. 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.

* 1. Ethical Considerations

To ensure acceptable principles of ethical and professional conduct, the current study received approval by the Norwegian National Research Ethics Committees (REK) to utilize data gathered by the study “Evaluation of Functional Family Therapy in Norway” (Bjørnebekk, 2014). 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, 2014). All data were collected, stored, and processed within Services for sensitive data (TSD).

A possible ethical dilemma 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.

* 1. 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 or measured directly, but variables that are measured by one or multiple observable indicators that capture the latent construct (Silva et al., 2020; Thakkar, 2020). The inference of latent variables is indirect, and based on a set of factors that actually are 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.

Like any other research methods, there are both pros and cons in conducting a SEM analysis. For example, SEM analysis allows the use of latent variables (Silva et al., 2020), which is typically what psychological research wants to do. This 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 idea of what’s actually happening in the population (Field, 2016), due to the normal theory. A well known theory in statistics. The main characteristic with this theory is that it’s based on an assumption 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 an non-normal distribution, or generally contains missing data (Bentler & Yuan, 1999). Issues like this can largely influence the statistical inferences - which may contribute to conclusions that do not reflect reality (Field, 2016).

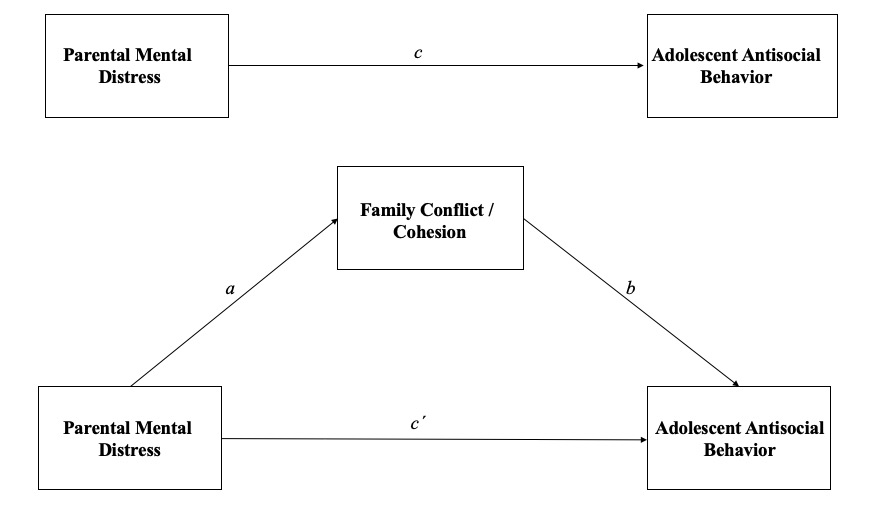
In the current study, we have used a maximum likelihood with robust standard errors (MLR) estimator, due to a significant Shapiro-Wilk test on all of the study variables, which suggests that normality is violated (see “Results”). It is a commonly used estimation in SEM, when the observed data are continuous, because it is robust against non-normality (Bentler & Yuan, 1999; Kline, 2016). The MLR estimator is one of several variations for default maximum likelihood (ML) estimation (Kline, 2016). ML is a statistical method for estimating population parameters, which maximizes the likelihood that the data were drawn from this population – but an assumption is multivariate normality (Kline, 2016), which our data did not meet. MLR is 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).

* + 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, described by MacKinnon (2008), and Rucker et al. (2011). This model contains X, which represents the independent variable, Y represents the dependent 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 criterions, 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/cohesion, *M*, and “*b*” represents the link between family conflict/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. As mentioned earlier, we are extra interested in the *indirect effects* in a mediating analysis, represented by both *a* and *b* (Rucker et al., 2011). These letters visualize the paths between parental mental distress and adolescent ASB, through family conflict or cohesion, and can be illustrated with this question: does 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). Hence, we also get an overview over the *total indirect effect* (Robins, 2003), also called *natural indirect effect* (Pearl, 2014) for our data. This refers to the underlying mediating effect from one variable to another, mediated by at least one additional variable (MacKinnon, 2008; Pearl, 2014).

* 1. Statistical Procedure

In the beginning of planning of statistical procedures for this thesis, we aimed 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, due to multiple reasons. 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. To illustrate this, 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 can tend to report more negative views of their children compared to non-depressed parents (Korhonen et al., 2014).

Using SEM can be a good approach to creating latent variables consisting of multi-informant responses. However, this procedure requires a certain 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 created mostly relied on parental reports. On this basis, the adolescent reports were not accounted for in the analysis. Due to this issue, combined with limited time and resources, we concluded to run the 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 were significant with adolescents self-reported family conflict (*r* = .25, *p* < .001, 95% CI [0.09, 0.40]), however not with youth reported family cohesion (*r* = -.16, *p* = .129, 95% CI [-0.28, 0.04]). Also, parent-reports on conflict significantly correlate with their offsprings scores (*r* = .31, *p* < .001, 95% CI [0.15, 0.45]). Additionally, adolescent self-reported delinquency significantly correlated with parent-report on both rule-breaking behavior (*r* = .40, *p* < .001, 95% CI [0.24, 0.53]), and antisocial behavior. (*r* = .27, *p* < .001, 95% CI [0.11, 0.42]).

Even so, there are still several reasons for why we continued to use SEM for our analysis. First, it gave us the opportunity to conduct a mediating analysis with multiple mediators. Second, we could examine the covariance between the two mediating variables. This is relevant because conflict and cohesion are not independent from each other, which means that higher levels of conflict within the family, will increase the probability for lower levels of cohesion. Third, using Mplus to run SEM analysis made it possible to examine robust estimations, like bootstrapping and MLR on our data. It was not possible to combine bootstrapping and MLR in the same Mplus input, and when running the estimates separately the results showed similar significant levels on all paths. We concluded on using MLR, due to its robustness.

1. Limitations

Conducting research is not a problem-free process, and when using research-based knowledge, it requires a set of criteria for evaluating its quality. The term v*alidity* 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.

* 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 2-error (Field, 2016). A consequence of type 2-error is a higher probability of failing to reject a null hypothesis that is actually false (Poldrack, 2019). Further, it is normal to test how the chosen model fits the given data. The Chi-Square Test of Model Fit (X2) 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 valid indicator for model fit. Therefore, we used Comparative Fit Index (CFI), Tucker Lewis Index (TLI) and Root Mean Square Error of Approximation (RMSEA) to estimate acceptable model fit. For the CFI and TLI, good fit is suggested to be > .95 (Kline, 2016; Xia & Yang, 2019). Further, for the 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 data (see “Results” in article manuscript).

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 the causality of the mediating role of conflict and cohesion on parental mental distress and adolescent ASB. However, studies like ours can have an important function as a contribution, or replication of earlier findings. Nonetheless, we can not exclude the possibility of bidirectional influences by the variables. Meaning, that if we had reversed the model there could be a possibility that adolescent ASB both directly, and indirectly through family conflict and cohesion, could impair parents symptoms of mental distress.

Third we have *construct validity*, a very important issue, especially in psychological and educational science. Shadish et al. (2002) define construct validity as the inference made about the origin and manifestations of theoretical aspects. More easily explained, if the measures actually measure what it is ment to measure. Here, the researchers' knowledge and procedures are central. Psychological and educational research is extra vulnerable considering this validity type, due to the quantity of measures on abstract and not-observable phenomena. Therefore, it is important to both test and carefully consider 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 terms of our thesis, all measurements are based on non-observable phenomena. Therefore, a limitation is the usage of measures only collected from one informant, and the use of manifest rather than latent variables when examining complex phenomena. A reason for this is that we received the scales as already calculated in sum scores. Additionally, we received the specific items for subscales at a late time in the master process. Therefore, due to pressured time and resources this was not prioritized. The measure for ASB was made up by two symptom scales, “aggressive” and “rule-breaking” behavior. On one hand, this construct facilitates a more nuanced examination of ASB, as it includes the two most distinct subtypes of antisocial behaviors. However, ASB includes such a wide range of attitudes and actions, so this construct does not cover all of the possibilities. In addition, not utilizing a multi-informant approach when creating measure variables, the study lacks nuance in possible relations and errors in the measurement of the study variables.

On the other hand, as an effort to weigh up possible sources of error in a study, we have a measure of quality within science. The term *reliability* refers to the overall consistency of a measure, in other words, how trustworthy the measure is (Cohen et al., 2018). This is also related to replication of a study, that is, how consistent the measures are across multiple replications. There exist several types of reliability. One of them is *internal consistency,* which is the extent a set of items all measure the same underlying construct. A standard estimation for internal consistency is Cronbach’s alpha (𝛼), and 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 (unreliable), and 1 (reliable). Our analyses have shown good or acceptable reliability for the consistency between the items (ranging from 𝛼 = .73 to 𝛼 = .92). However, natural sources of variation between studies exist. Meaning, one study’s reliability findings might be conflicted with another. To illustrate, the Family Environment Scale (FES) has in multiple studies shown 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 how important it is to examine reliability and validity in every study.

The last type of validity is known as *external validity.* This refers to the extent findings can be generalized to other situations, samples, settings, and measures (Cohen et al., 2018; Shadish et al., 2002). Meaning, that study results can be applied to other and broader contexts. Data in our study is collected from a clinical sample, which in turn, may affect the possibility to generalize results to the general population (Cohen et al., 2018). Clinical samples often have the disadvantage of oversampling individuals who are more impaired, and with caregivers who are seeking support and help from professionals (Pruchno et al., 2008). Considering inferential statistics, this can be problematic due to higher levels of symptoms within the clinical sample, 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 group of people. This allows researchers to examine and explore how phenomenons like family conflict and cohesion can affect and be affected by parental mental distress and adolescent development, as this may be more difficult to examine and gather data on in the general population. Compared to a population sample, a clinical sample provides us the possibility to examine a group of individuals with symptoms more representative 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 any possible mistakes, both due to natural human flaws or methodological issues. According to Lund (2002), these different types of validity may end up in conflict with one another. For example with experimental studies done in laboratories, where the study may have a very high statistical and internal validity, but the generalization (external validity) gets lower. Further, there are several decisions a researcher can make to improve 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). That means, it is easy to get insight and replicate studies, which is important for both validity and reliability.

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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. In families with higher frequency with conflict, it may not be surprising that the levels of cohesion are lower.

Table of Content

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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. In families with higher frequency with conflict, it may not be surprising that the levels of cohesion are lower.

**Keywords**

Antisocial Behavior, Parental Mental Distress, Family Conflict, Family Cohesion.

**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

Theoretical frameworks, such as Sameroff (2009) and Patterson (1982), have a transactional view on child and adolescent development. Meaning parents affect their adolescent psychopathology, as well as the adolescent influence their parents’ psychopathology (Hails et al., 2018). 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. 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). 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 (Moffit, 1993). In turn, consequences like these can cost society large sums (Moffitt, 2018). 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). Further, research implies that ASB among youth 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, in turn, *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. 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 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. 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 with by warmth, openness, emotional connection, and flexibility. They are found to have offspring’s 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). 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. The Current Study

In the current study, we aim to investigate if 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. Conversely, lower levels of mental distress symptoms among parents will lead to lower levels of family conflict and higher 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 decrease 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. The sample is collected from a Norwegian clinical study, participating in a controlled randomized study, called “Evaluering av Funksjonell Familieterapi (FFT)”. The sample consists of 157 adolescents between the age of 11 and 18, and their primary caregiver.

1. Methods
   1. Participants

In our study, we utilized data from a randomized controlled trial of Functional Family Therapy in Norway, by The Norwegian Center for Child Behavioral Development (NUBU) (Bjørnebekk, 2014). Adolescents with their families within 11-19 years (N = 159) participated in a combined randomized control- and process outcome design which sought to treat moderate to severe antisocial behavior (Bjørnebekk, 2014). The inclusion criteria for adolescents who participated in the study were: age 11-19-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. 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, were also excluded.

Due to a large amount of missing data in two observations, these were excluded. Therefore, 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 somewhat 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 remaining lived with both parents, adoptive parents, or in foster care (See Table 1).

**Table 1**

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

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

* 1. Procedures

Participants were measured three times during the study: T1 - before participants were sampled into different groups, T2 - during the intervention/treatment, and T3 - 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 U.S. Dollars), and a light snack for participation (Thøgersen et al., 2020).

* 1. Measures
     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 conducted parental measures of emotional and behavioral problems among youth ages 6-18 years. This was filled out by primary caretaker, and consisted of 113, 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 adolescents 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; 𝛼 = .92), Aggressive Behavior (18 items; 𝛼 = .92), and Rule-Breaking Behavior (17 items, 𝛼= .81).

* + 1. *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 8 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 an valid and robust, brief screening tool (Fink et al., 2004a; Fink et al., 2004b). For all the eight items in SCL-8, the reliability was good (8 items: 𝛼= .91).

* + 1. *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 9 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 (𝛼= .76 and 𝛼 = .73, respectively).

* 1. Ethical Considerations

To ensure acceptable principles of ethical and professional conduct, the current study received approval by the Norwegian National Research Ethics Committees (REK) to utilize data gathered by the study of Evaluation of Functional Family Therapy in Norway (Bjørnebekk, 2014). 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, 2014). All data were collected, stored, and processed within Services for sensitive date (TSD).

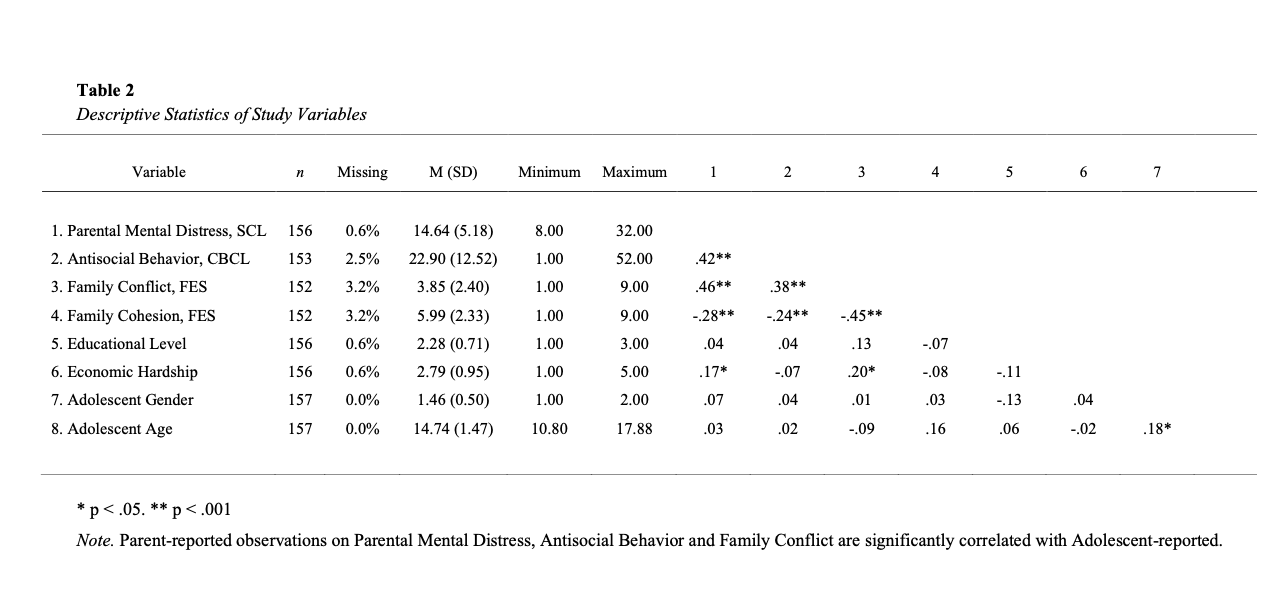
* 1. Data Analyses

According to MacKinnon (2008), in cases where the goal is to examine *how* or *if* one variable is related to another variable, through some other variable, a mediation analysis is suitable. For our analysis, we use a simple mediation model (MacKinnon, 2008; Rucker et al. 2011). This model contains X, which represents the independent variable, Y represents the dependent variable, and M the intervening or mediating variable (Rucker et al., 2011). Figure 1 visualizes our mediation model, created using concepts from Structural Equation Modeling (SEM).

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 study variables and control 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 socioeconomic status (W = .88, *p* < .001). Based on this outcome, the results will be reported using the non-parametric test for correlation, Spearman *rho*. 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). The estimation model used was Robust Maximum Likelihood (MLR). Model of fit was evaluated using Comparative Fit Index (CFI), Tucker Lewis Index (TLI), and the Root Mean Square Error of Approximation (RMSEA). Criteria used to assess goodness-of-fit of model to the data were > .95 for CFI and TLI, and <. 05 for RMSEA, as suggested by Hu and Bentler (1999). Due to use of MLR, and small sample size, estimations of Chi-square difference testing cannot be used in the regular way. Therefore, RMSEA, CFI, and TLI will report model fit (Muthén & Muthén, 2017). Standardized beta coefficients, and *p* values (*p* < .05) were used to assess the direct and indirect effects between variables.

1. Results
   1. Descriptive Statistics and Correlation

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 no significant correlations between the proposed control variables, adolescent age, gender, and parental educational level, and study variables, they will not be reported in the text. However, the control variable economic hardship correlated with both parental mental distress (*r* = .17, p = .031, 95% CI = [.012, .326]), and family conflict (*r* = .20, p = .013., 95% CI = [.037, .352]). Therefore, economic hardship was imputed as a control variable when running SEM analysis. Correlations between the central study variables show that parental mental distress was significantly associated with adolescent ASB (*r* = .42, *p* < .001, 95% CI [0.27, 0.55]). Mental distress in parents were significant for family conflict (*r* = .46, *p* < .001, 95% CI [0.32, 0.48]), and family cohesion (*r* = -.28, *p* < .001, 95% CI [-0.43, -0.12]). Adolescent ASB and conflict correlated significantly (*r* = .38, *p* < .001, 95% CI [0.23, 0.52]). The same for family cohesion (*r* = -.24, *p* < .001, 95% CI [-0.39, -0.08]). The two mediating variables were strongly correlated (*r* = -.45, *p* < .001, 95% CI [-0.57, -0.31]).



* 1. 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 SEM in 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 considerations, manifest rather than latent variables were utilized in the model. In the current analysis, the two mediating variables are not independent from each other. Therefore, we report how they covary. Family conflict and cohesion had a negative significant covariance (β = -.37, SE = 0.07, *p* < .001, 95% CI = [-0.51, -0.24]). Model fit analyses indicate good fit, considering a small sample size (RMSEA = 0.00, *p* = .863, CFI = 1.00, TLI = 1.10).

* + 1. *Direct Effects*

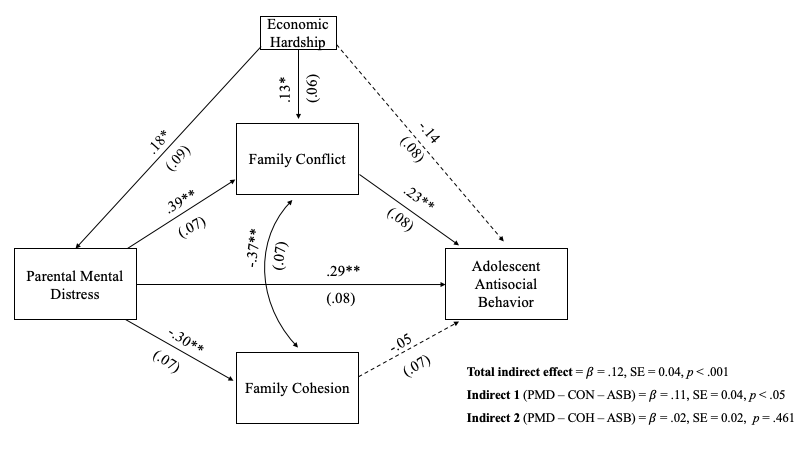
Parental mental distress was significantly related to adolescent ASB (β = .29, SE = 0.08, *p* < .001, 95% CI = [0.14, 0.44]). As shown in figure 1, the path between parental mental distress and family conflict was found to be significant (β = .39, SE = 0.07, *p* < .001, 95% CI = [0.24, 0.53]), so was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

* + 1. *Indirect Effects*

The indirect mediation of family conflict on parental mental distress and adolescent ASB was positive and significant (β = .11, SE = 0.04, *p* < .05, 95% CI = [0.09, 0.43]). On the other side, the indirect mediation path of family cohesion between parental mental distress and adolescent ASB collapsed, showing non-significant mediation (β = .02, SE = 0.02, *p* = .461, 95% CI = [-0.06, 0.14]). The total indirect mediation, including both conflict and cohesion, show a significant total indirect effect (β = .12, SE = 0.04, *p* < .001, 95% CI = [0.05, 0.20]).

**Figure 1**

*Mediation Model for SEM Analysis with Control Variable*



\**p*< .05, \*\**p*< .001

*Note*. Parental Mental Distress (PMD), Family Conflict (CON), Family Cohesion (COH), Adolescent Antisocial Behavior (ASB).

1. Discussion

The current study aimed to investigate whether family conflict and cohesion have a mediating role on the relationship between parental mental distress, measured by self-reported symptoms of depression and anxiety, and adolescent antisocial behavior, measured by parent-reported symptoms of aggression and rule-breaking behavior. 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 would lead to increased family conflict and lower family cohesion. Third, we expected elevated levels of conflict to result in heightened levels of adolescent ASB, while cohesion would have the opposite influence. Mediation analysis revealed that parental mental distress had a direct influence 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 found to be a significant mediator on this relationship.

Results supported our first hypothesis and are in line with previous research. This suggests that parental mental impairments influence adolescents ASB, and that this relationship persists despite inclusion of mediators (Vera et al., 2012; Kane & Garber, 2004; Korhonen et al., 2014). Indicating that parental mental distress alone, with all the possible behaviors or attitudes this might include, have a direct effect on their child's exhibition of ASB. Even though our results imply a direct relationship between parental mental distress and adolescent ASB, we can not exclude that this relation is due to other alternative mechanisms not accounted for in this study. Implying that other factors besides family conflict and cohesion might explain the link between parental mental distress and adolescent ASB. Other 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. Reflecting that importance being aware of reciprocal influence 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 resulted in increased levels of family conflict, and a reduction in family cohesion. These results were as expected, and in line 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 unfortunate interaction patterns, which can result 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.

Not surprisingly, when there are elevated and chronic patterns of conflict among family members, and within specific dyads, such as between parent-adolescent, family cohesion levels will decrease. Implying that interpersonal relationships characterized by hostility and conflict can result in withdrawal by family members (Romm & Alvis, 2022). Along 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, during adolescence, family cohesion levels tend to decrease (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, one can assume that within a clinical sample, where conflict levels already might be high and parents have impaired mental health, the decrease in family cohesion can go from low to lower. Likewise, in a transactional perspective on psychopathology, there is a possibility that high levels of family conflict and low family cohesion may exacerbate parental mental distress.

Nonetheless, as we expected, the two mediating factors negatively covary. Meaning that high levels on one will result in decrease in the other one. In our sample this is noticeable on parental reports of high family conflict levels 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 problematic 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.

Considering 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 did not. There are multiple possible explanations for why and how family conflict has an impact on the path to adolescent ASB. In general, the adolescence period increases the levels of conflict between parent-adolescents. As most youth attempt to adjust boundaries, renegotiate parental authority, and increase their own autonomy and independence (Weymouth et al., 2016). In addition, during adolescence youth tend to be more oppositional and autonomy seeking (Steinberg, 2011), which may further exacerbate the adverse patterns of communication and interaction. 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). Further, when this way of communicating becomes normative between family members, offsprings may adapt this way of interacting with her or his social arenas. Thus, aggressive and antisocial ways of interaction may become stable in all social relations, which result in affiliation with antisocial groups and peers (Carroll et al., 2009; Moffitt, 2015).

During adolescence, it is not possible to disregard the influence of peers. As parents during childhood have a large impact on behaviors, attitudes and values, in adolescence this impact will gradually be replaced by peers. This is due to adolescence being susceptible to peer pressure, making them more likely to engage in similar activities and behaviors as their peers (Ciranka & van den Bos, 2021; Steinberg, 2004). Richmond et al. (2019) found in their longitudinal study examining homophily in delinquent behavior among Swedish adolescents, an increase in friend similarity in early adolescence, and a decrease from middle adolescence. These results are in line with the adolescence-limited (AL) trajectory (Moffitt, 1993). Several studies have shown that connectedness between parents and adolescents have a large impact to which degree adolescents are more likely to seek guidance when negotiating difficult happenings, 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). Similarly, 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 our sample, the low levels of cohesion combined with mental distress among parents, may be a factor that increases levels of adolescent ASB. As depressed and anxious parents may have reduced ability to be positively involved, monitor, and connect with their offsprings.

We examined data from a clinical sample, including adolescents between age 11-18, which can be viewed as a large age range. 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 study variables. These results might be due to a clinical, and a 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. Indicating that this measure mainly has an impact on parents. Previous research has found that socioeconomic disadvantage exacerbates the effect 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 work employment and more economic hardship. Further, this life stress 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.

* 1. Implications

Findings from the current study have various practical implications. This study contributes to research by providing insight and replication of previous findings on the association between mechanisms in the family, parental mental distress and adolescent ASB from a clinical sample. These findings suggest the relevance of examining the role of family environment and way of interaction between family members on the relationship between parental mental distress and adolescent ASB. Results indicate that levels of family conflict and cohesion are affected by symptoms of depression and anxiety among parents, which highlights the relevance of establishing holistic interventions, targeting environmental factors and parents' psychopathology. Also, findings suggest that family interaction patterns, like conflict and cohesion, have different and distinct influences on interpersonal relationships, feelings and behaviors among family members.

* 1. Limitations and Future Research

This study has several limitations. First, the sample size for this study was somewhat small. The initial goal for sample recruitment was to reach 250 participants (Thøgersen et al., 2020), however, this goal was not reached. A consequence of this is lack of power, hence lack of power to obtain 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 was not possible. Small sample size may be an underlying reason for this weakness. Additionally, the data we received were already calculated into sumscores, and we got information about which single items were included into the subscales at a late point during the process. This complicated the process of creating latent variables for study variables. Moreover, when not using latent variables, the chances for a larger amount of statistical noise is present.

In addition to using only one informant for all variables, self-report questionnaires introduce a potential reporting bias. Ringoot et al. (2015) indicated that when using parents' self-reports for their own depressive symptoms, and at the same time reporting on their offspring's problem behaviors, the associations were inflated. 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. Further studies should seek to use multi-informants and look at gender differences when examining relationships between interpersonal and environmental constructs, and also include youth reports.

Third, even though we found some interesting and replicable results in our study, it is based on cross-sectional data, and not longitudinal data. This makes it not possible to draw any causal conclusions from our findings. 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.

Lastly, and maybe the most important issue, regards the use of only one model. It is possible that if we had conducted another analysis with opposite predictor and outcome variables (adolescent ASB as predictor and parental mental distress as outcome), we could 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. 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’ together completes an almost full picture.

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Appendix A

Instructions for Authors (JCFS)

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In general, the journal follows the recommendations of the 2019 Publication Manual of the American Psychological Association (Seventh Edition), and it is suggested that contributors refer to this publication. The research described in the manuscripts should be consistent with generally accepted standards of ethical practice. The anonymity of subjects and participants must be protected and identifying information omitted from the manuscript.

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Authors are required to provide the names and contact information for 4 to 6 possible reviewers of their paper. When uploading a paper to the Editorial Manager site, authors must provide complete contact information for each recommended reviewer, along with a specific reason for your suggestion in the comments box for each person. The journal will consider reviewers recommended by the authors only if the reviewers’ institutional email is provided. A minimum of two suggested reviewers should be from a university or research institute in the United States. You may not suggest the Editor or Associate Editors of the journal as potential reviewers. Although there is no guarantee that the editorial office will use your suggested reviewers, your help is appreciated and may speed up the selection of appropriate reviewers.

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Authors can expect an initial decision within approximately 8 to 10 weeks. Reviewers' comments, if applicable, are sent with the decision of the assigned editor. Accepted papers are subject to editorial revisions and copyediting. However, the contents of the paper remain the responsibility of the author.

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* A title page with running head, manuscript title, and complete author information. Followed by the Abstract page with keywords and highlights section.
* The blinded manuscript containing no clues to the authors’ identity (no name, no affiliation, and so forth). Please follow APA style for author citations (use the blind “author” citation, to be replaced prior to production with a true citation).

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A title page is to be provided and should follow APA-style. The title page should include the following elements: (1) the title (maximum of 15 words) (2) brief running head (50 characters or fewer) (3) full names of the authors (without degree). Use the form first name, middle initial, last name (e.g., John D. Doe) separated by a common and the word “and” before the last author (4) author affiliation addresses. Use a lower-case superscript letter immediately after the author’s name and in front of the appropriate address. Provide the full postal address of each affiliation, including the country name. (5) corresponding author information. Include the corresponding author’s initials and last name (without degree), affiliation, mailing address, and e-mail address.

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Cite references in alphabetical order within the text.

**References**

The accuracy of the references is the responsibility of the authors.

List references alphabetically at the end of the paper and refer to them in the text by name and year in parentheses.

The style and punctuation of the references should conform to strict APA style

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Tables follow the Reference section. Tables should be submitted as editable text and not as images and should follow APA style. Tables that are a single column are actually lists and should be included in the text as such. Number tables consecutively using Arabic numerals in order of appearance in the text. Cite each table in the text and note approximately where it should be placed. Type each table on a separate page with the title and legend included.

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Figures follow the tables. Figures must be submitted in electronic form. Figures and illustrations (photographs, drawings, diagrams, and charts) are to be numbered in one consecutive series of Arabic numerals.

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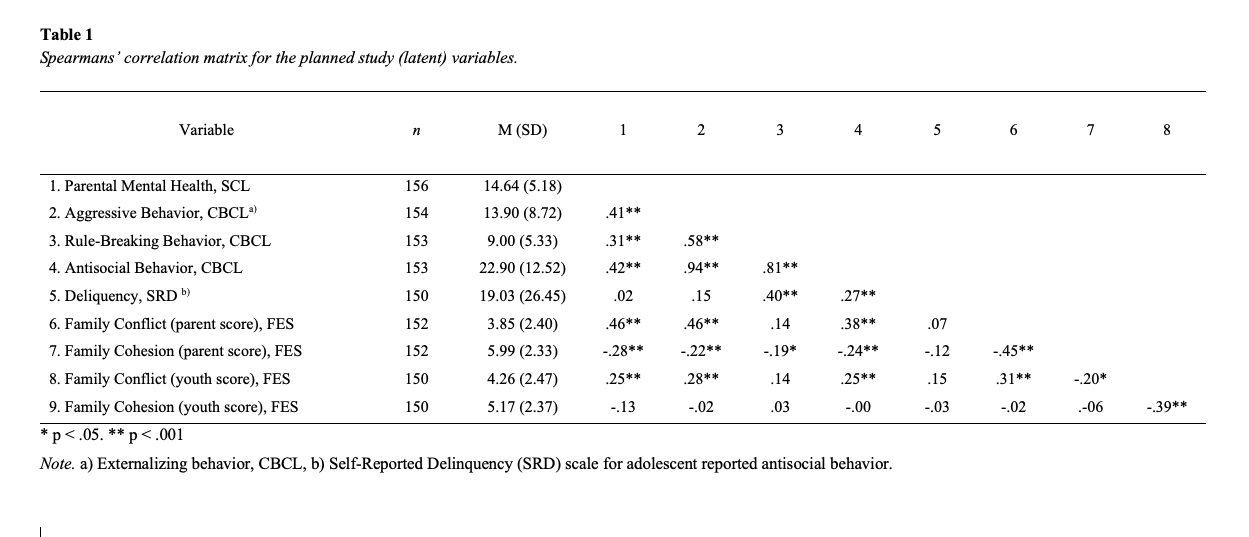
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Appendix B

Correlation Matrix for Intended Study Variables



Appendix C

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Appendix D

Mplus Input – SEM Analysis

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