Helping Families Thrive: Meta-Analytic Examinations of Parent Training, Relationship Education, and Decision-Making in Perinatal Care

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Summary

The present dissertation aimed to investigate various aspects of family development and explores opportunities for support that can contribute to family well-being. Three domains were identified as potential areas for intervention: decision-making processes during birth, the establishment of stable and healthy childbearing unions, and effective parenting to prevent antisocial behavior in children and adolescents. Three meta-analyses were conducted to examine these domains and assess the effectiveness of relationship education and parent training programs.

The findings of the meta-analyses provide valuable insights for the development of multi-level intervention approaches to support thriving families. First, the meta-analysis in the field of perinatal care highlights the need for improvement in intrapartum decision-making, as it is correlated with severe postpartum psychopathology. Enhancing patient rights education for birthing persons and improving decision-making practices among obstetric staff can lead to better postpartum mental health outcomes, mother-child relations, attachment, and overall family functioning.

Second, the results from two further meta-analyses emphasize the importance of relationship education and parent training programs. Both approaches showed effectiveness in improving relationships, enhancing parenting skills, and preventing antisocial behavior in children. However, the analysis on relationship education revealed a lack of studies involving vulnerable families, such as those with lower education and socio-economic status. Efforts should be made to enhance the recruitment of these families and ensure their inclusion in research and support programs to improve the effectiveness of relationship education across communities. The meta-analysis of parent training programs highlighted the need for improving long-term stability in program effects. This can be achieved through strategies like incorporating buffering sessions in interventions or developing approaches that integrate continuous learning and blending parent education with established family support systems. Furthermore, there is a need to address the lack of programs targeting parents of older children and adolescents, as they face unique challenges and vulnerabilities.

The dissertation acknowledges several limitations that affect the generalizability of the findings and discusses further implications for research and practice. Overall, the research underscores the significance of supporting families in decision-making processes during birth, promoting healthy relationships, and equipping parents with effective strategies across the entire age range of childhood and adolescence to prevent antisocial behavior.

Zusammenfassung (Summary in German)

Die vorliegende Dissertation hat zum Ziel, verschiedene Aspekte der Familienentwicklung zu untersuchen und Möglichkeiten der Unterstützung zu beleuchten, die zu positiver Entwicklung in Familien beitragen können. Drei Bereiche wurden als potenzielle Interventionspunkte identifiziert: Entscheidungsprozesse während der Geburt, die Etablierung stabiler und gesunder Paarbeziehungen sowie die Förderung von erzieherischen Fähigkeiten von Eltern zur Prävention von antisozialem Verhalten bei Kindern und Jugendlichen. Drei Meta-Analysen wurden durchgeführt, um diese Bereiche zu untersuchen und die Wirksamkeit von Beziehungstrainings und Elterntrainingsprogrammen zu bewerten.

Die Ergebnisse der Meta-Analysen liefern wertvolle Erkenntnisse für die Entwicklung von interventionsbasierten Ansätzen auf mehreren Ebenen zur psychosozialen Unterstützung von Familien. Erstens verdeutlicht die Meta-Analyse zur Entscheidungsfindung unter der Geburt den Bedarf an Verbesserungen in den Entscheidungsprozessen während der Geburt, da diese mit schwerer postpartaler Psychopathologie korreliert sind. Eine Stärkung der Aufklärung über Patientenrechte für gebärende Personen und eine Verbesserung der Entscheidungspraktiken bei medizinischem Personal können zu günstigeren postpartalen psychischen Gesundheitsergebnissen, Mutter-Kind-Beziehungen und -Bindungen und allgemeiner Familienfunktion beitragen.

Zweitens betonen die Ergebnisse der zwei weiteren Meta-Analysen die Bedeutung von Beziehungsberatung und Elterntrainingsprogrammen. Beide Ansätze erwiesen sich als wirksam bei der Verbesserung von Paarbeziehungen, der Stärkung von Erziehungskompetenzen und der Prävention von antisozialem Verhalten bei Kindern. Allerdings zeigt die Analyse zur Beziehungstrainings einen Mangel an Studien, die sich mit vulnerablen Familien befassen, wie solchen mit besonders niedriger Bildung und geringem sozioökonomischem Status. Es sollten Anstrengungen unternommen werden, um diese Familien effektiver zu rekrutieren und ihre Teilnahme an Forschungs- und Unterstützungsprogrammen zu gewährleisten, um die Wirksamkeit von Beziehungstrainings in dieser Bevölkerungsgruppe zu verbessern. Die Meta-Analyse der Elterntrainingsprogramme verdeutlicht den Bedarf an Verbesserungen hinsichtlich der langfristigen Stabilität der Programmwirkungen. Dies könnte durch Strategien wie die Einbeziehung von Puffer-Sitzungen oder die Entwicklung von Ansätzen zur kontinuierlichen Weiterbildung erreicht werden, etwa durch die Integration von Elternbildung in etablierte Familienunterstützungssysteme. Darüber zeigt sich die Notwendigkeit, mehr Programme zu

entwickeln, die sich an Eltern von älteren Kindern und Jugendlichen richten, da diese mit spezifischen Herausforderungen und Vulnerabilitäten konfrontiert sind.

Abschließend werden mehrere Einschränkungen der vorgelegten Arbeiten, die die Verallgemeinerbarkeit der Ergebnisse beeinflussen, dargestellt und diskutiert. Darüber hinaus können aus den Forschungsergebnissen weitere Implikationen für Forschung und Praxis abgeleitet werden. Insgesamt unterstreicht die Forschung die Bedeutung der Unterstützung von Familien bei Entscheidungsprozessen während der Geburt, der Förderung gesunder Paarbeziehungen und der Ausstattung von Eltern mit wirksamen Erziehungskompetenzen für die gesamte Altersspanne von Kindheit und Adoleszenz, um antisoziales Verhalten zu verhindern.

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1 What makes families thrive? Introduction to the general topic

The shortest definition of a family is that it is a human relationship system in which an adult cares for a child. Whether the adult is the actual biological parent, whether there are one, two or more adults involved, whether the adult and the child permanently live in the same household or not; all these aspects are to be fulfilled by the multitude of family forms that exist today. What it comes down to is the psychological relationship between the parenting adult and the child. This transgenerational relationship is usually of a unique intimacy and emotionality. The family is a social form that most societies rely upon, as family members are expected to care for one another. A newborn child is existentially depended on the care provided by adults, and it stays dependent for many years. Thus the most decisive indicator of the functionality of a family is the wellbeing of each child (Hantel-Quitmann, 2014).

Statistically, children in Germany, but also most other countries in the world, have never been more healthy, more educated and more wealthy than in the recent years (Dornes, 2012). At the same time current parents are facing a multitude of challenges stemming from the fact that they have to balance work—often full-time and often both parents—and family demands, meet the rising expectations on the couple relationship, and also find some kind of self-fulfillment. With the perpetually high rates of divorce and blended families, families are also becoming more complex. Thus, Winterhoff (2009) even comes to the conclusion that modern parents (are forced to) retire to merely fulfilling children's material needs and leaving them alone with new media and thereby failing to meet children's actual developmental needs. As a countermeasure to this daunting prophecy, the present dissertation presents windows of opportunity and potential strategies that are designed to help families thrive.

2 Factors explaining and strategies improving family development

There are various ways of conceptualizing family development. They all share the idea that families are dynamic systems that change over time. These changes follow a normative pattern throughout the family life cycle, which typically starts with family formation and ends with death. However, changes within the family system are not gradual; they often result from specific events in the family's life course which function as developmental boosts.

In the following chapters, the theoretical models of family development that are relevant for the present dissertation will be described, along with empirical evidence and the intervention possibilities that can be derived from these findings and theoretical approaches.

2.1 Framing stages and cycles of family development

A lifespan developmental psychology, which looks at human development from conception to death, is faced with the question of how it structures the life course. The concept of developmental tasks, which divides the entire life course into individual phases to which it assigns phase-typical demands, can be regarded as a useful approach.

According to Havighurst (1948, 1956) developmental tasks are challenges that individuals encounter as they go through various stages of life. There are three sources of these developmental tasks: biological maturation, cultural expectations and conventions, and the personal dispositions in managing these processes. According to this theory, the accomplishment of these tasks is necessary for a person's growth, development, and overall well-being. Developmental tasks can be regarded as normative in most cases because they affect almost everyone in a large population and are tied to a certain age group. For example, learning to walk, entering school, or becoming a parent are considered normative developmental tasks.

Non-normative developmental tasks are experienced by only a minority and are not tied to the life course. Having to deal with the consequences of a serious accident, parental loss in early childhood, divorce, or unemployment would be examples of non-normative developmental tasks.

Coping with developmental tasks is essential for individual development, since these tasks are interdependent, meaning that mastering one is typically a prerequisite for mastering further tasks. An example of consecutive developmental tasks can be the process of learning to read and write, which is a normative developmental task for children in early elementary school. After mastering these skills, the child can then move on to more complex tasks such as written expression. Mastery of these tasks is necessary for success in higher education and professional life, and failure to achieve them can result in difficulties in academic and social functioning.

In order to specifically conceptualize family development, the idea of Havighurst's developmental tasks has been applied in the development of the Family Life Cycle Model (Carter & McGoldrick, 1988). This model describes the normative family development in several stages starting with the unattached adult, to forming a couple relationship, achieving parenthood, and relating as a couple in later life. From a large American survey on the

individual impact parents experience from different normative transitions (Carter & McGoldrick, 1988), specific developmental tasks have been identified for each stage that present unique challenges and opportunities for growth and development. The stage of family formation, for example, is marked by the birth of children and having to establish the parental role. The stage of middle-aged parenthood presents the challenges of simultaneously caring for aging parents and maintaining relationships with adult children.

The research submitted for this dissertation covers various stages of the family life cycle: birth of a child, parenthood, and the maintenance or potential dissolution of the couple relationship.

2.2 Family stress and family resilience

Most developmental tasks are conceptualized as transitions into a new phase of life such as starting school, entering the workforce, or the birth of the first child (Erikson, 1950; Havighurst, 1956). Such transitional phases and their management represent critical life events because they generate stress. This also makes them phases of increased vulnerability in which individuals are preoccupied with coping with the task and lingering in a state of uncertainty whether the coping strategies will be successful, which consequently increases the risk of developing a mental disorder (Havighurst, 1956). When non-normative tasks are added to normative tasks, the individual may be overwhelmed.

However, not all individuals experience the same amount of stress when dealing with a certain stressor; the protective factor that moderates the relationship between stress and stressors is called resilience. Knowledge about both concepts—stress and resilience—has been very informative in understanding family development and has proven to be useful in the development of clinical and preventive intervention programs. The further chapters will elaborate on these concepts.

2.2.1 Stressors of family development

The impact a stressor has on the individual highly depends on cognitive processes and available coping strategies. The stress and coping concept by Lazarus points out that the appraisal of the stressor explains what emotions it can elicit and whether people see themselves faced with a challenge, threat, or harm/loss (Lazarus, 1991, 1999). This means that the way individuals

perceive and interpret stressors can have a significant impact on their ability to cope with them effectively.

Along these lines Lewis (1986) differentiates normative and severe stress. Normative stress is experienced when families have functioning ways of dealing with a stressor, while severe stress is experienced when families display dysfunctional ways of coping. While, according to Lewis, families with normative stress manage to maintain a balanced family structure, dysfunctional coping can lead to alterations in the family's basic organizational structure, which can compromise family cohesion and stress the family's potential in reacting in flexible ways by either becoming chaotic or rigid. These ideas about family structure have been further developed in the Circumplex-Model by Olson (1981, 2000), which has proven to be of great value to conceptualizing family structures, relations, and ways of communication.

Boeger (2022, p. 47), provides a list of the most relevant stressors within the family context which have proven to have the strongest impact on child development: Low socioeconomic status, low education of parents, chronic family disharmony, high-conflict separation or divorce, single parenthood, alcohol and drug abuse of parent(s), delinquency of parent(s), mental illness of parent(s), parenting deficits of parents, social isolation, chronically ill or disabled sibling, trauma (such as abuse, exposure to violence, natural disasters), insecure attachment. From this list it becomes apparent, that these stressors can be located at very different levels, some being intra-personal others being more on an environmental level.

To gain better understanding of the ways these different stressors affect families, it is helpful to consider Bronfenbrenner's Ecological System Theory (Bronfenbrenner, 1986) which provides a framework for understanding the influence of various environmental factors on individuals. According to Bronfenbrenner, individuals are situated within multiple systems, ranging from the immediate microsystem (such as the family and school) to the larger macrosystem (including cultural and societal influences). Stressors can be characterized based on their proximity to the individual within these ecological systems. This perspective emphasizes the interconnectedness between individuals and their environments and highlighting how stressors originating from different systems can contribute to the overall stress experienced by individuals and families.

Perrez (2005) has suggested distinguishing merely between internal (Bronfenbrenner's microsystem) and external stressors (meso-, exo- and potentially also macrosystem), a more simple approach which will be applied the following chapters.

2.2.1.1 Internal stressors

According to Perrez (2005), internal stressors are challenging life circumstances that exist within the family, at the individual, couple, or family level, while external stressors are located in the closer or even wider family environment. Examples of internal stressors are a chronically ill parent or child (Sarimski, 1998), separation or divorce (see Chapter 5), dysfunctional parenting (see Chapter 4), or poor coping strategies of an individual family member curtailing dyadic coping within the family (Bodenmann et al., 1996). It is important to notice, that some of these stressors can be persistent or chronic, such as disease or personality traits, while others may be more modifiable, such as marital conflict and coping strategies. It is important to consider these differences, as they can affect the level of stress and the potential outcomes for family members and point towards potential leverage points for interventions, clearly favoring targeting the modifiable stressors.

2.2.1.2 Low socioeconomic status as an external stressor

A very prominent and well-studied external stressor in family development is low socioeconomic status. However, its multifaceted nature can be challenging to grasp, as it involves a combination of stressful conditions (Furstenberg & Hughes, 1995). Economic disadvantage presents chronic stressors and insecurity as well as daily stressors or irritants (McLoyd, 1990). For instance, individuals may experience a sense of loss of control over their lives, the inability to plan ahead, feelings of relative deprivation in terms of material possessions, inadequate housing, poor quality or even the lack of food, insufficiently or completely untreated health issues, crime-ridden neighborhoods, low-quality or irregular schooling for children (Peterson & Jencks, 1991).

The way low socioeconomic status affects family development has been theoretically conceptualized by the Family Stress Theory developed by Hill (1958; also see Conger et al., 2010). The model was derived from research on post-war families in the 1950s who were separated by the war and then reunited. The finding that there were very different levels of success with this adjustment task led Hill to formulate his ABC-X Model of Family Stress. The model consists of three components: A, B, and C, which interact to produce a family's response to stress (X). The letter A refers to the stressor event or situation. The amount of resources (psychological, economic, physical) available to a family, which then influences how well the family can deal with stressors is reflected in letter B. Coping success is also affected by C,

which refers to the family's perception of the stressor and its impact. This component can be seen as the meaning or interpretation that the family gives to the stressor. It includes the family's values, beliefs, and culture. The X component refers to the outcome of the family's response to stress, which can be either positive or negative. Positive outcomes can include increased resilience, improved coping skills, and strengthened family relationships. Negative outcomes can include family conflict, breakdown of relationships, and poor mental health.

The Family Stress Model was then further refined into the Double ABC-X Family Stress Model (McCubbin & Patterson, 1983) taking into account cumulative effects of stress. Understanding that stressors can pile up, leading to the fact that a family has very little resources to even deal with a potentially minor stressor is essential for understanding intervention research with families. Interventions addressing chronically stressed families or families experiencing a multitude of stressors have to be designed in a way that participating in the intervention is not experienced as an additional stressor. Also, what can be expected from families has to be put into perspective. Trying to achieve major behavioral changes might be impossible in a volatile and vulnerable family system.

These models of family stress due to economic hardship have been validated by empirical findings (Conger & Donnellan, 2007; Huston & Bentley, 2010). A historic example being the study American families affected by the Great Depression, which could show that families were running low on coping resources due to strains elicited by chronic economic hardship, which lead to family members being more depressed, and child-rearing practices becoming harsher, less sensitive, and more inconsistent (Conger et al., 1992; Elder, 1974). More recent fieldwork lead by Edin further illuminated how economic strain affected families and family structures. When facing poor economic conditions, husbands often withdraw from their wife and children as a result of feeling that they cannot contribute to family life because they have failed in their role as a provider (Edin & Nelson, 2013). This results in high numbers of children growing up with absent or nonresident fathers. Namely, one half of all children in families with an income below the national poverty line in the United States live with their mothers but not with their fathers (Sorensen, 2003). As for poor inner-city women, it has been found, that they often put motherhood before establishing a stable partner relationship (Edin & Kefalas, 2005). This contributes to the fact that single motherhood and multi-partner fertility is more likely in socioeconomically disadvantaged households (Carlson & Furstenberg, 2006). It can be concluded that the barriers to having a child for these women are lower than the barriers to

stable and healthy partner relationships. Providing skills to promote the latter is a major goal in relationship education programs (see Chapter 5.3).

These strains on the family further manifest as cognitive and social developmental impairment in children (Ramey & Ramey, 1994). Children of low-income parents are more likely to display problem behaviors (Lahey et al., 1999; Loeber et al., 2000; Lösel, 1993) such as antisocial behavior and delinquency. The preventive mechanisms for mitigating this child outcome through parent education are explicated in Chapter 4.2.

2.2.2 Resilience factors in family development

When talking about stressors in family development, the concept of resilience cannot be left out which is the general psychological resistance to stressors and strains. Resilience can represent the competence to deal with stressful life events and conditions, and be a positive development despite persisting stressful and unfavorable life circumstances. Resilience can also manifest as relatively fast recovery after traumatic events (Werner & Smith, 2001). The concept was developed based on systematically studying at-risk children, who, although faced with multiple stressors, grew up being competent and healthy adults.

For example, the famous longitudinal study by Werner (Werner & Smith, 2001) followed several hundred children for more than 40 years and found that a third of a group of children who were affected by more than four risk factors (e.g., poverty, alcohol abusing father, violence) took a normal developmental path despite this hardship, while the rest of this group manifested severe behavioral and emotional problems. More detailed data-analyses revealed that these apparently successful individuals shared specific traits that helped them deal with unfavorable conditions better than others. These traits were called protective factors. Most prominently these are certain personality traits (low narcissism combined with high extraversion, agreeableness, conscientiousness, and openness), self-efficacy beliefs, and behavioral strategies such as asking for help.

It is important to note, that protective factors are not exactly the opposite of risk factors. While it is true that having a positive attachment figure is considered to be a protective factor and the lack of such is a risk factor, it is more important to study the constellation of protective and risk factors. A protective factor is important in the face of a development risk, it then acts as a buffer. The presence of a risk factor indicates the potential for maladaptive development,

but the way it plays out depends on the presence of protective factors and a potential cumulation of further risk factors.

Consequently, it is the balance between risk and protective factors, that is essential for the psychological well-being of a person. It is precisely this balance that is described by the concept of resiliency. Ablee (1980) even suggests a heuristic formula in order to predict the level of risk that a family will fail to adapt to the stressors they are confronted with. The equation puts intra-family and extra-family stressors in relation to the given internal and external protective factors (see classification by Perrez, Chapter 2.2.1). If this ratio is larger than 0 then the family system and family members have to be considered to be at risk for poor developmental outcomes (for graphical display see Perrez, 2005). A similar model of accumulating risk factors has been suggested by Lösel and Bender (2020b).

In addition to personal resources (certain personality traits or competences), protective conditions of the child's family environment contribute decisively to the development of resilience during childhood (Werner, 2012). Bodenmann (2016) lists several aspects of the family that contribute to resilience on the family level: medium familial cohesion and medium adaptability (as defined in the Circumplex-Model by Olson; 1981, 2000), the development of a secure attachment with the primary care giver(s), a social support system, an authoritative parenting style, sufficient social skills of the parents, the presence of family rituals, regularly spending time as a family, low conflict level, no parental separation or divorce, a working mother, having religious beliefs or being member of a religious community, less than four children who are all born a least two years apart, and timely use of support services.

Knowledge about resiliency has informed prevention and intervention research. Promoting social-emotional skills (e.g., communication strategies, conflict solving skills, emotion regulation), academic skills (e.g., reading, writing, mastering the local language, professional training), and establishing helpful cognitions (e.g., positive self-efficacy beliefs, self-confidence) have proven to effectively contribute to lifting children out of poor life circumstances. These strategies appear to improve resilience at the individual level. Bodenmann's (2016) findings suggest that a range of family-level factors can also be leveraged to buffer the impact of negative circumstances and improve outcomes for the family and its members. This underlines the usefulness of interventions on the family level and raising awareness for testing family-level factors as moderators when studying the effectiveness of interventions.

2.3 Family interventions

Family interventions have traditionally had ambivalent support in society; the need, the effectiveness, and the necessity of such endeavors being questioned. Some have argued that parenting is the last bastion of amateurism in our society (Olson & DeFrain, 2000) pointing towards the fact that almost any other endeavor in society requires some sort of formal training. In these discussions several options for how young adults should be "trained" to become parents have been considered, such as mandatory classes, internships, or gaining some sort of educational certificate. While such ideas are far from becoming a law, the other side of this line of argumentation has to be acknowledged. Family is regarded as a most private and intimate sphere. Any uninvited intrusion into the way how family matters are practiced is most wildly regarded as trespassing a well-protected threshold. But nevertheless, it is undisputable that society benefits from parents' success and also suffers from their mistakes.

In the 1950s family therapy began to gain prominence as a distinct approach to understanding and treating psychological issues within the family unit. Pioneers such as Minuchin (1974) developed theories and techniques that focused on addressing dysfunctional family patterns and improving communication and interaction among family members. In the following decades the evolution of these ideas has gained momentum eventually leading to the development of manualized interventions and the promotion of empirically supported treatments for specific family-related issues, such as parenting difficulties, couple conflicts, and child behavioral problems. Some of the earliest psycho-social prevention programs in families addressed the problem of familial violence. This field has been developed ever since, and a comprehensive overview on prevention strategies can be found in Arnold and Beelmann (2020).

Several findings suggest that prevention within the family might even be a superior approach to target child developmental outcomes (Beelmann & Lösel, 2021; Heinrichs et al., 2002). Heinrichs and colleagues (2002) report that among several programs to prevent child problem behavior, parent programs were slightly more effective than child programs. The authors also point out that prevention programs at best start in early age of the children, since these proved to be the most effective. Similar results were found in a meta-analysis of programs designed to buffer the effects of migration (Beelmann et al., 2020). In this meta-analysis we find that family outcomes could be significantly improved by parent training and the combination of parent and child training. This combination also proved to be highly effective

in improving child education and social-emotional outcomes, highlighting the fact that parent trainings are important, even when aiming at child outcomes (Beelmann et al., 2020).

The following three chapters provide a brief introduction to the stages of family development relevant to the three articles submitted for this dissertation, with a focus on theoretical models in the respective area of research, and indications for intervention development.

3 Becoming a family: Negative birth experience as stress-factor and leverage points for prevention

According to Havighurst (1948), giving birth is considered a normative development task that almost the entirety of women experience at a certain point in the life course. While Havighurst mostly referred to the life-changing impact the arrival of a child has on both parents, there is also growing evidence that the act of birthing itself bears challenges that need to be met (Callister et al., 2001). The way this event is experienced and mastered can have long-lasting impact on the life course of the birthing person, accompanying persons, the newborn child, and the whole family system (Letourneau et al., 2012; Slomian et al., 2019). The developmental risks stemming from a negative birth experience, the genesis of such an experience, and potential leverage points for improving perinatal care will be discussed in this chapter.

3.1 Aspects of a negative birth experience

Childbirth is a meaningful life event because it is an emotionally and physically extraordinary experience for the person giving birth. The majority of mothers report having a positive birth experience (Hildingsson et al., 2013). Such a positive birth experience can result in feelings of empowerment (Hosseini Tabaghdehi et al., 2020) and has the potential to strengthen self-confidence and trust in others (Lundgren et al., 2009). Nevertheless, there is also a considerable number of mothers that report a negative (Henriksen et al., 2017; Waldenström et al., 2004) or even traumatic birth experience (Dekel et al., 2017). Furthermore, evidence suggests that globally many birthing persons experience mistreatment in childbirth (Abuya et al., 2015; Ansari & Yeravdekar, 2020), a phenomenon that is not restricted to the global South and non-Western-industrialized countries (van der Pijl et al., 2023; Vedam et al., 2019).

Ethically, any mistreatment in birth is a violation of human rights (Khosla et al., 2016). In 2014 The World Health Organization (WHO) specifically addressed this fact and called for

greater protection of birthing persons' human rights (WHO, 2014). Four years later the WHO issued another statement, even demanding that a positive childbirth experience ought to be the main end point for anyone undergoing labour (WHO, 2018). More precisely perinatal care should encompass respect, dignity, emotional support, and a systemic commitment to a patient-led, informed decision-making process. Egregiously, a significant amount of women still report on quite the opposite: disrespect and mistreatment, including physical and verbal abuse, non-confidential care, discrimination, unconsented interventions, loss of autonomy, and informal coercion (Bohren et al., 2015, 2019; Oelhafen et al., 2021; Ravaldi et al., 2018; Vedam et al., 2019).

Talking about abuse in perinatal care has long been a tabu and has frequently been played down by the affected professional groups (Rost et al., 2020). However, recent surveys reveal that 26.7% of Swiss women experienced some kind of informal coercion during childbirth; in a U.S. sample 17.3% of birthing people experienced one or more types of mistreatments during pregnancy and childbirth (Vedam et al., 2019); and in Italy 20% considered themselves victims of disrespect and abuse during labour and birth (Ravaldi et al., 2018). Numbers in the global South appear to be even higher (Bohren et al., 2019).

The individual birth experience can have significant influence on the postnatal mental health of the mother. Studies show that traumatic birth experiences are linked to various negative psychological outcomes (Bell & Andersson, 2016; Dekel et al., 2017; Noriko et al., 2007; Simen & Schwab, 2021; Tani & Castagna, 2017). The publication encompassed in this dissertation (Arnold et al., under review) aims to help shed light on this by depicting in more detail what role specific aspects of intrapartum decision-making (information, involvement, control, respect) play in the development of postpartum psychopathology, which allows to draw conclusions for future research on immediate interventions.

3.1.1 Changes in birth culture

One reason perinatal care is prone to abuse and mistreatment is because of an increasing pathologization by the medical sector, which is in stark contrast to many women's conceptions of childbirth and midwifery philosophy (Witten, 2016). In the past 50 years, the birth culture in most Western-industrialized countries has changed dramatically towards a highly risk-avoiding and thus medicalized practice (Walsh & El-Nemer, 2008). In Germany only about 6% of births are carried out without any medical procedures such as medication (e.g., pain

treatment), technical childbirth aids (e.g., forceps), or surgical interventions (e.g., Caesarean section, episiotomy; Mundlos, 2018).

There is however a lack of evidence that calls for this high level of interventions (Johanson et al., 2002). This lack of empirical support is also reflected by the fact, that while the amount of interventions is rising, there has not been a further decline in mortality rates of the infant or the mother (Mundlos, 2018). Some authors see the reason for this trend in a desire to make birth faster, more plannable, more efficient, and consequently more lucrative (Jung, 2018b; Mundlos, 2018).

Possible mediators of the relationship between the increasing use of interventions and negative birth experiences need to be identified and investigated, but the most obvious factor is disempowerment. Women tend to feel disempowered by suggesting that most births are risky and need to be actively managed (e.g., due to the age of the mother or previous Caesarean section; Tegethoff, 2011). In a situation where interventions are to be carried out, the woman becomes a patient and a power imbalance occurs between them and the obstetric personnel. This imbalance can be reflected in a lack of ensuring informed consent (Hoffmann et al., 2014; Johanson et al., 2002), a situation that has also been critically reflected by perinatal care providers themselves (Rost et al., 2022). As a result, women feel overridden, deprived of their autonomy, and often times coerced into interventions they did not want or understand.

What it comes down to is that there is a communication problem with regard to intrapartum procedures. Qualitative analyses of both, positive (Attanasio et al., 2014) and negative (Rodríguez-Almagro et al., 2019) birth experiences, found an association between the quality of the experience and communication of birthing persons and providers, and the perception of shared decision-making. The interaction between birthing persons and providers in terms of intrapartum decision- making, is therefore a possible avenue to supporting positive childbirth experiences and to prevent postpartum psychological distress.

3.1.2 Intrapartum decision-making

In health care, there are different approaches of effective decision-making regarding patient-provider interactions. Charles and colleagues (1999) systemized and compared three common types of decision-making in medical encounters: paternalistic, informed, and shared decision-making. Following a paternalistic decision-making approach, physicians would be dominant in decision-making, as they would provide the minimum required legal amount of medical

information, deliberate on their own or with other physicians, and decide which treatment to implement.

Under an informed decision-making approach, the physician also first provides all relevant medical information. The patient (and their companion) deliberate, and the patient makes the decision. This approach is referred to as "consumerist" (Muscat et al., 2021), because the physician has to cater to the patient's need for information.

Shared decision-making lies between the paternalistic and consumerist models of decision-making. Characteristics of shared decision-making are that both physician and patient share all information relevant to decision-making with each other, which can be medical and personal. The patient (and companions) and the physician would discuss different treatment options, and they would come to a shared, consensual decision.

The informed and the shared treatment decision-making approaches emerged largely in response to critique of the paternalistic approach since the 1980s (Charles et al., 1999), emphasizing the importance of patient participation in medical decision-making (Frosch & Kaplan, 1999). From a provider perspective, shared decision-making is considered to lie at the intersection of evidence-based medicine and patient-centered communication skills, both components argued to be crucial for high quality patient care (Hoffmann et al., 2014): patients feel valued, they know their preferences and treatment goals, and the physician can help them choose the most suitable treatment option (Frosch & Kaplan, 1999).

Research shows, that if intrapartum decision-making is not effective, meaning women's needs are not heard, the likelihood of a negative birth experience increases, and with it the risk of poor maternal psychological development after birth (Simen & Schwab, 2021). More precisely, poor intrapartum decision-making has been linked to symptoms of postpartum depression (Mohammad et al., 2011; Sorenson & Tschetter, 2010) and postpartum PTSD (Czarnocka & Slade, 2000; Denis et al., 2011). Although evidence from quantitative studies on this matter is growing, it has not yet been summarized systematically. The article by Arnold and colleagues (under review), is devoted to this task.

How a negative birth experience contributes to ongoing psychological distress is described in more detail in the following two chapters.

3.1.3 Development of postpartum depression

Postpartum disorders are classified in ICD-10 (World Health Organization (WHO), 1992) and DSM-5 (American Psychiatric Association, 2013) as affective, stress-related, or psychotic disorders, depending on their predominant symptomatology (Dorsch & Rohde, 2016). Generally, common symptoms of a depressive episode, according to ICD-10, are depressed mood, loss of interest and enjoyment, and decreased energy leading to heightened fatiguability and reduced activity (WHO, 1992). According to the DSM-5 and ICD-10, the specific syndrome of a postpartum depression is tied to occurring during pregnancy and up to four to six weeks after delivery, which clearly links it to the puerperium.

Case reports of mothers with postpartum depression include, for example, not being able to enjoy their newborn child, feelings of failure or guilt, feeling sad, and having less energy (Guille et al., 2013). The prevalence of postpartum depression varies across countries from 5% to 26% (Liu et al., 2022). It is considered the most common medical complication occurring after childbirth (Sit & Wisner, 2009).

Findings concerning the etiology of postpartum depression suggest that its genesis is multifactorial and may be related to economic, cultural, social, psychological, and hormonal factors as well as to the birth experience (Bloch et al., 2003; Gastaldon et al., 2022; Guintivano et al., 2018; Hahn-Holbrook et al., 2018). Psychologically the peripartum period is a time of increased vulnerability, due to hormonal fluctuations (Bloch et al., 2003), but also due to the significant change that childbirth brings in life. Primiparous women (women expecting their first child) in particular often feel overwhelmed by having to adjust to the role as a parent and the responsibilities that come with it (Epifanio et al., 2015).

The diathesis-stress-resilience approach proposed by Class and colleagues (2013) brings together several empirical findings. According to the model, the interaction of stress with preexisting vulnerability predicts postpartum depression. This perspective indicates that stress, which can also result from a negative birth experience, can provoke postpartum depression, especially if the person is vulnerable (e.g., preexisting psychopathology; Guintivano et al., 2018). Thus, a negative birth experience is not the sole cause of postpartum depression, but it may contribute to it under certain conditions.

Besides the diathesis-stress-resilience approach, research on the relationship between traumatic events and a following depressive response provides valuable insight regarding the potential impact of a negative birth experience on the development of postpartum depression. Studies indicate that traumatic experiences, such as rape, assaultive violence, injury, or directly

witnessing shocking events affect the development or onset of depression (Frank & Stewart, 1984; Tracy et al., 2014). As a matter of fact, there are some similarities between these traumatic events and a traumatic or adverse birth experience. Both victims of sexual assault and women having experienced a traumatic birth report on overwhelming feelings of powerlessness, lack of consent, and injuries inflicted on them (Kitzinger, 2006; Menage, 1993; Moscarello, 1990).

It can be concluded that the finding that interpersonal violence experiences in particular lead to depression points to the possible importance of intrapartum decision-making as an interpersonal component of the birth experience that may be associated with aversive psychological consequences.

3.1.4 Development postpartum PTSD

According to the ICD-10, the precursor of the development of a post-traumatic stress disorder (PTSD) is a traumatic event that is characterized as being of "exceptionally threatening or catastrophic nature, which is likely to cause pervasive distress in almost anyone" (WHO, 1992) and can be experienced by oneself or witnessed in someone else. In DSM-5, PTSD is characterized by several criteria (American Psychiatric Association, 2013). First, the event criterion determines that symptoms occur after a life-threatening event, serious injury, or sexual violence. Further criteria cover the common symptoms of PTSD, such as intrusions, avoidance of trauma associated stimuli, negative alterations in cognitions and mood, and alterations in arousal and reactivity.

The clinical characteristics and phenomenology of childbirth-related PTSD, can be divided into two clusters: birth related symptoms, like reexperiencing and avoidance of birth related memories or thoughts, and general symptoms, such as hyperarousal and negative mood and cognitions (Ayers et al., 2018; Horesh et al., 2021). Further birth-related symptoms of posttraumatic stress are flashbacks and nightmares of the birth event, amnesia of the event, avoiding birth and pregnancy related issues, difficulties in developing a positive attachment with the child, and preventing another pregnancy by not having vaginal sex (Olde et al., 2006).

The estimated prevalence of postpartum PTSD lies between 4.6% and 6.3% (Dekel et al., 2017) with a mean prevalence of 4% in community samples, and 18.95% in high-risk samples (Yildiz et al., 2017). Additionally, women with clinically significant PTSD-symptoms after

childbirth that do not fulfill criteria for full PTSD make up 16.8% in community samples (Dekel et al., 2017).

A birth experience can be considered traumatic in the sense of the DSM criterion, when the person giving birth is afraid for their or their baby's life or fears a serious injury. Vythilingum (2010) differentiates between objective and subjective traumatic stress. The former is caused by life-threatening medical complications, such as excessive bleeding, or mistreatment at birth, such as experiencing physical or verbal abuse. Subjective stress can result from merely perceiving the intrapartum situation as life-threatening, which can be provoked by obstetricians building up a threatening scenario or subjecting the birthing person to unexpected medical procedures (Leeds & Hargreaves, 2008). When comparing different predictors of postpartum PTSD, subjective stressors have been identified to be even more powerful than objective ones (Boorman et al., 2014; Garthus-Niegel et al., 2013).

The similarities between a negative birth experience and sexual assault have been summarized here. Some authors go as far as to call the abuses in perinatal care "birth rape" (Kitzinger, 2006; Lights, 2012), making clear that this an untenable condition that can naturally traumatize women.

3.2 Leverage points for prevention within perinatal care

As a direct response to these disturbing findings, scientists have issued suggestions on ways to improve perinatal care. Vedam and colleagues are demanding that a person-centered care model should be established in childbirth (Vedam et al., 2019). This would grant women full autonomy within the situation, leaving the choice of how much information is needed and how involved the woman wants to be in obstetric decisions to the women themselves. Furthermore, power imbalances are to be addressed by inviting contributions from everyone, verbally creating a save environment, and avoiding making assumptions.

Along this vein, a decision-making tool, specifying every step in this process, has been published and promoted (Birth Place Lab, 2018). In a large survey among women in Kenya, birth experiences were rated and it could be shown that women who had experienced person-centered care, as defined by Vedam and colleagues, during childbirth experienced fewer complications during birth and manifested fewer maternal and newborn complications postpartum (Sudhinaraset et al., 2021). A study in the UK exploring the practicability of perinatal person-centered decision making within the National Health Care System, came to

the conclusion that this model of care could best be achieved by granting women a continued care led by midwives (Deery & Fisher, 2017). This finding underlines the demand by the WHO for granting birthing persons continued midwife-led care (WHO, 2016). In fact, women who receive midwife-led continuity models of care during birth are less likely to experience obstetric interventions and more likely to be satisfied with their care (Sandall et al., 2016).

The demand by the WHO for continuous care also includes antenatal contacts, which are supposed to better prepare women for birth and establish, at best, a relationship with the professionals who will be present during birth (WHO, 2016). One way to achieve this are antenatal courses. Antenatal education is offered in most Western countries as an integrated part of health care services to strengthen and support parents and thus help them deal with labour, birth, and the postpartum period. There is however conflicting evidence concerning the benefits of such classes (Avignon et al., 2021; Catling et al., 2015; Gagnon & Sandall, 2007): Some find that they can decrease the amount of obstetric interventions (Hong et al., 2021), while others find an increase (Ferguson et al., 2013). More consensus could be achieved on the psycho-social outcomes: Antenatal classes were associated with a reduction in maternal stress, improved self-efficacy (Hong et al., 2021), and less anxiety during labour (Ferguson et al., 2013).

Besides educating women and their birth companions on their rights, medical options during birth, and in developing efficient coping strategies, research also shows that health care professionals feel unequipped to meet the high standards of care that would allow for women to be included in decision-making processes and thereby support patient autonomy (Rost et al., 2022, under review). Other authors go as far as demanding that the health care systems, as a whole, are in dire need for change in Germany (Jung, 2018a, 2018b; Mundlos, 2015; Tegethoff, 2011) and internationally (Hotelling, 2007; Johanson et al., 2002).

4 Poor parenting as a risk factor for the development of antisocial child behavior and prevention strategies

What is considered good or bad parenting changes throughout time and depends on the cultural setting. In Germany, for example, in the postwar period up to the 1970s the common practice of parenting was to form children into obedient beings rather than responsible citizens. At the time, techniques used in parenting were characterized by physical violence, intimidation, and humiliation. Both changing societal values and increasing knowledge about how parenting

affects child development and behavior have led to the fact that what is considered good parenting nowadays is very different. Afterall, more than 50 years ago the famous *New York Times* article "Parenting as Crisis" by LeMasters (1957) was an eye opener to the general US-American public, who up till then had a rather romantic or neglectful outlook on parenthood and expected parenting skills to just come about naturally. Some years later, popular books as "Eltern, Kind und Neurose" (Richter, 1963) or "Patient Familie" (Richter, 1970) brought up a critical stance to the general opinion held in Germany that parenting within families is the optimal way to bring up children.

Wahl (2007) emphasizes additional parenting challenges that have arisen in recent decades due to changes in family norms. For example, he refers to the fact that the family has increasingly withdrawn into the private space, multi-generational households are becoming rather rare, and since families are smaller, there are less members of extended family to act as role models. Families are increasingly isolated and increasingly more inclined or prompted to outsource parenting to institutions such as daycare and schools. Wahl argues that while parenting used to be rather natural and intuitive process a few decades ago, it is now a cultural specialty that must be acquired in a conscious learning effort.

As a matter of fact, Walper (2007) offers numbers from a survey from Germany showing that 50% of parents report that they feel unconfident with respect to parenting practices. Furthermore, Walper refers to the fact that although physical and psychological violence towards children as means of child rearing is illegal in Germany since 2000 (§1631 Abs. 2 BGB), at least 10% of children report having experienced such violence. This figure supports the notion that parents are overburdened with parenting tasks because, it can be argued, that they do not abuse their children out of ideological beliefs anymore, but rather out of the inability to find other means in a particular stressful situation.

The other grievance implying that families are struggling with the task of child rearing, are growing numbers of children developing psychological problems: 10-20% of children and adolescents in Germany manifest some kind of clinically relevant emotional or behavioral impairment (Petermann et al., 2013) such as hyperactivity, aggression, anxiety- and eating-disorder. Empirical evidence and theoretical models suggest that these problems originate within the family and are reinforced by inadequate parenting skills and problematic parent-child-relationships, as laid out in more detail in the following sections. Consequently, parent trainings to improve these conditions have become a viable strategy.

The clear understanding that parents need to be targeted when aiming to improve child outcomes, has led to offering parent education programs as part of ever-growing efforts to prevent antisocial behavior in children and adolescents by. Antisocial behavior in children and adolescents is considered to be the most prevalent behavior problem in children and adolescents (Farrington, 2007; Moffitt, 1993; Moore et al., 2017). Its manifestations range from disruptive behavior that burdens parents, teachers, and peers up to highly problematic violent and criminal behavior that can cause serious harm to others. Decades of research have shown that there is a strong influence of familial factors (parenting, family structure, family violence) on the development of antisocial behavior. In a recent review of reviews (Farrington et al., 2017) several meta-analyses were identified, clearly supporting a connection between family factors and the development of antisocial behavior (Capaldi et al., 2012; Derzon, 2010; Hubbard & Pratt, 2002; Ioane et al., 2013; Leschied et al., 2008). Since antisocial behavior is linked to profound temporary as well as long-term problems far into adulthood (Fergusson et al., 2005), the societal costs of these behavior problems are high (Cohen & Piquero, 2009; Scott et al., 2001), fueling public interest in preventive measures.

The subsequent chapters will elucidate the conceptualization of parenting influence on the emergence of antisocial child behavior, illustrate the multifaceted dynamics at play, and provide insights into the nature of parent education programs as a prevention strategy to mitigate the risk of antisocial behavior in children and adolescents.

4.1 The role of parenting in the development of antisocial child behavior

Models explaining the origin of certain child behaviors, such as antisocial behavior, are complex, integrating biological, psychological, and social risk as well as protective factors (Farrington et al., 2017; Granic & Patterson, 2006). Nevertheless, the pivotal role of the family and particularly parenting practices has to be acknowledged. For example, in a large German study (Alt, 2005), the authors were able to show that certain aspects of the family as well as the child were more likely to produce aggressive juveniles. In families in which the children later became violent offenders, more diseases were present, there was more alcohol abuse, absentee fathers, partner violence, and child abuse, there were no conversations about feelings, and children described the family climate as cold. Although heritability factors should also be considered (Tremblay, 2012), these findings, and many others (see (Farrington et al., 2017), suggest that the development of antisocial behavior can be mainly located in the family.

The role of specific parenting practices could also be confirmed by numerous studies showing that, for example, poor monitoring, parental hostility, and dysfunctional discipline are influential risk factors for the development of antisocial behavior in children and adolescents (Braga et al., 2017; Forehand et al., 2013; Hoeve et al., 2009; Rothbaum & Weisz, 1994). Even parenting styles, which consist of several behavioral dimensions on part of the parents (see Baumrind, 1966), were consistently associated with the development of antisocial behavior in children, strongest correlative relationship appearing to be between permissive, neglectful, and authoritarian parenting styles and antisocial behavior (Pinquart, 2017).

There is a multitude of psychological models conceptualizing the ways in which parenting affects child development and the expression of a particular behavior. The attachment theory, developed by Bowlby (1969, 1973), provides insight into child behavior by examining the attachment relationship between the primary caregiver and the child. According to this theory, the quality of a child's early attachment experiences with the parent (or other primary caregiver) can have a profound influence on later social and emotional development. A child who has a secure attachment to the caregiver and receives consistent attention and care may engage the parents' caregiving behaviors (such as emotional support, information about values and rules) when in a state of emotional unease or venture out to explore the world when feeling safe. Children who experience inconsistent, neglectful, or abusive attachment relationships with their caregiver may develop a negative internal working model of themselves and others. They may struggle with forming secure attachments with others, leading to difficulties in regulating emotions and behavior, and displaying antisocial behavior. For instance, a child with a neglectful parent might have learned that it can only receive adult attention by throwing tantrums. This behavior can then generalize to the development of further maladaptive behaviors, as the child learns to rely on disruptive or harmful actions to have their needs met.

The theory on parenting styles by Baumrind (1966) also provides a useful framework on how parenting shapes child behavioral development. Baumrind identified two dimensions on which parenting behavior can be characterized: parental responsiveness and demandingness, resulting in four parenting styles: authoritarian, authoritative, neglectful, and permissive. Numerous studies (e.g., Baumrind, 1991; Ju et al., 2020; Perez-Gramaje et al., 2019) have demonstrated that these parenting styles have differential effects on child development, clearly favoring authoritative parenting as being the most beneficial, especially for Caucasian American families. By reinforcing positive behavior in the child and discouraging negative behavior, an authoritative parenting style can prevent the development of problem behavior.

Children who are raised with authoritative parenting learn appropriate behavior patterns and develop positive self-regulation skills, reducing the likelihood of developing antisocial behavior.

Another fruitful theory has been the social learning theory (Bandura, 1977). According to Bandura, behavior is learned through the observation of significant others and the consequences of their actions. Naturally, this learning process happens in the family as well. Children and adolescents who witness others engaging in antisocial behavior (e.g., parent or caregiver using violent behavior as a means of controlling others) may be more likely to model that behavior themselves, especially if they see it being rewarded or normalized (e.g., the person screaming gets what she wants).

It is also essential to acknowledge that the relationship between parenting and child behavior is bidirectional. For instance, temperamental differences in children can also influence the ways in which parents typically respond to their children's behavior, creating a feedback loop where parenting practices and child behavior mutually influence one another. A well-studied model describing how parenting behavior and child characteristics affect each other and ultimately spiral down to a child exhibiting problem behavior is the coercive cycle model by Patterson (Granic & Patterson, 2006; G. Patterson et al., 1992). A cycle of coercion sets in when parents are ill equipped to deal with problematic child behavior and use inappropriate techniques, such as permissiveness, giving in to tantrums or opposition, or harsh punishment. As a result, children become rapidly more adept at coercing their parents into acquiescence. In turn parents retreat and thereby encourage children to further escalate their negative behavioral repertoire. Studies find that parents who are under severe stressors, such as marital disruption, social isolation, and economic stress, are more likely to exercise inefficient parenting (Ambert, 1997). Consequently, parent education aiming to prevent or alleviate antisocial behavior in children could focus on these populations. In effectiveness evaluation studies, these demographic aspects can appear to be relevant moderators of intervention effects.

As such, it is evident that preventing and treating antisocial behavior in children and adolescents should prioritize efforts to support parents or primary caretakers in fostering healthy parent-child relationships, improving their parenting skills, and modeling positive behaviors as key leverage points for driving change.

4.2 Parent education as a prevention strategy

In a survey among German parents (Mühling & Smolka, 2007) about half of the participants stated that they felt unsure if they did everything right concerning parenting and parental choices. However, only few reported on having sought professional help. Apparently, the ways of modern-day parents' information-seeking are more subtle. It is books on parenting and TV shows such as "The Super Nanny" giving real-life insights into parent trainings that are perpetually reaching large audiences (consistently about 5 Million watched the Super Nanny in Germany, Wahl & Hees, 2007). While "The Super Nanny" remains to be a controversial topic among parents and professionals, and some of the interest might be due to mere voyeurism, the large viewing figures nevertheless bear witness to the fact that parents are seeking advice. Wahl (2007) even makes the peculiar projection that more parents are educated in matters of parenting through these TV shows as compared to any professionalized training or guidebook.

Nevertheless, over the past decades a large variety of structured parent trainings have been developed, influenced by different theoretical traditions, such as behavioral (Patterson et al., 1982), humanistic, and psychodynamic traditions (Dreikurs & Stolz, 1965). Generally, parent trainings can be described as curriculum- or manual-based interventions that are offered in group-settings, individually, or as self-help formats. Some take place in community settings (church, schools, hospitals), in specialized centers established just for the program or general purpose (e.g., Family Learning Center), or in the home of the family (for a systematic model of parent education see Perrez, 1994). These programs are designed to equip parents with an appropriate behavioral repertoire, knowledge about child development, and an understanding of the consequences of their actions. Precisely, parent training aims to promote the improvement of parenting and co-parenting skills, supporting parents in their self-concept and role as parents, strengthening the parent-child relationship, development of self-regulation skills within the family, and prevention or removal of destructive patterns such as domestic violence and conflict.

Parent training has been developed for almost every phase of the family life cycle. Training aimed at expectant parents include SAFE (Brisch, 2011) and STEEP (Erickson & Egeland, 2004), the latter is aimed at mothers at risk. The goal of these programs in early childhood is usually the development of a secure mother-child bond and the establishment of a social network to prevent child-welfare risks. Courses for parents of children and adolescents are, for example, by Gordon (1970) who introduced the concept of the family conference,

applying certain communication strategies, or the program of the German Kinderschutzbund (Child Protection Association) "Starke Eltern – Starke Kinder“ (Strong Parents - Strong Children; Tschöpe-Scheffler, 2004)). This program is also relationship-oriented and promotes attitudes and actions such as caring, encouragement, acceptance, trust, and togetherness. Another internationally widespread program is Triple P (Sanders, 1999), which is highly structured and behavior-oriented, teaching parents to promote appropriate and reduce inappropriate behavior. Other validated brand-name programs that have been applied in the prevention of antisocial behavior are Incredible Years, Parent-Child-Interaction Therapy, Parent Management Training, and Parent Effectiveness Training (Beelmann & Raabe, 2009; Weber et al., 2019).

While parent training appears to be a valid approach to improve parenting techniques, it is important to also keep the context in which families are situated in mind. A study of teenage mothers in the US showed, that although parenting training improved parenting and nurturing skills in the mothers, there was no effect on the cognitive and social development of children (Zaslow & Eldred, 1998). It was concluded that the ecological stressors such as poverty and unstable housing, poor health condition of the mother, and violent neighborhoods had such a prevailing effect that it could not be superimposed by improved parenting. This idea had already been suggested by the ecological model by Bronfenbrenner (1986; also see Chapter 2) and has ever since lead to an increasing number of intervention approaches that address family problems on multiple levels, taking ecological effects into account.

This also leads to the so-called prevention dilemma in parent education, which refers to the fact that interventions fail to reach the parents who have the most problems. The common intervention settings rely on parents’ initiative to participate, and this clearly is a barrier that can only be overcome by parents with the extra resources to do so. Parent education is an intervention strategy designed to addresses a host of social problems, from child abuse and neglect to school failure and delinquency. Despite its potential, evaluation studies have not yet revealed remarkable effects on parenting skills, knowledge, behavior, or child outcomes: An effort to map out intervention effects of all evaluated parent training programs in the US (665 studies reporting on 260 parent programs) came to the rather modest conclusion, that parent programs only produce small, if any, effect sizes (Layzer et al., 2001). But what nevertheless prompted the authors to suggest that policy makers still pour money into the effort was that a few, rather specific programs, were able to produce larger effects. Suggestions were, that

programs should start early at a young age of the children, be carried out by professionals, foster contact among the parents, and include the children in the training.

5 Divorce as both a risk and a family changing factor and prevention strategies

In most Western-industrialized countries, divorce rates have climbed over the past decades. This trend is also present in Germany; for a few years now divorce rates have been on a plateau of roughly 40% (Eckert et al., 2021). While, on average marriages last 14 years, the peak of the likelihood to divorce is after 5 years of marriage, which means that most couples are between 35 and 45 years old, and if they have children, these are still underaged and live in the parental household (Jungbauer, 2014). Consequently, the likelihood of children growing up in the traditional nuclear family with both biological parents has been drastically diminished in the past decades.

In the light of this trend, Cherlin announced in 2004 the deinstitutionalization of marriage, proclaiming that marriage has lost its societal value (Cherlin, 2004). However, this statement is weakened by the fact that in many marriages at least one partner has been married before (34% in Germany; Schneewind, 2010), leading to the interpretation that marriage is still a popular way of life, but it is not anymore regarded as a life-time commitment.

5.1 Reasons for divorce

Divorce rates make it clear that a substantial number of couples fail at making a life together and over the past years it has also become clear that divorce is here to stay. The task is now to understand what causes divorce and why has it become more common? “Marriage causes divorce!”, is the taunting answer given by (Olson & DeFrain, 2000, p. 492), but of course the phenomenon is more complex.

Applying the Ecological System Theory by Bronfenbrenner (1986, also see Chapter 2) it can be concluded that it is the interplay of personal and contextual factors within and around the couple that eventually leads to relationship dissolution. Well-known predictors of divorce are marrying at a young age, having a courtship that is either too short or too long, premarital cohabitation, having experienced parental divorce, low education and income status, poor communication and conflict management skills, and having children before marrying (Halford et al., 2003; Isen & Stevenson, 2010). In a large survey of couple therapists, the three most common issues reported in divorcing couples were poor communication, power struggles, and

unrealistic expectations concerning the relationship (Whisman et al., 1997). Bodenmann (2001) added, that the most potent predictors of divorce were the ability of the couple to cope with stress and communication quality within the couple. These findings link with the groundbreaking research by Gottmann and colleagues who could show that even small aspects of the couple interaction can successfully predict future separation (Driver et al., 2003; Gottman, 1994). Therefore, couple communication-skills are regarded as essential for making relationships work and are usually at the core of divorce prevention programs.

But unhappy marriages strained by ineffective communication have probably existed as long as the institution itself, thus an explanation for soaring divorce rates in the past decades has to be found elsewhere. When getting divorced, couples either find themselves in a situation where a happy marriage cannot be achieved, or where there is no will to settle for a bad one. Since there is increasingly less societal pressure to stay married, the willingness and reasons to stay in an unsatisfying relationship have to be seen as the driving force behind the increasingly high divorce rates. This opens up the possibility of looking at divorce in a different way (Fine & Demo, 2000). While high divorce rates might be seen as a threat to an institution that many societies heavily depend upon, it also has to be recognized that relationship dissolution can be regarded as a positive outcome, freeing individuals from unhappy, conflict-ridden, or even abusive relationships that could not be changed. Then again, to make matter even more opaque, Bodenmann (2001) showed that relationship satisfaction did not predict divorce, which indicates that also in unhappy marriages there are reasons that inhibit divorce.

Consequently, a contemporary way of looking at the present state of affairs would be to recognize that divorce is an almost normative developmental task that affects many couples, that it should not be prevented in every case, but effective coping skills are needed to manage it successfully. This outlook is also reflected in the terminology proposed by Ferrano describing the process of divorcing parents as moving from a mononuclear to a binuclear family (Ferraro, 2016), thereby shifting the discourse surrounding divorce away from a solely pathologizing approach.

The reason, why there is nevertheless a large amount of research on divorce prevention is that the effects that relationship dissolution has on everybody involved are, on average, resoundingly calamitous, even spanning over several generations.

5.2 Impact of divorce

If parents of small children get divorced, there are numerous individual and societal challenges elicited by relationship dissolution that have to be dealt with: There are increasingly more single-parent-households (usually headed by a mother), children have infrequent or no contact to their fathers, and family members are confronted with the task of blending families (Cherlin, 2010; Kennedy & Bumpass, 2008; Lesthaeghe, 2010). In socioeconomically disadvantaged families there is even an increased likelihood of relationship breakdown often coupled with unestablished legal fatherhood (Goldstein & Kenney, 2001; Isen & Stevenson, 2010). Combined with the stressors due to economic hardship, this leads to a cumulation of family stressors that can become overwhelming (see Family Stress Theory in Chapter 2).

The ways in which divorce impacts children's and adults' well-being are very diverse. The divorce-stress-adjustment perspective by Amato (2000) sums it up well by showing that the impact of divorce depends both on stressors and the presence of protective factors. Consequently, the idea that divorce and separation always lead to the same deficits of the so called "broken homes" has been rejected.

5.2.1 Impact of divorce on child development

The impact of parental separation on child development depends on various factors that interact in a complex manner. Sander (2002) distinguishes between two types of influential factors that play a significant role in how well children deal with this life event: individual factors and environmental factors. Among the individual factors, Jungbauer identified age, gender, personality traits, social-cognitive skills; well-known environmental factors are low socioeconomic status, social networks, parenting skills, post-divorce parental conflict level, post-divorce relationship with each parent (Jungbauer, 2014). Depending on the expression and combination of these risk and protective factors, some children adjust better to parental divorce while others develop behavioral and emotional problems. Research shows that almost all children experience at least some distress from divorce, but 20-25% are at risk for developing emotional problems such as mood disorders, anxiety disorders, and conduct problems (Emery, 2006). It can be concluded that divorce does not condemn children to a derailed life course, but it does elevate risk factors that are cause of concern (Clarke-Stewart & Brentano, 2006). While for some it's a momentary crisis, for others a life of ongoing chronic stress unfolds (Hofer, 2002). The impressive persistence of divorce effects was illustrated in a 25-year longitudinal

study which could show that some children of divorce even manifest negative effects—such as avoidant conflict behavior and attachment issues—well into adulthood (Wallerstein et al., 2001).

Three ways in which parental divorce affects child well-being, and the conflicting empirical support for each will be outlined below: Effects explained by parental conflict, effects explained by experiencing family breakdown, and effects explained by deteriorating parenting capacities.

One way to conceptualize how divorce impacts children is by increased parental conflict. Noack and Kracke (2008) refer to the spill-over effect, first described by Engfer (1988), to argue that it is the hostile relationship among the parents that negatively affects children. A meta-analysis of studies comparing the effect of parental conflict among children of divorced parents and children who live with both parents shows moderate effects of the conflict level (Reid & Crisafulli, 1990). Parental conflict was the most harmful when it was perceived by the child (not just parental report of conflict) and even more so, when it involved the child (Grych et al., 2003; Hetherington et al., 1982). On the other hand, some children were better off after parental separation than before, in cases when the pre-divorce conflict level was particularly high (Booth & Amato, 2001). This reflects the great diversity in divorce outcomes and supports Hetherington's notion of winners, losers, and survivors of divorce (Hetherington, 1989).

Rather contrary to the previous findings, Amato and DeBoer (2001) showed that when comparing adult children of divorce and children of intact families with similarly high conflict levels, those who had experienced the family breakdown had higher chances of divorcing in their own marriage in adulthood. This led to the conclusion that it is not only the experienced level of conflict that impacts long-term well-being but the actual experience of the family breakdown. Beckh and colleagues' (2013) findings further suggested that the difference in divorce rate was not due to differences in contempt, but due to lower levels of confidence in relationship skills. This pattern was observed more strongly in female participants than males. So, it can be concluded that these effects of divorce can be located on the level of the self-concept leading to less confidence and more self-criticism.

A third line of argumentation about why children suffer from divorce, is that they experience a decline in effective parenting; for example, due to parents having less resources due to ongoing conflict, or due to the restricted resources in single parenthood. As always in this research field, there are mixed findings regarding parents' ability to maintain effective and consistent parenting practices following marital dissolution. A large amount of research was

able to show that there is a post-divorce increase in parents' stress, hostility, and punitiveness, and that there is a deterioration in parental supervision, monitoring, and control (Amato, 1993; Hetherington & Stanley-Hagan, 2002; McLanahan & Sandefur, 1994; Simons et al., 1999). Some find that it is particularly harder for single parents to maintain control and that many relinquish control, blurring generational boundaries (Dornbusch et al., 1985). Single-parent families might be more prone to experience imbalances between family cohesion (emotional closeness and connectedness) and flexibility (adaptability and ability to change) as described in the Circumplex Model by Olson (1981, 2000; briefly described in Chapter 2.2), due to increased responsibilities and potential lack of support. On the other hand there are studies that find that most single parents are competent and exercise appropriate control and consistent support, regardless of family structure (Acock & Demo, 1994; Amato, 1987; Arditti, 1999).

5.2.2 Impact of divorce on parents

Divorce is a critical life-event for all persons affected by it. Although it could also be experienced as a relief from burdening life-circumstances, a large amount of research shows that it puts both partners in a state of vulnerability, often resulting in psychosomatic symptoms, a heightened accident risk, more illness, and even an increased mortality (Franz, 2016). Furthermore, Amato (2000) shows that divorced adults suffer from lower self-esteem than married peers, are less happy, and experience a decline in mental and physical health; however pointing out, that these differences on average vanish over the years. The peak of emotional stress is experienced by most individuals around the time of making the decision to divorce, rather than in the aftermath (Amato, 2000). Longer lasting effects are often related to problematic personality traits, a troubled personal family history, an unsuccessful detachment from the former partner, ongoing conflict, as well as low educational and income status (Hetherington & Kelly, 2002). Some report high levels of distress persisting even ten 10 years after divorce (Wallerstein & Blakeslee, 1989).

As with the effects of divorce on children there are several discussed gateways on how divorce impedes the adult life. One, that has been pointed out continuously is, that adjusting to single parenthood is experienced as a major burden (Schwarz & Noack, 2002). In a cluster analysis Amato and colleagues (Amato et al., 2011) characterized single parenting as a parenting model in which the child lives permanently with only one parent and rarely sees or speaks to the non-resident parent; all aspects of child-rearing are dealt with by the single-parent

alone. In this study 36% of families established such a single-parent household post-divorce, usually headed by the mother (only 9% of the single-parent households are headed by a father).

Coping with economic insecurities, single-handedly raising the child(ren) and assuming the sole responsibility as the primary caregiver, while also managing the contact between the child(ren) and the non-resident parent, leads to what Schwarz and Noack (2002) refer to as role overload. They claim that the primary source of strain for single parents arises from the demanding task of maintaining all the aspects that a two-parent household typically provides for children, such as fulfilling parental duties, providing financial support, and coordinating visits with the non-resident father, all on their own.

5.3 Relationship education as a prevention strategy

Not all families encompass a partner relationship (e.g., one-parent households, co-parenting without establishing an intimate relationship among the parents), but if they do, Ambert (1997) argues that the couple relationship is the linchpin of the entire family system, as it shapes the family climate and defines the values, attitudes and rules of behavior that are modeled for the children. Research on the benefits of healthy couple-relationships, well-functioning family environments, and the costs of unhealthy relationships and separation, has spawned the development of evidence-based relationship education programs, especially those with a preventive character (Ragan et al., 2009). The goal of these programs is to prevent relationship deterioration and eventual divorce or, if that cannot be achieved, buffer the negative effects of divorce. Relationship education can be defined as a structured learning experience to help couples improve their relationship knowledge, attitude, and skills. It is typically targeted at couples who are currently satisfied with their relationship but who wish to enhance commitment and healthy interactions and thereby sustain the relationship (Halford, 2011). Thus, relationship education is distinct from couple therapy which is targeted towards couples who are distressed in their relationship.

Traditionally relationship education has been developed as marriage preparation, with the goal of better equipping the couple for their relationship right before they enter a more committed phase and possibly parenthood. While it is rather common to invest a lot of time and money into preparing for a wedding event, preparing for the resulting married life is still rare. In fact, in hindsight many divorced couples agree that marriage preparation might have helped (Olson & DeFrain, 2000). Or as the authors cynically put it: “failing to prepare is like

preparing to fail" (Olson & DeFrain, 2000, p. 371). While couples spend a lot of time discussing the upcoming festivities in all details, little efforts are spent towards discussing finances of the common household, in-laws, relationship roles, or children. Olson and De Frain suggest that these topics are in a way threatening since they bear a potential for conflict. But even if they do, it might be wise to face these discussions before rather than after tying the knot. Seeking a committed relationship is so pervasive that some psychologists have proposed that it reflects an evolutionary imperative (Buss, 2016), and so it might be argued that relationship skills would be useful for everybody.

Generally, relationship education programs are designed to prevent relationship distress and divorce. The dissemination of such programs before marriage has proven to be a sensible strategy, because the vast majority of couples who divorce do not seek traditional health services, such as couple counseling (Glenn et al., 2002; Johnson et al., 2002). Of couples who do seek counseling or express interest in relationship education programs, many reach out at a time when negative patterns have likely already eroded many of the positive connections (Doss et al., 2009a). Some programs take an earlier preventive approach by teaching individuals to make better partner choices in the first place in order to achieve the goal of developing and remaining in healthy relationships (Antle et al., 2013).

Program content and goals are informed by research on protective factors when it comes to assessing the likelihood of separation and divorce. Well-known protective factors include good communication skills, managing to create fun, friendship, and romance within the relationship, having parents who have a good relationship with one another, having realistic expectations for healthy relationships, being a committed and dedicated person, and being able to handle conflict in a non-violent manner (Bray & Jouriles, 1995; Halford et al., 2003). Some of the factors are rather static (e.g., the parental relationship) and cannot be altered as easily as other personal and relationship aspects (e.g., communication skills), which consequently are then addressed in relationship education programs.

The dissemination formats and strategies of relationship education programs are very similar to parent education (see Chapter 4.2). Well-known relationship education programs are The Prevention and Relationship Enhancement Program (PREP; Stanley et al., 1999) and the Minnesota Couples Communication Program (Nunnally et al., 1975; Wampler & Sprenkle, 1980). A German adaptation of PREP is "Ein partnerschaftliches Lernprogramm" by (Thurmaier, 1997), could actually prevent divorce at a four year follow-up (Hahlweg et al., 1998).

Especially in the U.S. effects of relationship education programs have been excessively evaluated (e.g., Devall, 2009; Wood et al., 2012), showing moderate positive but not very stable effects. These programs have also been tested in various populations yielding moderate effects (military couples: Stanley et al., 2010; in prison: Robbers, 2005), especially in the risk-group of low-income couples. A meta-analysis of effectiveness studies within this population is provided in the here submitted publication by Arnold and Beelmann (2019).

6 Three meta-analyses of studies in improving family development: The present dissertation

This dissertation includes three meta-analyses of studies designed to explore factors and interventions that improve family development. Each meta-analysis tackled studies that targeted different developmental stages in the family life: Giving birth, achieving a stable partner relationship and entering parenthood, and finally parenting children and adolescents. In this chapter an overview is provided regarding aims and research questions, methodological procedures, and key findings of each of the meta-analyses.

6.1 Aims and research questions

Keeping the life-course perspective, the first paper starts at the beginning of new life and addresses decision-making among mothers and obstetric staff during birth. A growing amount of research has already pointed towards the negative birth experience of many women, such as being subjected to mistreatment and disrespect, including physical and verbal abuse, non-confidential care, discrimination, unconsented interventions, loss of autonomy, and informal coercion (Bohren et al., 2015, 2019; Oelhafen et al., 2021; Ravaldi et al., 2018; Vedam et al., 2019); all of which can be characterized as an infringement of human rights. The goal of the first meta-analysis (Arnold et al., under review) is to explore the delicate situation of shared decision-making during the process of birth and how succeeding or failing at this task translates into psychological outcomes, in particular postpartum depression and postpartum PTSD. The findings offer valuable insights and guide future research aimed at preventing negative birth experiences. Moreover, they have the potential to drive practical enhancements in obstetric practice, leading to improvements in overall family well-being.

The second publication (Arnold & Beelmann, 2019) brings the developmental task of entering a committed couple relationship and becoming parents into focus. The risk of getting

divorced or separating within the first five years of first-time parenthood is high (Jungbauer, 2014), as a lot of parents experience the (new) task of parenthood as a strain on the couple relationship (e.g., Doss et al., 2009b). Since it is also known that divorce has a negative impact on child development (e.g., Amato, 2000), relationship education classes have been developed to support becoming and new parents to form a stable and healthy partner relationship as they enter parenthood. Research has shown that couples experiencing additional stressors, such as being socioeconomically disadvantaged, have an even increased risk of divorce and separation (Goldstein & Kenney, 2001; Isen & Stevenson, 2010). The aim of the meta-analysis is to explore the effectiveness of these programs within this particularly vulnerable population.

The third publication (Beelmann et al., 2023) is dedicated to exploring the effectiveness of parent training programs. While there are all kinds of parenting programs, addressing the development of anti-social behavior in children is of great importance due to the detrimental effects these behavioral problems have on the life course of the affected children, families, and even society (Cohen & Piquero, 2009; Fergusson et al., 2005; Scott et al., 2001). The meta-analysis aims to explore the effectiveness of these programs and in particular addresses differential effects on parent outcomes and child behavioral outcomes. The results from this inform future prevention efforts, by showing what program types and intervention strategies are the most successful. Further, the results enhance the understanding of the crucial link between parenting and child outcomes which is relevant for future program development and clinical practice in the field of family counseling and therapy.

6.2 Method

The three publications for this dissertation are meta-analyses following the PRISMA guidelines (PRIMSA Group, 2009). Thus, the methodological procedures, as described in the following section, have been applied in almost the same manner in all three publications.

6.2.1 Data collection

For each research question, an extensive list of search terms was compiled, blocks of search terms were built to ensure a comprehensive search for all relevant studies. For example, one block would describe the type of intervention, and another aspect of effectiveness evaluation. Or, in the case of the correlative meta-analysis, one block covered the intrapartum situation and the other postpartum outcomes. Each pool of search terms was tested in common search

engines of electronic literature databases in order to derive an acceptable degree of precision. These test-runs were evaluated with respect to whether already known publications that meet the inclusion criteria were detected and whether the results were precise. The search terms were adjusted to improve precision in cases where the search missed known publications or captured too many irrelevant publications. Boolean logic was applied for all search words to also find variations of each search word.

Once the search terms were successfully compiled, they were used to search a range of relevant data bases, the selection of which depended on the research field. For the present meta-analyses the following literature databases were searched (Table 1).

Table 1

List of searched electronic databases

Publication	**Searched electronic databases**
Intrapartum decision-making[1]	Scopus, PubMed, PsycInfo, Web of Science, Cinahl, and SocIndex
Relationship education[2]	PsychINFO, ERIC, ProQuest Dissertations and These, Sociological Abstracts, Google and Google Scholar
Parent training[3]	PsycINFO, PSYNDEX, PsychARTICLES, Criminal Justice Abstracts, Web of Science, ERIC, PubMed, ProQuest Dissertations and Theses, Cochrane Central Register of Controlled Trials (CENTRAL), Google and Google Scholar

[1]Arnold, L.S., Völkel, M., Rosendahl, J., Rost, M. (under review) A multi-level meta-analysis of the relationship between intrapartum decision-making and postpartum psychopathology. *Psychiatry Research.*

[2]Arnold, L. S., & Beelmann, A. (2019). The effects of relationship education in low-income couples: A meta-analysis of randomized-controlled evaluation studies. *Family Relations*, *68*(1), 22–38. https://doi.org/10.1111/fare.12325.

[3] Beelmann, A., Arnold, L. S., & Hercher, J. (2023). Parent training programs for preventing and treating antisocial behavior in children and adolescents: A comprehensive meta-analysis of international studies. *Aggression and Violent Behavior*, *68*, 101798. https://doi.org/10.1016/j.avb.2022.101798

In addition to searching literature databases, several additional techniques were applied; these included: searching the reference lists of similar literature reviews and the included primary articles (also known as backward search); manual search of all issues of central journals; and forward search, which means looking at all articles that cite an included study. In the case of the meta-analysis on relationship education (Arnold & Beelmann, 2019), extra efforts were made to search the websites of funding institutions (e.g., U.S. Department of Health and Human Services or the Urban Institute) since many evaluation reports in this field turned out to be not published in scientific journals. Finally, authors in the field were contacted for further information on potential publications.

For the stepwise screening process inclusion criteria were defined. These specified the sample (e.g., low-income, parents), which in the case of low-income, also required explicit cut-offs to be determined concerning sample characteristics. For the meta-analysis synthesizing intervention studies, inclusion criteria also concerned the research design (e.g., randomized-controlled trials).

Once the set of included studies was established, studies were coded. For this process a detailed codebook was developed. In the present meta-analyses coding was conducted on several levels: First the publication was described (e.g., year, authors, publication organ), subsequently the study (research design, recruitment) and, in the case of intervention studies, comparisons between the groups of interest (mean age, intervention characteristics). In a final step the relevant information for calculating effect sizes (e.g., measurement tool, informant, statistical information) was coded.

6.2.2 Data sets

Concerning the data sets that were established for each of the meta-analyses an overview giving a few characteristics of each study pool is presented in Table 2. Data management was conducted with SPSS 22-29 and R.

Table 2

Description of the data sets

	Intrapartum decision-making[1]	**Relationship education**[2]	**Parent training**[3]
Number of included publications	33	16	239
Number of included studies	34	48	241
Total number of participants	34 586	22 385	29 151
Range of publication year	1990 - 2021	2000 - 2012	1974 - 2019
Percent of publications in peer-reviewed journals	97.1%	78%	89%
Number of countries	14	1	21

[1] Arnold, L.S., Völkel, M., Rosendahl, J., Rost, M. (under review) A multi-level meta-analysis of the relationship between intrapartum decision-making and postpartum psychopathology. *Psychiatry Research.*

[2]Arnold, L. S., & Beelmann, A. (2019). The effects of relationship education in low-income couples: A meta-analysis of randomized-controlled evaluation studies. *Family Relations*, *68*(1), 22–38. https://doi.org/10.1111/fare.12325.

[3] Beelmann, A., Arnold, L. S., & Hercher, J. (2023). Parent training programs for preventing and treating antisocial behavior in children and adolescents: A comprehensive meta-analysis of international studies. *Aggression and Violent Behavior*, *68*, 101798. https://doi.org/10.1016/j.avb.2022.101798

6.2.3 Statistical analyses

In the meta-analyses that synthesized effectiveness studies, the effect size Cohen's *d* (Cohen, 1977) was calculated from means and standard deviations to describe the standardized mean difference between experimental and control groups. If primary statistics (mean and standard deviation) were not reported, transformation procedures (Lipsey & Wilson, 2001) were applied to the given test statistics (e.g., *F* and *t* values). In line with the models developed by Hedges and Olkin (1985), effect sizes were weighted with their inverse variance to account for differences in estimation precision due to different sample sizes. These single effect sizes were then aggregated to the comparison level. Using the method of moments point estimation, random and fixed effect models were applied to estimate weighted mean effect sizes.

Heterogeneity of the effect sizes was quantified using I^2 (Higgins & Thompson, 2002) in order to gain information, whether further moderator analyses were needed to explain this potential variability. Analyses were performed using SPSS 22-25 and macrofiles for SPSS provided by Lipsey and Wilson (2001), and the metafor package (Viechtbauer, 2010) for R.

In the case of the correlative meta-analysis (Arnold et al., under review) a multi-level approach was applied (Cheung 2014, 2019), which allows for a different way of modelling the multi-level nature within a typical meta-analysis data set. The fact that usually several effect sizes are reported per study leads to the effect sizes being interdepended within each study. This problem can be addressed by averaging effect-sizes for each study and/or comparison (as done in the previously described process), which however, leads to a loss of variance, or by fitting multi-level models. In this meta-analysis a random-effects multi-level model with Knapp-Hartung adjustments (IntHout et al., 2014; Sidik & Jonkman, 2005) was fitted with a level for sampling variance (Level 1), one for the variance among the effect sizes within the studies (Level 2), and one level for the between-study variance (Level 3). Model parameters were estimated using a restricted maximum likelihood estimation (Assink & Wibbelink, 2016). All analyses were performed in R 4.0.3 using the metafor package (Viechtbauer, 2010) and dmetar package (Harrer et al., 2019).

Finally in all three meta-analyses several tests of publication bias were performed to explore bias due to the so-called file-drawer problem (Rosenthal, 1979). This bias arises when the studies included in the meta-analysis do not represent all studies on the topic of interest (Dickersin et al., 1994). Several authors have described the problem, that studies with statistically significant effects and positive treatment outcomes are more likely to be published (Begg & Berlin, 1988; Dickersin, 1997), resulting in a biased estimation of average effects in the meta-analysis. Dickersin (1990) was able to show that both the authors' decision to submit a study for publication and the probability that a journal will accept it for publication are associated with the study results. The likelihood of publication was decreased when studies were less conclusive (smaller sample sizes or less statistical precision) or reported only small effects. Although in the here submitted meta-analyses substantial efforts were made to detect relevant unpublished studies ("grey literature"), which might alleviate publication bias, the estimated amount of bias still has to be explored. Hence, several methods were applied to quantify publication bias using the data from the existing set of studies.

A common approach is the creation of a funnel plot of sample size against estimated treatment effect or the effect-size of interest, as first suggested by Light and Pillemer (1984).

In the absence of publication bias, the plot is expected to take on its characteristic symmetrical funnel shape, with the amount of scatter around the true effect (a vertical line of symmetry) decreasing with increasing sample size. Typically, it can be expected that there are relatively few large studies and relatively more small ones. If publication bias is present, this should be reflected in the shape of the graph. For instance, if negative studies are less likely to be published, the graph will turn out to be skewed. This was assessed by a visual examination of the funnel plot.

Furthermore, two common ways of quantifying and also testing the symmetry of the graph were applied. One is Begg's rank correlation (Begg & Mazumdar, 1994), which uses Kendall's *tau* to evaluate the association between the (standardized) effect and the variance of the effect. A non-significant correlation would indicate the absence of bias. This test, however, performs best in samples with more than 75 studies and has low power of detecting bias in smaller meta-analyses. Egger's test of funnel plot asymmetry is more robust with respect to the number of included studies (Egger et al., 1997; Macaskill et al., 2001). With this method, funnel plot asymmetry is measured numerically and examines the extent to which such asymmetry predicts discordance of results when meta-analyses are compared to single large trials of the same issue using a linear regression approach. In a one-sample t-test it can be determined if the intercept of the linear regression equation differs significantly from the origin of the axes. If this is the case, publication bias can be assumed.

Based on simulation studies, Macaskill and colleagues suggest an even more robust third test, based on a regression from sample sizes to the unweighted post-test effect sizes. This method explores whether larger studies are also associated with larger effects (Macaskill et al., 2001), a non-significant slope indicating the absences of a publication bias. This method was also applied in the here submitted meta-analyses.

Finally, a subsequent trim and fill analysis (Duval & Tweedie, 2000; Rothstein, 2008) was conducted, which tests whether the distribution of the effect sizes that were included in the meta-analysis is consistent with a distribution of effect sizes that disperses symmetrically around their mean in the funnel plot. If publication bias was present, a new funnel plot was created filling in studies to make the distribution symmetrical. Taking these hypothetical studies in account an adjusted average effect size was then calculated.

6.3 Summary of the three studies

This section provides an overview of the three studies conducted for this dissertation. It describes the aims and key findings of each study and briefly discusses its specific contribution against the backdrop of previous research. The broader theoretical discussion and summary of the practical contributions of the three studies are outlined in Chapter 7.

6.3.1 Intrapartum decision-making

As outlined in Chapter 3, a plethora of studies have been devoted to study the link between the quality of the birth experience and postpartum adverse psychological outcomes. Available evidence points towards poor shared decision-making, low levels of perceived control, and verbal violence and negligence as predictors of postpartum depression (Bell & Andersson, 2016; Noriko et al., 2007; Tani & Castagna, 2017); and towards negative subjective birth experiences, lack of support, low satisfaction with providers, poor quality of interactions with providers, feelings of powerlessness, and lack of control as predictors of postpartum PTSD. While existing research syntheses have demonstrated that negative birth experiences are associated with adverse psychological outcomes (e.g., Bohren et al., 2015), primary quantitative studies assessing the association between measures of intrapartum decision-making and postpartum psychopathology have not yet been systematically synthesized. This is the goal of the present meta-analysis (Arnold et al., under review).

Using Boolean logic, several databases of scientific literature were searched, authors were contacted to obtain unreported data, and references of included articles were screened for relevant studies. In the final set of studies 34 publications providing data of 34 586 participants could be included in the multi-level meta-analysis. Results revealed a significant negative association between overall decision-making and overall psychopathology (r = -.25), which suggests that less effective intrapartum decision-making is associated with more adverse postpartum mental health. When only regarding postpartum depression as an outcome this relationship was still significant but smaller (r = -.19), for postpartum PTSD it was likewise significant but larger (r = -.29).

An important goal of the study was to disaggregate the complex concept of intrapartum decision-making to detect more precisely what actions and emotional states during birth can be associated with postpartum mental health outcomes. Analyses indicated that all four dimensions of intrapartum decision-making were significantly related to postpartum overall

psychopathology (information: r = -.22, involvement: r = -.23, respect: r = -.28, control: r = -.25). When only regarding postpartum depression as outcome only three of the four dimensions were significantly associated (information: r = -.18, respect: r = -.25, and control: r = -.12); being directly involved in decision-making during birth did not have a significant relationship with developing symptoms of postpartum depression. For postpartum PTSD as outcome significant correlations between involvement (r = -.31), respect (r = -.32), and control (r = -.25) could be found, but not for being informed about the medical steps during birth.

The results from this meta-analysis show that poor decision-making in birth contributes to the development of postpartum psychopathology. All four aspects of intrapartum decision-making appeared to be relevant for postpartum mental health. The findings provide clear indications for future obstetric practice: Women need information, they need to be involved in decisions, and they need to feel respected and in control. Given the high number of births, the widespread occurrence of ineffective intrapartum decision-making, the resulting psychopathologies and associated costs, these findings are highly relevant also from a public health and health economics perspective. The findings from the here submitted meta-analysis can inform potential improvements in childbirth practice.

6.3.2 Relationship education

As evidenced in Chapter 5, relationship education programs have been developed in response to the evolving dynamics of family structure changes in recent decades, namely climbing divorce rates (Jungbauer, 2014), which leads to families being faced with an increase in single parenthood, absent fathers, and challenges induced by efforts to consolidate stepfamilies (Cherlin, 2010; Kennedy & Bumpass, 2008; Lesthaeghe, 2010). These demographic changes are even more pronounced in low-income populations, placing these families at a particular risk (Goldstein & Kenney, 2001; Isen & Stevenson, 2010). The effects of relationship education within this population are examined in the here submitted meta-analysis by Arnold and Beelmann (2019).

A systematic literature search for studies evaluating relationship education within a randomized-controlled design in low-income couples was conducted, resulting in a set of 16 eligible research reports (providing information about 48 independent studies), containing results from 22 385 participants. Interestingly only studies conducted in the U.S. met the inclusion criteria. Overall, the included samples can be described as ethnically diverse, mostly

urban, and highly disadvantaged in terms of economic, occupational, and educational assets. Most included programs took a cognitive-behavioral approach in a group setting, which included practical skill training as well as theoretical and experience-based discussions of relationship topics. All programs were offered for free and on a voluntary basis and provided incentives such food, small financial or gift incentives, or price reductions on the marriage license.

Analyses revealed a small but statistically significant mean effect (d = 0.10). When participants attended more than 50% of the program, effect sizes were more than twice as high. Furthermore, effects were generally higher in less vulnerable samples (older, married, educated, and less poor; $0.20 \leq d \leq 0.25$), supporting the notion suggested by the Family Stress Model (see Chapter 2.2) that the most vulnerable couples, although they are in most need for support, have limited resources to successfully incorporate new behavioral strategies and cognitions in their already burdened life.

The effects found in this meta-analysis are lower than those reported in previous meta-analyses on relationship education. Hawkins and Fackrell (2010), who had set out for the very same endeavor of examining the effectiveness of relationship education programs in low-income couples, had only included three control-group studies, which produced an average effect of d = .25. For the 12 one-group/pre-post studies and overall effect of d = .29 was found. A similar meta-analysis synthesizing relationship education programs in a variety of samples (Hawkins et al., 2008) found an average effect of d = .36 on relationship quality within studies applying a controlled design, and d = .44 for communication skills.

Nevertheless, it can be concluded that relationship education is achieving the goal of helping low-income couples to improve their relationships. Furthermore, positive effects on children can be expected because this type of intervention seems to influence outcome variables (e.g., relationship quality, non-violent communication, and father involvement) that are linked to positive child development (Bray & Jouriles, 1995; Halford et al., 2003). However, effect sizes are rather small, and attendance rates are low especially in programs directed toward the most disadvantaged couples.

6.3.3 Parent training

Chapter 4 outlines how parenting is related to the development of anti-social behavior in children, which informed the development of parent training programs, which have excessively

been studied with respect to their effectiveness (Kazdin, 2008; Weber et al., 2019). The current meta-analysis (Beelmann et al., 2023) endeavored to synthesize training effects on both parent and child outcomes, shedding light on the underlying mechanisms and aiming to ascertain whether the theoretical proposition that parenting influences child behaviors provides a tangible pathway through which parent programs can exert their effects.

From the systematic literature search 239 research reports from 14 different countries, spanning a publication period of more than 40 years, could be included in the final study pool, providing data from 29 151 units of investigation (participating parent/s). Most programs applied a cognitive-behavioral approach and a large proportion of the included parent trainings where so-called brand name programs such as Triple P (21%), Incredible Years (15%), Parent Management Training OM (7%), and Parent Child Interaction Therapy (5%).

Overall, a random effect model of program effects measured at postintervention (up to 3 months after termination of the program) indicated that the mean effect for parent training programs was significantly positive for both parent and family measures (d = 0.46), and also for measures of antisocial behavior in children (d = 0.47). When looking more closely at parent and family outcomes, higher effects could be found on more proximal measures such as parental stress (d = 0.43), parental competencies (d = 0.46), and parent-child interaction/relation (d = 0.65). More distal outcomes such as marital satisfaction (d = 0.24) or parent psychopathology (d = 0.25) revealed lower but nevertheless significant effect sizes. The effect sizes on the different child outcomes ranged on a similar level, with the lowest being for delinquent behavior (d = .28). Overall, these results clearly demonstrate that parent training programs successfully improve a great variety of parent outcomes and reduce aversive child outcomes in the domain of antisocial behavior. This positive outlook, however, only holds for short-term effects. Long-term stability (significant effects at 12 months or more after program termination) was only found on a few outcome variables, namely parental competence (d = 0.19), parent-child interaction and relationship (d = 0.11), and aversive parental behavior (d = 0.17). With respect to child outcomes only in two outcome categories significant effects could be found after 12 months or more: oppositional and disruptive behavior (d = 0.14) and general antisocial behavior measures (d = 0.13).

A particularly valuable contribution from this meta-analysis is that it investigated how changes in parental skills and other parental and family variables are linked to changes in child outcomes. This analysis serves to test the general assumption of parenting training programs that presumes the emergence of antisocial behavior in parenting behaviors and family

relationships, which has already been empirically tested in a narrative analysis by Fagan and Benedini (2016). In the present meta-analysis, a weighted meta regression revealed a clear link between parent and family outcomes and reductions in antisocial behavior ($\beta = 0.55$, $k = 217$, $p < .001$). Further analyses show, that in fact the best predictors of antisocial behavior outcomes were reductions in parental stress followed by the promotion of parent-child interaction/relation, reductions in aversive parental behavior, and the strengthening of parental competencies (e.g., praise, reward, supervision, effective limit setting).

Overall, it can be concluded that parent training programs have an impact on proximal parent outcomes, which are also the most potent predictors of changes in child outcomes, which consequently can explain the also very promising effects of parent trainings on child outcomes. Thus, it can be concluded that parent training programs work well at implementing the mechanisms that are known about the development of antisocial behavior (e.g., Flanagan et al., 2019; Pinquart, 2017), a finding which can further advance theoretical conceptualizations in this field. Furthermore, the research presented here contributes to ongoing efforts aimed at preventing antisocial behavior, leading to improved family lives and child well-being. Additionally, these prevention strategies have the potential to alleviate the societal costs associated with antisocial behavior.

7 General discussion

7.1 Discussion of the findings in the light of the research question

The purpose of the present dissertation was to explore different domains in family development in order to shed light onto processes and possibilities for support that help families thrive. There were three domains identified as potential leverage points for intervention: decision-making processes during birth, the establishment of stable and healthy childbearing unions, and the effectiveness of parenting children and adolescents to prevent the development of antisocial child behavior. Three meta-analyses provided information on these fields, explored mechanisms at play, and comprehensively assessed the effectiveness of two types of prevention programs: relationship education and parent training.

Taken together, the results of this series of meta-analyses provide strong guidance for the development and support of multi-level approaches to intervention that will help families thrive. First, it can be concluded that intrapartum decision-making needs to improve since there is a clear correlational relationship with all four dimensions of decision making (information,

involvement, respect, control) with severe postpartum psychopathology. The findings suggest that there is a need for further education about patient rights on the side of birthing women as well as concerning intrapartum decision-making practices on the side of the obstetric staff to improve postpartum mental health outcomes of women and eventually initiate a fundamental change in perinatal care. Intervention at this point in family development not only affects maternal well-being but also mother-child relations and attachment and general family functioning (Letourneau et al., 2012; Slomian et al., 2019).

Second, the results of here submitted work emphasize the importance of relationship education and parent training, each of which appeared to be effective approaches in improving relationships, establishing more effective parenting, and preventing antisocial behavior in children, respectively. Importantly the findings identify a paucity in studies involving the most vulnerable families (i.e., younger, less educated, poorer) leading to the recommendation to improve efforts to recruit families with less access to the usual forms of recruitment. Couples with lower levels of education and literacy, whether due to age, disadvantage, marginalization, etc., are at higher risk of family discord (Goldstein & Kenney, 2001; Isen & Stevenson, 2010) and yet under-represented in family intervention programs, as revealed in the present meta-analysis (Arnold & Beelmann, 2019). It is essential that researchers first learn how to better improve the involvement of vulnerable families in support programs, and then how to involve them in research testing their response to the programs in order to improve the effects of relationship education across the community. A second outcome of the present meta-analyses is the finding that the evidence for stable long-term effects is often untested, and usually weak.

More efforts need to be undertaken to achieve more stable long-term effects for example by including buffering-session in intervention programs or by developing new approaches in how to integrate continuous learning, for example by blending parent education with established family support systems (see Chapter 7.3.2). Furthermore, the meta-analysis of parent training programs revealed a lack of programs for parents of older children. It is essential to also equip parents of teenage children with a diverse range of parenting strategies that can help them to meet the range of challenges faced by adolescents and young adults (increasing autonomy and decision making, growing peer influence, access to drugs, alcohol, motor vehicles, romances, independence, life transitions). Added to these normative experiences of adolescents and young adults there is also increased vulnerability to several mental health issues (e.g., affective disorders, eating disorder, substance abuse; Petermann, 2005). Concerning the development of anti-social behavior, Patterson and colleagues (Patterson et al.,

1991) point out that there are so-called “early-starters” and “late-starters”. Furthermore, regardless of the age at onset, delinquent behavior becomes increasingly serious as children grow older (Loeber et al., 2012). Either way, prevention efforts need to support parents to parent effectively across the entire age range of childhood and adolescence, but at this point it appears as though they are failing to achieve this aim.

In the subsequent chapters a more general set of limitations affecting the generalizability of the present findings are discussed as well as further implications for theoretical conceptions, practical approaches, and future research.

7.2 Limitations

While specific limitations within the meta-analyses submitted for this dissertation are discussed in each publication individually, there are more general limitations affecting all three publications. The first set of problems arises from the methodological approach of meta-analyses and the second relates to the nature of the primary studies, all of which come from the field of family studies. As discussed, this limited range of studies bears some particular problems in and of itself.

7.2.1 Challenges and limitations in meta-analyses

Limited generalizability due to the “garbage in, garbage out”-problem. One major concern in meta-analysis is the “garbage in, garbage out” problem, highlighting the importance of the quality and reliability of the included studies. Meta-analyses rely on the accuracy and validity of the data from individual studies, and if the primary studies are flawed or biased, the meta-analytic results may be compromised. The presence of low-quality studies, publication bias, or selective reporting can introduce biases and distort the overall findings. Therefore, meticulous attention must be given to the selection criteria, methodology, and data extraction processes in meta-analyses to ensure the inclusion of high-quality studies and minimize the risk of introducing biased results.

Several tools have been developed to rigorously assess study quality (e.g., Newcastle-Ottawa Scale, the Cochrane Risk of Bias Tool, or the Effective Public Health Practice Project Quality Assessment Tool for Quantitative Studies) and statistical analyses (e.g., random effects models, analyses of publication bias) are available to account for at least some of the potential imprecision due to the “garbage in, garbage out” problem. In the meta-analysis on intrapartum

decision-making the application of the tool “Effective Public Health Practice Project Quality Assessment Tool for Quantitative Studies” resulted in finding only two out of 43 studies to be of high quality, while about half of the studies had serious limitations in their methodological quality and were rated as weak. However, as also pointed out in out meta-analysis of parent training programs (Beelmann et al., 2023), the comprehensive assessment of the quality of included studies heavily depends on the amount and quality of reported data (scientific transparency), which is a pervasive problem, that needs to improve. Researchers should be encouraged to disseminate comprehensive information regarding their research design and data collection methods, as this practice not only enhances the opportunity for other researchers to evaluate the validity and reliability of the findings and the facilitation of future replication studies, but also affects the quality of future meta-analysis of the data. Or in terms of validity, providing poor descriptive validity is a general threat to the overall validity of research findings and consequently also of meta-analyses (Cook & Campbell, 1979; Lösel & Nowack, 1987). By improving transparency, those studies of low quality can be better identified and excluded (or managed), and those studies of higher quality can be identified and included. This approach offers the optimal solution.

In the absence of such transparency, another solution to gain control of the “garbage in garbage out” problem is to formulate more strict inclusion criteria, in order to limit the “garbage” entering the analysis. This approach effectively excludes all studies at high risk of bias but also means there is a chance of excluding some studies with meaningful results. This method was taken for the meta-analysis of relationship education data (Arnold & Beelmann, 2019) where only randomized-controlled trials were included, or the meta-analysis of parent programs data (Beelmann et al., 2023) where studies with very small samples were excluded. However, increasing the exclusion of studies results in the failure of the meta-analysis to properly represent the reality of the research landscape, which is often bound to conducting small studies without control groups due to practical feasibility and costs. So, by improving internal validity we lose external validity.

Finally, the exploration of potential publication bias helps to at least address parts of the problem (e.g., examination of funnel plot, regression testes). But then again in there are also alternative explanations to significant results in these tests (Beelmann et al., 2023). The theoretical assumption that effects scatter more in smaller studies might not hold true in intervention research, since implementation quality in smaller studies might also be better,

resulting in stronger treatment effects, as further described by Beelmann and colleagues (2018). For further discussion see Chapter 7.3.

It can be concluded that reporting standards need to improve in order to allow for better assessment of study quality, and in intervention research a stronger focus should be placed on high standards in implementation quality, especially in larger studies (Kumpfer et al., 2017; Mauricio et al., 2018). On the other hand, the realm of meta-analyses precisely involves considering a field of research while accounting for and controlling for methodological aspects.

Limitations of external validity of meta-analytic findings. Another prominent issue in meta-analyses that is also present in the publications submitted for this dissertation is the overrepresentation of research conducted with samples from WEIRD populations, which stands for Western, educated, industrialized, rich, and democratic societies (Henrich et al., 2010). This sampling bias poses a significant challenge as the findings derived from such studies may not generalize well to diverse populations across different cultural, socioeconomic, and geographical contexts. Thus, the reliance on WEIRD samples limits the external validity of meta-analytic results. Arnett (2016) criticizes that psychological research published in APA journals—the American Psychological Association issues the leading journals in psychological research—focuses too narrowly on Americans, who comprise less than 5% of the world's population. This bias was evident in the three presented meta-analyses within which the percentage of research based on WEIRD samples ranged between 85% and 100% (see Table 1), clearly supporting Arnett's projections.

Even though many meta-analyses claim synthesizing international research, there is usually a disproportionately small amount of studies from non-WEIRD research landscapes included; whether this is because these do not exist or are hard to find is unclear. However, this lack of cultural and geographical representativeness is rarely addressed. What further needs to be done, unless the meta-analytic results are sufficiently homogeneous, is testing publication/sampling country, or groupings of these, as a moderator variable in order to potentially identify cultural drifts in the research. These are important findings and should not be obscured by averaging the results across samples. However, along these previous lines, averaging is only meaningful, when it can be assumed that the included concepts and measures share a cross-cultural internal validity. This is problem is addressed in the next chapter (Chapter 7.2.2).

In conclusion, there is a need for a concerted effort to promote more transparency in reporting standards of empirical research and advance diversity and inclusivity in research by actively seeking out studies conducted in non-WEIRD populations, encouraging researchers to conduct studies in underrepresented regions, and considering the contextual factors that may influence the outcomes being studied.

7.2.2 Boundaries of measurement in the field of family psychology

As mentioned in the previous chapters, studies in the field of family psychology are facing particular challenges that impair study quality and reliability.

Many scholars have agreed that family is a “black box” that is very hard to illuminate. When it comes to family research and, for example, recommendations on what parents need to learn with respect to child rearing, it is not clear what is actually happening in the vast majority of families, since parenting is such a delicate, personal topic. The popular “real-life” TV-shows such as “The Super-Nanny” suggest that there is a lot of crude parenting and despair going on. But it is quite obvious that this assessment is based on a small fringe group that is willing to participate and open their homes to the wide public. Representative surveys try to capture the reality in families, but researchers fear that there are boundaries to how much parents are willing to open up and critically reflect upon their family life (Olson & DeFrain, 2000). Qualitative research applying in-depth interview studies and observational methods might be more successful in retrieving personal data, but then again it is almost impossible to gain representativeness with qualitative methods.

What is added to the problem is, that most family research is based on self-report, a grievance also pointed out in the publication by Beelmann and colleagues (2023). In fact, in our meta-analysis on parent training it appeared that self-report yielded very different estimates of the average effect compared to, for example, observational methods. This suggests that these different measurement methods do capture distinct facets of the intervention effects. As a result, it is advisable to broaden the range of methods utilized in evaluation studies.

A third constraint in measurement in the field of family studies lies in the questionable universal character of the measured concepts. This is a fact that is ignored in most meta-analyses. While Bornstein translated two American parenting-measures into six languages in order to compare mothers’ reports on parenting from seven different cultures (Bornstein et al., 1998), van Widenfelt and colleagues point out that cultural adaptation of measurement tools

has to go beyond translating items into a different language in order to achieve cross-cultural adaptation in psychological assessment, for example by also conduction a psychometrical evaluation of a translated questionnaire (Van Widenfelt et al., 2005). For conducting a meta-analysis it would be valuable information—this leads back to the previous issue of scientific transparency—what strategies were applied in the translation process of a measurement tool in order to assess the cultural adaptation of the data.

It is a stretch to presume that the here presented idea of parent training (Beelmann et al., 2023) or relationship education (Arnold & Beelmann, 2019) is transferable to all kinds of cultural contexts. On the one hand, the outcome measures, for example of relationship quality, parent stress, or parent-child interaction, are not equally meaningful or comparable across different samples. For example, the questionnaire on relationship quality "Fragebogen zur Partnerschaftsdiagnostik" (Hahlweg, 2016) relies on the assumption that affectionateness and physical affection are indicators of a functioning and satisfying couple relationship. This might not hold true in other cultural settings.

On the other hand, some of the included concepts in the publications for this dissertation might be more culturally fair and thus hold the same internal validity across different cultural contexts; for instance, the assessment of postpartum psychopathology, measures of delinquency in youths, or relationship stability should be similar across culture, time, and place.

In conclusion, the results of the meta-analyses included in this dissertation are vulnerable to some measurement uncertainty due to the aspects mentioned above. However, if more efforts were poured into improving data quality in this field, meta-analyses would certainly profit from this as well. And as a result, the recommendations arising from those meta-analyses would be more useful and offer stronger evidence directly to both clinical and research practice.

7.3 Implications and further research directions

Notwithstanding these limitations the research included as part of this dissertation has several theoretical and practical implications that offer opportunities to advance and inform our field, in addition to opportunities for future research.

7.3.1 Methodological and theoretical implications

The smaller the better? In the previous section it was mentioned that the method of exploring potential publication bias by studying the relationship between the effect sizes and (some

derivate) of sample size (Macaskill et al., 2001) might be flawed in the context of intervention research. As proposed in the meta-analysis of parent training (Beelmann et al., 2023), a significant relationship between effectiveness and sample size might also reflect the fact that smaller intervention studies profit from better implementation quality and thus yield larger effect sizes, rather than indicating the presence of a publication bias (on impact of implementation on effect-sizes see Durlak & DuPre, 2008).

While this might hold true, there is another effect that may improve the effect size in small-sample intervention studies, that is especially valid in parent or transition to parenthood programs: participants profit from group-based settings because of a networking-effect (i.e., getting to know other individuals dealing with the same problems in life). In small-sample studies it is more likely that just one intervention group is compared with a control group and the intervention group being not very large, as it is overall a smaller study. This might lead to the finding hat improvement in outcomes involving small-sample group studies may be due to the actual treatment effect and/or the influence of normalizing and peer learning that occurs in group contexts.

This might be considered a confound, but for intervention programs designed for group dissemination, the combined treatment plus group effects are valid outcomes of the treatment design. And so larger effect sizes in these small-sample studies are likely valid, while not conforming to the assumptions underlying formal tests for publication bias. On the other hand, in the meta-analysis of relationship education data, where we found that programs were more effective when groups consisted of a least ten couples (Arnold & Beelmann, 2019). This suggests that program groups can also be too small to take advantage of this networking effect. Taking both effects that potentially lie behind the effect of sample size into account, one suspects that, in the context of intervention research, the relationship between program effectiveness and sample size might be curvilinear. However, it must be considered, that also studies based large samples do disseminate group-settings with small groups. So, there is no direct link between sample size and group size. Clearly, these observations would need further investigation, as it would improve our understanding about the influence of group size within intervention studies and the proper interpretation of tests for publication bias.

Towards more person-centeredness. Several aspects of the presented research provide compelling evidence in favor of adopting a person-centered perspective adopting personalized approaches when dealing with individuals as well as in the realm of measurement. Most

prominently this issue has been addressed in the meta-analysis on decision-making in perinatal care (Arnold et al., under review). In this context, the Vancouver-based Birth Place Lab (2018) proposed a person-centered model of care in order to improve intrapartum decision-making processes. Based on this model, there is no one-size-fits-all way of delivering good care, but in every case the needs, personal conditions, and capacities of the birthing person have to be taken into account in order to develop the best possible care for each person. The presented meta-analysis (Arnold et al., under review) comes to the conclusion that adopting such a model of care would grant optimal decision-making and autonomy in birth. When thinking further along these lines, adopting a model of person-centeredness should also more generally be reflected in a person-centered approach in research in birth as this type of research is more likely to identify individual needs and processes that then again could be linked to the further development person-centered care (Bergman & Andersson, 2010). As the model of care adequately assumes, women enter childbirth with very different needs and also experience obstetric interventions in very different ways.

Taking these cues, the research group of the presented research on maternal autonomy in birth (Arnold et al., under review), is currently preparing a publication presenting findings of a latent profile analysis from survey data, which suggests that there are four different types of women with respect to their antenatal expectations. While some women anticipated active involvement in decision-making, our analysis revealed the existence of a distinct group of women that refrained from birth preparation and expressed full trust in healthcare professionals making all pertinent decisions. This finding serves as a valuable extension to our meta-analysis, which demonstrated the significance of decision-making in relation to postpartum mental health on average. However, it is important to acknowledge that not all women necessarily desire or seek full involvement in the decision-making process clearly pointing towards the importance of a person-centered perspective.

Person-centered effect monitoring has also been derived as a suggestion in the study of parent training (Beelmann et al., 2023). Given that the average effects appear to be moderately sized and not consistently stable over the long term, it would be intriguing to investigate whether the developmental trajectories of children and/or the parents could be influenced in various ways by the same program. Specifically, it would be valuable to explore whether children (and parents) may exhibit varied patterns of developmental outcomes, potentially leading to the identification of distinct groups within the population, or whether the

developmental trajectories initiated by the program are different, such as some showing immediate effects while others experience a delayed onset of impact.

The same would also be interesting in the effectiveness evaluation of relationship education (Arnold & Beelmann, 2019) concerning couple relationship trajectories capturing for example the development of relationship quality with a longer time-perspective. Since it is well-known that relationship quality decreases after the birth of a child (Twenge et al., 2003), it may improve for some couples subsequently due to program participation, while it does not for others. Also, for the potential outcome relationship stability it would be worthful not only capturing whether a couple separated but also assessing when this occurred, which makes a difference with respect to the age of children in the household. Children react differently to divorce based on their age (Sander, 2002), thus it would be a valuable finding if a program does not succeed in preventing divorce but maybe in delaying it.

These suggestions can be modeled in latent profile or latent class analyses (Berlin et al., 2014), growth curve models (Duncan et al., 2013), and survival analyses (Machin et al., 2006); all methods that are still under-utilized in empirical research in family psychology and especially in intervention research. This suggested person-centeredness in data-analysis would help to potentially identify more differential program effects and could inform the design of better targeted evidence-based interventions and maternity care. However, it is yet not clear how to synthesize this type of research in meta-analyses.

7.3.2 Practical implications

The fact that only small to moderate and time-unstable effects could be found in the meta-analyses of programs addressing parents and future parents (Arnold & Beelmann, 2019; Beelmann et al., 2023) as well as the observation that attendance-rates were low, especially in the meta-analysis on relationship education, prompts a consideration about which educational settings for parents are the most effective and what barriers to intervention need to be identified and addressed. In the following section, a few recommendations that can be drawn from the presented research that may be useful for clinicians or program designers will be discussed.

Implementation problems encountered in family-based interventions. The finding that intervention effects are modest and sufficient recruitment, retention, and participation are hard to achieve in the field of family interventions has been repeatedly reported and discussed. For

example, Durlak and Wells (1997) question the constantly low and temporally unstable effect sizes. Spoth and Redmond (2000) point out that recruitment rates are rarely reported, but when they can be somehow numericized they are perpetually low. And Prinz and Miller (1994) lament that family-based interventions suffer persistently from low participation rates. Building on these findings, subsequent research has explored barriers to successful implementation of family-based interventions (Furlong & McGilloway, 2015; Heinrichs et al., 2005; Spoth et al., 1996), discussing recruitment, retention, and fidelity in curriculum dissemination as pivotal measures of program implementation. Several aspects of this research fall in line with the findings from the here presented meta-analyses.

In the context of these program effectiveness meta-analyses, limited information was available regarding recruitment rates. However, it is crucial to acknowledge the challenges associated with offering parent and couple education, especially to socially disadvantaged populations. This is important because recruitment problems likely exert an influence on the findings produced by the included primary studies because systematic problems will yield a sampling bias and poorly representative findings. Putting a number to the problem, Heinrichs and colleagues (2005) estimate that merely one third of parents, who were offered the opportunity to participate in a program, opted to enroll. The underlying assumption is that only certain groups of addressees recruit into an intervention. For example, in the meta-analysis on relationship education (Arnold & Beelmann, 2019) the programs investigated were designed for the vulnerable population of low-income couples. However, the samples obtained were found to be less disadvantaged than initially anticipated. As a result, the findings from this study may only be representative of a particular demographic group. From a public health standpoint, this implies that the prevention effort did not unfold as originally intended or planned. Statistically, intent-to-treat analyses can help address such issues in primary studies and obtain a realistic estimations of program impact (Hollis & Campbell, 1999). However, it is crucial to carefully consider strategies for enhancing program recruitment and retention to effectively reach and engage the targeted populations.

As already discussed in Chapter 2.3, families seem to shy away from letting others intrude into their private space and ways of raising children. While this may be attributed to cultural norms surrounding the privacy of family life, it is important to acknowledge that, for certain families, this is intricately linked to prior experiences and concerns regarding institutions scrutinizing their parenting capacity and the potential risk of child removal. Heinrichs and colleagues found that in neighborhoods with salient social problems the

resistance to outside involvement in family affairs was especially powerful (Heinrichs et al., 2005). Several interview studies of parents who declined taking part in parenting programs find privacy issues (e.g., not wanting to be video-taped, refusal of home visits) to be the top-most reason for not participating (Heinrichs et al., 2005; Spoth et al., 1996). This fits with the findings from the meta-analysis on relationship education (Arnold & Beelmann, 2019) showing that programs with home-visitation were less effective, one interpretation of this finding being that this aspect of the offer has particularly driven out those who might have particularly benefited from it.

Concerning retention and attendance rates in parent training programs, it could be demonstrated that it is common for approximately 50% of the recruited parents to participate in only half (or fewer) of the program sessions, particularly if the program contains more than seven sessions (Barrera et al., 2002; Charlebois et al., 2001; Heinrichs et al., 2005). The present meta-analysis on relationship education (Arnold & Beelmann, 2019) supported these previous observations, showing that half of the programs had a participation rate of less than 50% and about 30% of the programs had lost 25% of the participants or more by the end of the treatment.

The limited effectiveness of parent programs is a third issue that needs to be addressed. As in the here presented meta-analyses, similar studies also find intervention effects from family-based programs to be perpetually moderate or even small and not stable long-term (e.g., Couturier et al., 2013; Farrington & Welsh, 2003; Hawkins et al., 2008). In this debate Furlong and McGilloway (2015) highlighted several issues, including the mismatch between the broad scope of parent interventions presented as comprehensive solutions and the more specific clinical needs of parents that may not be adequately addressed by such programs. But greater specificity would require greater intrusion into each family's needs and resources, creating what we might label, the intrusion-efficacy conflict. With respect to multiply-disadvantaged parents, Furlong and McGilloway inferred that due to other difficulties in their lives (e.g., substance abuse, inadequate housing, and poverty) parents were unable to focus appropriately on parenting, thus contributing to the initial problem and reducing the ability of parents to implement the new strategies learned as part of the intervention. This pertains to earlier discussions presented in Chapter 2.2 drawing upon the Family Stress Model (McCubbin & Patterson, 1983), which posits that families confronted with multiple significant stressors lack the necessary resources to actively engage in parenting programs or implement alterations in their parenting practices.

Further explanations of the implementation problems. Framing this problem within the ecosystemic approach as suggested by Bronfenbrenner (1986) helps understand additional contextual factors that contribute to the barriers encountered in parenting and the dissemination of parent programs, which can be found in the parental employment situation, the neighborhood, or even a changing societal value system.

Extensive research demonstrates a significant impact of parental working life on family dynamics (Kracke & Hofer, 2002). The competing demands of being an involved parent and meeting work obligations create a paradox for parents. This conflict often leads parents to prioritize one over the other, which can result in difficulties in effectively fulfilling their parenting role. Furthermore, in an increasing number of families both partners or the single parent are/is forced to work full-time to provide at least a decent family income (Alonso-Almeida, 2014; Ambert, 1997). This is a significant source of stress and reduces time parents can spend with their children and reduces opportunities to effectively parent and influence the offspring. It can have a substantial impact on the parents' opportunity or capacity to attend training programs to support their parenting. Finally, even if parents acquire new parenting skills in parenting programs, there might be too little shared time with children to exercise these.

As already stated, poverty generally creates the most serious roadblock to effective parenting and to positive child outcomes (McLoyd et al., 1991). One pivotal mechanism through which poverty influences parenting, especially parenting of adolescents, is intricately connected to neighborhood dynamics characterized by factors such as violence, drug-related issues, inadequate educational opportunities, diminished parental monitoring resulting from parental overwork or inefficiency, and the presence of youth gang activities. Parents find themselves muzzled by a better organized peer group at their doorsteps—far better organized than their own social support is—and become indecisive, unsure of themselves, and unable to say no. Consequently Patterson and colleagues (1992, p. 105) emphasize that within the noxious environment of deprived neighborhoods a "very high level of parenting skills" is needed to "keep children out of the juvenile court system", clearly favoring increased efforts of offering parenting education within this population. Ambert (1997) on the other hand presents the provocative proposition suggesting that there is a failure to also hold adolescents accountable and solely blame the parents.

Lastly, a number of scholars have posited that a societal shift in values has contributed to parents being increasingly detached from their familial responsibilities (Ambert, 1997;

Hurrelmann, 2002; Winterhoff, 2009). According to Ambert (1997), the rise of individualism and materialism as highly regarded values has resulted in parents prioritizing their personal rights and gratifications over their shared obligations within the family system. This mindset may lead some individuals to exhibit reduced willingness to engage in effective parenting when the costs outweigh the perceived rewards. This is then in turn reflected in low interest in parenting programs.

Solutions to improve prevention efforts in the family context. Drawing upon these various findings, several strategies for enhancing prevention efforts in the family context can be considered, encompassing improved recruitment techniques, seamless integration of programs into parents' daily routines, the establishment of alluring family prevention centers, and more flexible dissemination such as parenting training in the shape of applications on mobile devices.

As a first step, strategies can be derived that could increase the accessibility and attractiveness of parent training programs. Since parents lament the logistical challenges of taking part in a classroom-type program that potentially removes both parents from the household, Furlong and McGilloway (2015) stress the importance of offering onsite childcare, meals, and transportation. Furthermore, it has to be considered in which contextual milieus parents could be recruited in which their distrust of such offers is low because they are approached by persons or institutions with whom they are already familiar. Since reservations are particularly pronounced in socioeconomically disadvantaged populations, offering parent programs through welfare offices, unemployment services, the food bank, and migrant resource centres might be viable strategies. Offerings through highly frequentedand usually trusted —family-oriented institutions such as birth clinics, family doctors and pediatricians, or children's educational facilities can work for prevention within a broader population (Fuhrer, 2009; Furlong & McGilloway, 2015). However, when targeting disadvantaged parents, the aforementioned apprehension and concerns regarding the potential involvement of child protective services might be more salient with these service providers and should be acknowledged as genuine fears that warrant careful consideration and strategic navigation.

Heinrichs and colleagues (2005) draw an important parallel between birth preparation and parenting preparation. They contend that childbirth classes have become a normalized and destigmatized component of the typical parenting experience, suggesting the need for a similar normalization of parent training. It can be posited that while both childbirth and parenting are inevitable aspects of parenthood, the latter entails a lifelong commitment, contrasting with the

relatively limited duration of childbirth despite its potential for enduring effects. While parenting training or relationship education programs may suffer from limited accessibility and availability, often restricted to metropolitan areas or specific research initiatives, birth preparation classes, conversely, enjoy widespread availability and financial coverage by health insurance in numerous countries, including Germany.

One key difference is the recognition of childbirth preparation as a health intervention. But considering the escalating prevalence of children and adolescents exhibiting emotional and behavior problems (Belfer, 2008; Reiss, 2013), a compelling case can be made that parenting programs equally serve as preventive measures for promoting mental health and well-being. Consequently, it is imperative for public policy to prioritize and elevate these preventive measures to the realm of public health initiatives.

So maybe an extension of prenatal classes is the gateway to achieving several goals discussed in this dissertation: Providing expectant couples with not only information about birthing techniques and diaper changes, but also (1) knowledge about their human rights with respect to decision-making during birth, (2) supporting expectant couples with the skills to establish healthy couple relationships, (3) disseminate parenting education to as many parents as possible. This approach would have a truly preventive nature, as it aims to engage parents prior to the transition to parenthood, and potentially multiple times, considering that a significant number of multiparous women and their partners participate in suitable prenatal courses before each childbirth.

Following on from the suggestion to expand prenatal classes, an even more holistic approach could be envisioned in the form of establishing family prevention centers that encompass a wide range of preventive services and support embedded within communities of highest risk. Fuhrer (2009) advocates a paradigm shift away from one-off, episodic interventions towards developing preventive structures that provide effective, needs-based services that are easily accessible, rooted locally, normalized, and in close connection with institutions such as kindergartens, schools, clubs, and child protective services. In such a prevention center, support on all levels of support (from universal to clinical) could be provided; such a center would therefore have many advantages over the proposed extended childbirth preparation classes.

While Offord and colleagues (1998) offered some advice in the decision process of what level or type of program may be most appropriate under particular circumstances, the ideal healthcare paradigm seems to be a multilevel system in which all levels of intervention are

integrated and realized within a community (Heinrichs et al., 2005). This distinction is also crucial in comparison to the existing Sozialpädiatrische Zentren (social pediatric centers) in Germany. These centers primarily focus on providing support systems and interventions for children who are already experiencing difficulties. In contrast, the proposed prevention centers would serve as appealing spaces where parents can enjoy quality time with their children (e.g., playground, child-friendly restaurant, toddler play groups, early music education) and also access a range of services, in a non-threatening, non-judgmental environment, including low-level advice and counseling, targeted programs, and therapeutic interventions. These services can be tailored to the individual needs of children, couples, or entire families, encompassing various levels of intervention.

A final proposition how parent education could be disseminated on a large scale and an in increasingly better quality would be using smartphone applications. In Germany and the U.S. in 2021 more than 85% of the population older than 14 years owned a smartphone (Statista, 2023b, 2023a). Furthermore, parents are increasingly more interested in using mobile applications concerning topics such as pregnancy, breast-feeding, child development, and parenting tips (Lupton & Pedersen, 2016). The Covid-19 pandemic has given the development of smartphone-based solutions in almost all areas of interest a boost, also in the field of social services, since parents could not receive in-person support during the times of intensified contact restrictions. As a response to this situation, for example, Unicef South Africa launched "ParentText", which sends daily messages via WhatsApp to support caregivers with positive relationship building, online and offline child safety, intimate partner relationships, and stress management. The more recent technological advancements in generative artificial intelligence (AI, e.g., chatGPT), are creating even more possibilities. Applications, such as "Ava AI: Child Care Parenting App", employ various techniques, including natural language processing, machine learning, and data analysis, to provide personalized recommendations, guidance, and resources for parents. They offer features such as behavior tracking, parenting tips and strategies, developmental milestone tracking, educational content, and interactive tools (the so-called chat-bots or live-chats with professionals) for communication, feedback, and problem-solving.

Regarding the efficacy of such applications, further research is needed to provide empirical evidence. However, several meta-analyses show that online parenting programs, which bear some resemblance to programs based on mobile devices, yield comparable effect sizes as in-person programs (Baumel et al., 2016; Breitenstein et al., 2014; Spencer et al., 2020;

Thongseiratch et al., 2020), even in socioeconomically disadvantaged populations (Harris et al., 2020). Online parenting programs typically employ a self-help format using a computer that includes videos and other educational materials. Some programs may also incorporate personal interactions, such as phone or video-chat consultations and feedback. Generally, online programs could help to mitigate the aversive effects of intrusion and fear associated with face-to-face and in-house programs. Because of their potential for being interactive and responsive to parents' input (e.g., multiple choice questions with decision trees directing parents to most relevant information), these programs increase in specificity while protecting parents' privacy. Of course, there may be reasons to doubt their effectiveness (e.g. Thongseiratch et al., 2020). Especially families with severe problems may need therapist contact in order to sustainably change family dynamics. Furthermore, although online programs are much more accessible since the parents do not have to leave the home, a meta-analysis of such programs (Hall & Bierman, 2015) reported high attrition and relatively low program completion (43%–66% of users completed all modules) which are similar to or slightly higher than face-to-face attendance rates (Breitenstein et al., 2014). Parenting programs in the form of mobile device applications my alleviate this problem, advantages being that they can be accessed any time or only in case of need, they are more tailored to specific needs (even in terms of language and literacy level), and are even more interactive and engaging.

At this point there is only a limited amount of research concerning parenting applications (apps) for mobile devices and none with respect to generative AI-driven apps. Davis and colleagues (2017) compared several apps for (new) parents with respect to aspects such as content, understandability, and usability and concluded, that these apps are by no means sufficient to, for example, replace midwife or nurse home visitations of new parents and the baby after birth. The authors suggest that professionals should be included in the development of such tools to make them more efficient. Similar findings were reported by Virani and colleagues (2019) who systematically compared 16 different apps and similarly found that many were of poor quality and did not suffice a high educational standard that would have a public health impact.

However, these studies were published several years ago, and, given publishing waiting times and the rate of changes in the production and uptake of mobile applications, could represent an environment that is considerably out of date. Consequently, at this point such applications have to be regarded as tools that parents can use in addition to receiving regular services but with potential for larger and more impactful contributions in the future. The

possibilities that come with the further development of generative AI nevertheless bring new momentum into the development of parenting apps.

There are some advantages AI-driven parenting smartphone applications might have over traditional online parenting programs and the current forms of smartphone formats. Firstly, leveraging the power of generative artificial intelligence would allow these apps to provide more personalized and adaptive content based on the user's specific needs and circumstances. Through machine learning algorithms, these apps can analyze data and user interactions to tailor recommendations and interventions in real-time, potentially enhancing their effectiveness. Simultaneously, privacy is ensured as any collected data remains unidentifiable, offering parents the reassurance that their participation will not result in any reports to authorities. This resolves the previously mentioned intrusion-efficacy conflict and empowers them to engage in the program with increased honesty. Secondly, AI-driven apps can offer interactive features such as virtual simulations, chatbots, and voice assistants, providing a more engaging and immersive learning experience for parents. These apps also have the potential to offer continuous support and guidance, as they can be accessed anytime and anywhere through smartphones or other devices. Lastly, if the users agree, AI-driven parenting apps of course have the ability to collect and analyze large amounts of data, enabling researchers to gain valuable insights into parenting practices and behaviors, leading to further improvements in the field of parenting support (see Chapter 7.2.2 on the problems of studying the “black box” family). Overall, AI-driven parenting apps demonstrate significant promise in revolutionizing the delivery of guidance and support to parents across all three areas: birth preparation, relationship education, and parenting education. While they may not entirely replace traditional prevention programs in these fields, they can certainly serve as a valuable complement to existing approaches.

8 Conclusion

Prevention in the field of family and education has attracted increased interest in recent years, especially in the area of psychological disorders. Epidemiological studies show that about 20% of all children and adolescents show clinically significant behavioral problems such as anxiety, depression and especially aggressive, oppositional defiant behavior and hyperkinetic disorders (Belfer, 2008; Reiss, 2013; Steinhausen et al., 1998). In most cases, these are difficult, chronic, costly behavioral and emotional disorders that are usually accompanied by significant health

complaints. It is exactly these children who are more at risk than others of being abused by their parents, bullied by their peers, or experiencing learning difficulties at school. Against this background alone, it is undeniable that today there is a great need for prevention in the areas of family and parent education.

The present dissertation comprises research from three different fields within family psychology and prevention. All three research questions are devoted to the general task of exploring what helps to make families thrive.

Concerning the present research questions, meta-analyses were a viable way of exploring the considerable amount of research in each field and provide a pointed digest of the research landscape. It can be concluded that indeed in perinatal care there are still very profound changes that need to be advanced within the next years. Birth culture has to change, women have to change attitudes and gain knowledge be it in the form of prenatal classes, the growingly more popular parenting apps, or public education campaigns.

The meta-analysis of relationship education points towards relationship education being a helpful tool to support couples in achieving to form stable and healthy couple relationships, also stretching the importance of reaching out further to also provide these services to couples more in need of them. These results have to be viewed with caution, however, since this research in only representative for the U.S. American context. It remains unclear, whether the same approach would be worthwhile in a different cultural context, such as Germany.

Parent training programs on the other hand are already common in Germany. The meta-analysis clearly suggests that these programs work in improving parenting skills and preventing child antisocial behavior. More efforts need to go into a broader dissemination of parenting training, at best by applying a variety of forms and concepts to reach more parents and also parents of children of all ages.

In conclusion, it can be said that prevention in the family context is more important than ever and that this dissertation provides information and new indications on a number of important leverage points to help families to thrive.

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Study 1: A correlative multi-level meta-analysis on the relationship between intrapartum decision-making and postpartum psychopathology

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Project administration				x
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A Multi-Level Meta-Analysis of the Relationship between Intrapartum Decision-Making and Postpartum Psychopathology

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Abstract

There is accumulating evidence of ineffective decision-making in birth between women and providers. However, primary quantitative studies on the association between intrapartum decision-making and psychopathology have not been synthesized. We included a final set of 34 studies from 14 different countries in the meta-analysis.

Results revealed that the less effective intrapartum decision-making the more postpartum overall psychopathology (r = -.25), depression (r = -.19), and posttraumatic stress disorder (r = -.29). More precisely, while all dimensions of intrapartum decision-making (information: r = -.22, involvement: r = -.23, respect: r = -.28, control: r = -.25) were associated with postpartum overall psychopathology, only information (r = -.18), respect (r = -.25), and control (r = -.12) were associated with depression, and only involvement (r = -.31), respect (r = -.32), and control (r = -.25) were associated with posttraumatic stress disorder.

Ineffective decision-making contributes to the development of psychopathology. Implications for practice concern establishing numerous antenatal care contacts as a standard to enhance both women's and providers' birth preparedness, and measuring the experience of intrapartum decision-making as an indicator of quality of care as a default to monitor, analyze, and improve decision-making and to facilitate accountability systems.

Introduction

Globally, there is accumulating evidence of women's negative birth experiences owing to poor interactions with providers, with many of them being directly related to decision-making between the two parties; for example, disrespectful care or insufficient informed consent [1-6]. According to the World Health Organization (WHO), instances of ineffective decision-making qualify as mistreatment in birth (e.g. loss of autonomy, dismissing women's concerns) [7], and, as such, represent human rights violations [8]. They are antithetical to quality care [9], and cause adverse psychological outcomes on the part of women [10, 11], ultimately affecting mother-child-bonding and child development [12, 13] as well as parental couple relationships [14, 15]. Furthermore, they result in a decreased likelihood of giving birth again [16, 17], and of accessing a birth facility for birth [18, 19].

During intrapartum decision-making women, their companions, and providers actively work together to make birth-related decisions (e.g. interventions). It has been argued that a shift from shared to person-centered decision-making is needed to overcome inherent power differentials and to prioritize the women's preferences over providers' [20, 21]. Conceptually, the imperative to center women in intrapartum care encompasses eight domains: dignity, autonomy, privacy, communication, social support, supportive care, trust, and the health facility environment [22]. Such conceptual frameworks have been translated into tangible multi-step models of person-centered decision-making in birth [23], which aim to ensure reproductive autonomy.

A plethora of studies have been devoted to postpartum adverse psychological outcomes, with the majority focusing on postpartum depression (PP-D) and postpartum posttraumatic stress disorder (PP-PTSD) [24, 25]. Available evidence points towards poor shared decision-making [26], low levels of perceived control [27], and verbal violence and negligence [28] as predictors of PP-D; towards negative subjective birth experiences [29, 30], lack of support [29] - especially for women with trauma histories [31], low satisfaction with providers [32], poor quality of interactions with providers [33], feelings of powerlessness [34], and lack of control [35, 36] as predictors of PP-PTSD.

While existing research syntheses have demonstrated that negative birth experiences are associated with adverse psychological outcomes [10, 29], primary quantitative studies assessing the association between hands-on measures of intrapartum decision-making and postpartum psychopathology have not been systematically synthesized, yet. Hence, the objective of our multi-level meta-analysis was to examine the effects of intrapartum decision-making on postpartum psychopathology. Since decision-making is primarily enabled by

providers and health systems, it is a major modifiable component in the genesis of postpartum psychopathology. By illuminating the various pathways through which aspects of decision-making in birth (e.g. information, involvement) can translate into adverse psychological outcomes, our findings can serve as tangible points of leverage for prevention. Lastly, they serve a dual purpose: they improve reproductive health and reproductive rights.

Methods

Search strategy and information sources

We followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) [37]. Using Boolean logic, we searched Scopus, PubMed, PsycInfo, Web of Science, Cinahl, and SocIndex (tab.1, appendix). Date of last search was 16/12/2021. We contacted authors to obtain unreported data, screened references of included articles for relevant studies, attempted to solicit additional citations through topic experts, and managed references through EndNote.

Eligibility criteria, selection process, and search results

We defined the following eligibility criteria: primary studies had to (a) be quantitative, (b) include a measurement of intra-partum decision-making (Studies using scales on the birth experience that only partially measured decision-making variables were considered eligible, if they consisted of at least fifty-percent items measuring decision-making.) and (c) one psychological outcome, (d) report a statistical information on the relationship between the measure of decision-making and psychological outcomes (i.e. correlations, simple linear regression coefficients, odds ratios, contingency tables, means and standard deviations, t-tests; if none were available, but conversion methods allowed estimation of the relationship, studies were included), and (e) be written in English, French, German, or Spanish. No limitations were placed on whether the study was peer-reviewed, study design, and publication date. Search resulted in 6.163 studies. After de-duplication, 3.223 remained. Two researchers independently reviewed titles and abstracts. This step resulted in 103 articles selected for full-text review; however, five articles could not be retrieved. Besides, 70 articles were chosen from other sources. After full-text review 34 articles remained (fig.1). At any point of the screening process uncertainties were solved through discussions.

Data coding

We developed a 210-item codebook covering the following main areas of interest: description of publications (e.g. year, country), study design (e.g. longitudinal, cross-sectional), sample characteristics (e.g. sample size, age), intrapartum situation (e.g. birth setting, birth mode), decision-making variables (e.g. being informed, control), psychological outcomes (e.g. PP-D, PP-PTSD), and statistics (e.g. means, correlations; if no correlation was reported, effect sizes were transformed into correlations [38]). If studies reported more than one effect for the exact same relationship between a dimension of decision-making and a specific outcome, effects were averaged. If necessary, calculated effect sizes were recoded to ensure that a negative correlation always represented a negative psychological outcome following ineffective decision-making. All coding disagreements were discussed in the research team.

[insert Figure 1]

Grouping of measurement tools and investigated associations

Given the heterogeneity of included decision-making measurement tools, we applied an inductive approach to grouping. The measurement tools and their items were compared with one another. Recurring themes were collected, discussed, and ultimately harmonized. For this purpose, we considered both the measurement tools' original labelling and existing models of intrapartum decision-making [23]. This process resulted in the following four dimensions: being informed, being involved, being respected, and having control. The vast majority of studies reported PP-D and PP-PTSD as clinical outcomes, only few other measures were included in the composite main effect.

Quality appraisal and interrater agreement

We used the Effective Public Health Practice Project Quality Assessment Tool for Quantitative Studies (tab.2) [39]. We adapted the tool as studies of interest were no intervention studies. Five studies were randomly selected and assessed for methodological quality by two coders independently. Studies were rated as "strong", "moderate" or "weak" in each domain. Cohen's kappa was calculated to assess interrater reliability for the tool's six domains and the overall quality rating. A weighted Kappa of .726 indicated substantial agreement [40].

Synthesis methods

All analyses were performed in *R* 4.0.3 using the metafor package and dmetar package [41, 42]. Since most studies reported more than one effect size of interest, dependence between the effect sizes was very likely. To account for this a random-effects multi-level model with Knapp-Hartung adjustments [43, 44] was fitted with a level for sampling variance (Level 1), one for the variance among the effect sizes within the studies (Level 2), and one level for the between-study variance (Level 3). Model parameters were estimated using a restricted maximum likelihood estimation [45]. Besides pooling across all studies to estimate an overall mean effect sizes of the association, effect sizes were also pooled based on the outcome measure (PP-D and PP-PTSD) as well as the different dimensions of decision-making (fig.2, appendix). To investigate whether the three-level model was well suited to describe the data, log-likelihood ratio tests were performed testing whether constraining variances on level 2 and level 3 to zero respectively, significantly deteriorated parameters of model fit. Heterogeneity of the effect sizes was quantified using I^2 [46] and explored on each level of the model [47]. An I^2 of 25% is regarded as low, 50% as moderate and 75% or more as a substantial amount of heterogeneity [48]. Furthermore, the test of the coefficient Q indicates whether there is significant heterogeneity in the whole model. Moderators both on Level 2 and 3 were tested with an Omnibus test indicating whether these moderators significantly reduced heterogeneity. Since tests of publication bias have not been validated for multi-level meta-analyses yet [45], the common tests for missing data have been performed on the univariate model [49, 50].

Results

Study pool

Included publications (k= 34; tab.2) were published between 1990 and 2021. Most studies were published in a peer-reviewed journal (= 33, 97.1%) and conducted in high-income countries (k = 29, 85.3%; UK (k = 10, 29.4%); US/Canada (k = 8, 26.5%)) [51].
In total, N = 34.586 women participated. Average sample size was 988.17 (SD = 1552.26; Min = 33; Max = 6054.). Mean age was 30 years (SD = 2.15). All participants identified as women. In 48.6% of the samples (k = 17) the largest ethnic group was Caucasian, while other samples were more diverse (k = 3; not reported by k = 23). On average, 43.1% of women had a high school degree or less as the highest educational level and 9.2% were single. Proportion of women with prenatally existing psychological vulnerability were as follows: depression (k = 3; 8.6%), acute PTSD (k= 1; 2.9%), general psychological distress (k = 3; 8.6%), consulting a psychologist or psychiatrist at least once in the past (k = 1, 2.9%), previous traumatic event

(k = 1, 2.9%), history of anxiety or depression (k = 1, 2.9%). Mean percentage of primiparous women was 57.2% (k = 28). The samples consisted mostly of hospital-births (98.2%), carried out as vaginal non-instrumental births (61.4%), as unplanned c-section, or instrumental births (e.g., forceps or ventouse; 32.4%, k = 18), or planned c-section (8.9%, k = 21).
In 24 studies (70.6%) the variables of interest were measured cross-sectionally after birth. Except for one study, the postpartum psychopathology was assessed with standardized questionnaires [52, 53]. The measures of decision-making in birth were entirely assessed with standardized tools [54, 55], but most tools where rather broad, covering a wider range of birth experiences. Consequently, for the meta-analysis subscales or responses to single items specifically focusing on decision-making were selected (tab.3, appendix).

[Insert Tab. 2]

Main Effects

First, an overall effect for the association between decision-making and postpartum psychopathology was computed. Based on a multi-level model, a significant overall effect size of r = -0.25 (SE = 0.0242, $p < 0.0001$) was estimated, indicating that less effective decision-making goes along with more adverse psychological outcomes. Primary studies' correlations ranged from r = -0.69 to r = 0.20 with only two effect sizes being larger or equal to zero. No statistical outliers were present.
As a second step, multi-level models were computed separately for the two main outcome measures: PP-D and PP-PTSD (tab.4). A small number of effect sizes described the correlations between decision-making and well-being (k = 4) and psychological functioning (k = 1). They were inversed so that effects described correlations between decision-making and adverse psychological outcomes and pooled for an average effect ("Other" in tab.4).

[Insert Tab. 4]

In a third step, measures of decision-making were dissected more precisely into the different dimensions of information, involvement, respect, and control and regarded with respect to overall psychopathology as well as the two psychological measures, PP-D and PP-PTSD. Concerning overall psychopathology, analyses showed that all four dimensions of decision-making were significantly related to the outcome variables (tab.5).
For PP-D, analyses revealed significant correlations with information, respect, and control (not with involvement). For PP-PTSD, analyses revealed significant correlations with involvement, respect, and control (not with information). It has to be taken into account, that

neither of these analyses were based on more than 10 studies, thus testing for significance is weary and the results have to be regarded with much caution. Effect sizes for PP-PTSD were on average higher than for PP-D, the confidence intervals overlapped, indicating that the difference was not significant.

[Insert Tab. 5]

Model fit and variance distributions

For the main model concerning overall psychopathology and the two psychological outcomes, PP-D and PP-PTSD, the proportions of variance explained by other than sampling variance were explored. Also, a comparison of the multi-level model with a more constrained model was carried out to determine whether the multi-level-model was indeed the best fit for the data. To do so, the Level 2 variance, which is the variance of the effect sizes within the studies, was set to zero. The likelihood ratio test comparing the restricted with the full model was significant (χ^2 [1] = 43.9, $p < 0.0001$) favouring the latter. Setting the Level 3 variance, the between-study heterogeneity, to zero is equal to fitting a simple random effects model in which the independence of all effect sizes is assumed. Comparing this model to the three-level-model also pointed towards accepting the full model (χ^2 [1] = 8.7, $p = 0.003$). The same procedures were also carried out for the subset of correlations with PP-D (Level 2 heterogeneity removed: χ^2 [1] = 17.4, $p < 0.0001$; Level 3 heterogeneity removed: χ^2 [1] = 0.0, $p = 0.859$) and PP-PTSD (Level 2 heterogeneity removed: χ^2 [1] = 14.1, $p = 0.000$; Level 3 heterogeneity removed: χ^2 [1] = 11.4, $p = 0.001$) separately. While for PP-D outcomes the results were mixed but nevertheless pointing towards a multi-level approach, for PP-PTSD outcomes the model comparisons clearly favoured the multi-level-model. Thus, in all further analyses the nested data structure will be modelled to estimate the pooled effects.

For the three models (overall, PP-D, PP-PTSD) the percentage of total variance attributable to each of the levels was explored to locate heterogeneity. For the overall model, sampling error variance on Level 1 was $I^2 = 5.9\%$. On Level 2 the amount of variance explained by other than sampling variance (heterogeneity within the studies) was $I^2 = 37.0\%$ and on Level 3 (between-study variance) heterogeneity made up $I^2 = 57.2\%$. Thus, across all levels $I^2 = 94.1\%$ of the variance was not attributable to sampling error calling for subsequent moderator analyses, which was further supported by a negative Q-Statistic (Q[54] = 2284.631; $p < 0.0001$). For PP-D correlations the amount of heterogeneity on Level 2 stood out (Level 1; 8.1%; Level 2: 78.3%; Level 3: 13.6%, total: 91.9%), whereas for PP-PTSD the largest amount of heterogeneity was located in the between-study variability (Level 1: 7.7%; Level 2:

9.5%; Level 3: 82.8%; total 92.3%). For PP-D outcomes, the overall test for heterogeneity was significant (Q[17] = 717.899; $p < 0.0001$) as well as for the PP-PTSD correlations (Q[29] = 935.480; $p < 0.0001$).

Moderator analyses

Since there was significant heterogeneity on both level 1 and 2, moderator analyses were conducted to explore the sources of variance between the studies and between the effect sizes within the studies. On the study-level characteristics of the sample and the study design were tested, on the effect size level characteristics of measurement.

First, moderators were tested with regard to overall psychopathology (tab.6). Among the tested variables only one proved to be a significant moderator: A higher percentage of women in the sample who had a planned c-section was related to stronger negative correlations between decision making and psychopathology (b = -0.007, p = 0.0015, F[1, 31] = 6.711, p = 0.015, QE[31] = 585.345, $p < 0.0001$, k = 20, N ES = 33). This effect could be demonstrated even more clearly when comparing samples with less than 15% planned c-sections and those with more than that: in the former the average effect was r = -0.202 while for the latter the average effect was r = -0.468 (b = -0.265, $p < 0.0001$, F[1, 31] = 21.610, $p < 0.0001$, QE[31] = 259.211, $p < 0.0001$).

[Insert Tab. 6]

Second, all potential moderators where tested with respect to only PP-D outcomes and PP-PTSD outcomes respectively. For PP-D, two significant moderator effects were found. On Level 3 the dichotomous variable indicating whether the study was performed in a high-income country or not had a modifying impact, indicating that in middle- and low-income countries the correlation between decision-making and PP-D was stronger than in high-income countries (b = -0.170, p = 0.014, F[1, 16] = 7.579, p = 0.014, QE[16] = 85.205, $p < 0.0001$, k = 12, N ES = 18). On Level 2 a dummy variable showing whether the correlation was based on a single-item measure of decision-making or several-item scale turned out to be a significant moderator, suggesting that correlations were stronger in the latter cases (b = -0.308, p = 0.000, F[1, 16] = 23.890, p = 0.000, QE[16] = 169.985, $p < 0.0001$, k = 12, N ES = 18).

For PP-PTSD, as already shown for overall psychopathology, the amount of planned c-sections in the samples was a significant moderator (b = -0.221, p = 0.008, F[1, 17] = 9.094, p = 0.008, QE[17] = 135.036, $p < 0.0001$, k = 13, N ES = 19). On Level 2 the measurement time

point significantly reduced heterogeneity among effect sizes within the studies (b = -.098, p = 0.0319, F[1, 26] = 5.143, p = 0.0319, QE[26] = 84.607, p < 0.0001, k = 20, N ES = 28). This means that the correlation was stronger in studies that had a greater time lag between birth and postnatal outcome measurement. When outcomes were measured less than 100 days after birth the mean effect was r = -0.13 (p = 0.050). Outcome measurement after this cut-off, resulted in a mean effect of r = -0.23 (p = 0.032), indicating that the manifestation of PP-PTSD after having experienced ineffective decision-making shows increasingly strong over time.

Publication bias

The test of funnel plot asymmetry was not significant (t (33) = 1.04, p = .307) [49], indicating that no publication bias is present (fig. 3). A trim-and-fill analysis (Duval and Tweedie, 2000) was performed with Lo estimators. The results for the overall association of decision-making and postpartum psychopathology and the results for the association of decision-making and PP-D-symptoms did not reveal any missing publications. However, the trim-and-fill analysis for the association of decision-making and PP-PTSD-symptoms estimated six missing studies on the left side of the funnel plot (white dots in fig.3). This is indicative of missing publications with stronger negative effect sizes. Hence, the adjusted correlation between decision-making and PP-PTSD was estimated to be -0.34 (SE = 0.0324, CI = [-0.41; -0.28], p < 0.0001).

Discussion

Our meta-analysis (k = 34, N=34.586) investigated the association between intrapartum decision-making and postpartum psychopathology. Results revealed a significant negative correlation of moderate size [56], which means that less effective decision-making goes along with a higher rates of psychopathology, which also held true for the two outcome groups PP-D and PP-PTSD. More precisely, while all four dimensions of decision-making were associated with overall psychopathology, only information, respect, and control were associated with PP-D, and only involvement, respect, and control were associated with PP-PTSD. This suggests that, besides respect and control, information is crucial for PP-D and involvement for PP-PTSD.

Decision-making and overall postpartum psychopathology

The association of overall intrapartum decision-making and postpartum overall psychopathology (r = -0.25) is consistent with previous research, highlighting the crucial role of women's relationship with providers for postpartum adjustment [57] and social support as a protective factor for PTSD caused by interpersonal violence [58]. Notably, all four dimensions of decision-making were associated with overall psychopathology, indicating that all are central for postpartum mental health. These findings lend additional empirical support to the urgent call for respectful maternity care and reproductive justice [59-62]. The results from moderator-analyses produced the interesting finding, that a higher rate of planned c-sections was related to a stronger relationship between decision-making and psychopathology. When there were more than 15% c-sections in a sample the correlation coefficient doubled.

Decision-making and PP-D

The magnitude of the association of between decision-making and PP-D (r = -0.19) is smaller than synthesized effect-sizes for PP-D and constructs similar to intrapartum decision-making in comparable meta-analyses, such as social support (r = -0.30), stressful life events (r = -0.29), violence experience (r = 0.32) [63, 64]. An explanation for these stronger associations might be the broadness of used constructs. In contrast, research also revealed smaller synthesized associations between PP-D and birth-related variables, such as delivery complications (r = -0.13) or emergency c-sections (r = -0.11) [63, 65]. This underscores the powerful impact of interpersonal violence on psychopathologies (as compared to events without interpersonal violence) [66]. However, the fact that the association found in our study is rather small is in line with research on the genesis of PP-D, attributing a more prominent role to psychological, social, and genetic factors [67], hormones [68, 69], and more constant environmental and social factors than to acute events [70]. Nevertheless, our finding is indicative of a predictive value of ineffective decision-making for PP-D. Lastly, there was no evidence that being involved is associated with PP-D, suggesting that a woman's level of involvement plays no role in the etiology of PP-D.

Moderator analyses revealed that higher number of items measuring the ways of decision-making and a having conducted the study in a low-income country were both related to an amplified correlation between decision-making and PP-D. For the former, a higher number of items is likely to result in a more reliable measurement with better predictive properties, which may cause the stronger association. For the latter, people from low-income countries might be more vulnerable due to existing stressors (e.g. food insecurity, lack of social security coverage, precarious job situation) and consequently have a higher risk for PP-D,

emphasizing the consideration of intersecting vulnerabilities also in the intrapartum period [71, 72].

Decision-making and PP-PTSD

The association between decision-making and PP-PTSD (r = -0.29) is consistent with previous research, revealing an association between woman-provider-interactions and PTSD-symptoms [33]. The magnitude of the association in our study, however, is smaller than synthesized effects for PP-PTSD and intrapartum support (r = -0.38), a negative subjective birth experience (r = 0.59), or perceived quality of interactions with staff (r = -0.40, [25, 29]. Again, the relative broadness of the used constructs may explain the stronger associations. In contrast, research also revealed smaller synthesized associations between PP-PTSD and birth-related variables, such as complications (r = 0.26) or intrapartum pain (r = 0.24) [25]. Remarkably, it appears that external control (e.g. over decisions, performed procedures) is at least an equally strong predictor of PP-PTSD as internal control (e.g. over body, emotions) [55]. This is not surprising, since interpersonal traumatic events are more likely to result in PTSD than other types of traumatic events [58]. It has to be noted that the trim-and-fill analysis indicated missing publications with even stronger negative effect sizes. In sum, our finding is indicative of a predictive value of ineffective decision-making for PP-PTSD. Finally, there was no evidence that being informed is associated with PP-PTSD, suggesting that information plays no role in the etiology of PP-PTSD.

Later post-birth measurements, and planned c-sections were significant moderators and amplified the relationship between decision-making and PP-PTSD. The moderating effect of a later measurement time point can be attributed to a delayed effect of decision-making on PP-PTSD, which is both consistent [57] and inconsistent [29] with similar research and thus warrants further examination. Lastly, one explanation for the moderating effect of planned c-sections could be that they are preceded by relationship-building through antenatal contacts and thus the experience of ineffective decision-making during surgery in these cases may be more unexpected and traumatic than in cases with less pre-established rapport between women and providers, ultimately causing stronger associations. Alternatively, women with planned c-sections may benefit less from the protective function of hormones and birthing consciousness and hence effects of ineffective decision-making may be more severe [73, 74]. Finally, it has to be noted that unplanned c-sections did not moderate the association between overall decision-making and PP-PTSD.

Limitations

Most included studies were of moderate or low study quality. Only ten studies provided measurements of pre-birth psychological distress and, thus, respective moderator analysis was limited. Only two studies measured psychological outcomes later than one year after birth, which rendered synthesizing long-term effects of decision-making impossible. The great majority of studies stemmed from high-income countries; hence, generalizability of our findings is limited. Lastly, heterogeneity in intrapartum decision-making measures might limit interpretability of results concerning the extracted four dimensions of decision-making during birth.

Conclusion

Our study evidences that ineffective intrapartum decision-making contributes to the genesis postpartum psychopathology. Interestingly, this finding marks a convergence of ethico-legal and psychological aspects, as rights-based care (materializing in the form of effective decision-making) is not only a normative imperative but translates into better health. Moreover, our nuanced findings on the relationships between the four dimensions of decision-making and the two psychological outcomes (PP-D, PP-PTSD) provide tangible hints as to how to shape more effective decision-making. Given the high number of births, the widespread occurrence of ineffective intrapartum decision-making, the resulting psychopathologies and associated costs, our findings are also relevant from a public health and health economics perspective. However, more research is needed to substantiate the various pathways through which the dimensions of decision-making can translate into adverse psychological outcomes and to draw more robust conclusions about causality, for example, through randomized intrapartum decision-making intervention studies or study designs allowing to control for pre-birth psychological distress.

Future meta-analyses will benefit from more and more widely applied validated instruments measuring decision-making [54, 75]. In line with the WHO, main implications for practice concern establishing numerous antenatal care contacts as a standard to enhance both women's and providers' birth preparedness, and measuring the experience of decision-making as an indicator of quality of intrapartum care as a default to monitor, analyse, and improve decision-making as well as to facilitate accountability systems [9, 76]. More effective decision-making will translate into better health of women and children. Finally, it is time to universally acknowledge that ineffective decision-making does cause psychological harm on the part of women and to collaboratively work towards effectuating fundamental change [77].

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Appendix

Tables

Table 1. Search terms

		Matches					
	Search terms	**Scopus**	**Pub Med**	**Psyc Info**	**Web of Science**	**Cinahl**	**Soc Index**
1)	Consent OR decision* OR rapport OR autonomy OR communicat* OR choice OR self-determin*	5.223.405	1.132.651	563.353	1.964.984	574.005	230.315
2)	Birth* OR childbirth OR "maternity care" OR intrapartum OR perinatal OR obstetric* OR delivery	1.909.118	954.520	131.156	822.370	372.947	49.828
3)	Psychological OR mental OR emotional OR depression OR anxiety OR stress OR trauma* OR "well-being" OR psychosis OR mood	6.020.061	2.266.565	1.355.122	2.659.691	969.118	245.083
4)	Postpartum OR post-partum OR "after childbirth" OR "after birth" OR "postnatal" OR "post-natal"	280.058	218.829	36.042	167.482	61.291	3.466
5)	1) AND 2) AND 3) AND 4)	2.565	1.102	478	967	995	56
	Total: 6.163						

Date of last search: 16.12.2021

Table 3. Scales and single items measuring intrapartum decision-making

Scale	Description	α	Used by	Decision-making
BEI: Birth experience interview (Kountanis et al., 2021)	Semi-structured interview quantified through coding of subjective perception of communication (positive vs. mixed and negative)	N/A	Kountanis et al. (2021)	Being involved
DDMS: Delivery Decision-Making Scale (Attanasio et al., 2018)	6 items, shared decision-making	.69	Kjerulff et al. (2021)	Being involved
MADM: Mother's autonomy in decision making scale (Vedam, Stoll, Martin, et al., 2017)	7 items, birthing persons' autonomy in decision-making	.96	Claudia Limmer et al. (2021)	Being involved
QPI-I: quality of provider interactions inventory (D. Sorenson & L. Tschetter, 2010)	29 items, providers' interpersonal relationship behaviors	.96	D. S. Sorenson and L. Tschetter (2010)	Being involved
MOR-7: Mothers on respect index (Vedam, Stoll, Rubashkin, et al., 2017)	7 items, respect for the birthing person and their preferences	.95	Claudia Limmer et al. (2021)	Being respected
MOR-G: Mothers on respect index (Vedam, Stoll, Rubashkin, et al., 2017)	13 items, respect for the birthing person and their preferences	.95	Claudia Limmer et al. (2021)	Being respected
PCACL-R: Perceptions of Care Adjective Checklist – Revised (Redshaw & Martin, 2009)	16 items, positive and negative adjectives describing perceptions of care	N/A	Michels et al. (2013)	Being respected
PCMC: person-centered maternity care scale (Afulani et al., 2017)	30 items, person-centeredness of care	.84	Sudhinaraset et al. (2021)	Being respected
PCQ: Perception of Care Questionnaire (Fisher, 1994)	8 items technical subscale, 6 items emotional subscale	.90	Debra K. Creedy et al. (2000)	Being respected
PCQ: Perception of Care Questionnaire (Fisher, 1994)	22 items, technical skills, decision-making, gentleness	.90	Verreault et al. (2012)	Being respected
SCIB: support and control in birth questionnaire (E. Ford et	12 items, support subscale	.90	Ayers et al. (2014); Elizabeth Ford and Susan	Being respected

al., 2009)			Ayers (2011); Gökçe İsbİr et al. (2016); Tomsis et al. (2021)	
VPN: violence per negligence (Souza et al., 2017)	3 items, negligence of healthcare professionals	N/A	Souza et al. (2017)	Being respected
Informal coercion (S. Oelhafen et al., 2021)	7 items, informed consent, opposition to intervention, intimidation, manipulation	N/A	S. Oelhafen et al. (2021)	Being respected
EC2: Experience of control during childbirth scale (DeLuca & Lobel, 2014b)	21 items, perceived control during childbirth	.89	DeLuca and Lobel (2014b)	Having control
LADSI: labor and delivery satisfaction index, 6 Items from the birth satisfaction scale (Lomas et al., 1987)	6 items, birth satisfaction concerning control	.93	Fair and Morrison (2012)	Having control
LAS: Labor agentry Scale (Hodnett & Simmons- Tropea, 1987)	14 items, external control subscale	N/A	Denis et al. (2011)	Having control
PCCh: Perceived control in childbirth scale (Stevens et al., 2012)	12 items, perceived control	.91	Stevens et al. (2012)	Having control
PCON: Perceived Control Scale (Wallston, 1989)	6 items, perceived control	N/A	Jo Czarnocka and Pauline Slade (2000)	Having control
SCIB: support and control in birth questionnaire (E. Ford et al., 2009)	11 items, external control subscale	.86	Elizabeth Ford and Susan Ayers (2011); Gökçe İsbİr et al. (2016); Tomsis et al. (2021)	Having control
BES: Birth Experiences Scale (Ayers, 1999)	3 items, subscale control over analgesia	.71	Keogh et al. (2002)	Having control
CEQ: Childbirth Experience Questionnaire (Dencker et al., 2010)	3 items, subscale participation	.80	Lydia King et al. (2017); Avignon et al. (2021)	Having control

Single Items	**Used by**	**Decision-making**
Not always kept informed	Mohammad et al. (2011)	Being informed
Wanted more information during labor	Mohammad et al. (2011)	Being informed
Wanted more information about why induction was necessary	Mohammad et al. (2011)	Being informed
Overall rating of feeling informed	Leeds and Hargreaves (2008)	Being informed
Quality of information given	J. E. Soet et al. (2003)	Being informed

(adequate/inadequate)		
Midwifes and doctors talked to me in a way I could understand	Redshaw and Henderson (2013)	Being informed
Information from doctors/midwives (enough/ would have like more)	Astbury et al. (1994)	Being informed
Decisions made without taking my wishes into account	Mohammad et al. (2011)	Being involved
Wishes listened to by staff	Leeds and Hargreaves (2008)	Being involved
Involved in nonemergency decisions	Green et al. (1990)	Being involved
Allowed to play active role	Jo Czarnocka and Pauline Slade (2000)	Being involved
Degree wishes and views were listened to by staff	Jo Czarnocka and Pauline Slade (2000)	Being involved
Getting questions answered	Jo Czarnocka and Pauline Slade (2000)	Being involved
Did not have active say in decision making about care in labour, all, or most of the time	Small et al. (2003)	Being involved
Active say in decision-making	Astbury et al. (1994)	Being involved
Discussion of pain relief	Astbury et al. (1994)	Being involved
Possibility to ask questions	De Schepper et al. (2016)	Being involved
Staff communicated well	Jane Henderson and Maggie Redshaw (2013)	Being involved
Respect	Redshaw and Henderson (2013)	Being respected
Birth plan (no; yes but not respected; yes and was respected)	Martinez-Vázquez et al. (2021)	Being respected
Felt pressure to have baby quickly	Mohammad et al. (2011)	Being respected
Pressure to have induction of labor	C. T. Cheryl Tatano Beck et al. (2011)	Being respected
Pressure to have epidural analgesia	C. T. Cheryl Tatano Beck et al. (2011)	Being respected
Felt labor was taken over by strangers/machines	Mohammad et al. (2011)	Having control
Felt out of control	Mohammad et al. (2011)	Having control
Control regarding the staff	Green et al. (1990)	Having control
In general, did you feel in control of what the staff were doing to you during labor	Green and Baston (2003)	Having control
Feeling in control of situation in labor	Jo Czarnocka and Pauline Slade (2000)	Having control
Feelings of control/powerlessness	J. E. Soet et al. (2003)	Having control

Figure 2 Caption: Investigated relationships
Figure 2 Alt Text: Intrapartum decision-making consists of the domains being informed, being involved, being respected, and having control. The relationships of all four with the two psychopathological outcomes, depression and posttraumatic stress disorder, will be tested.

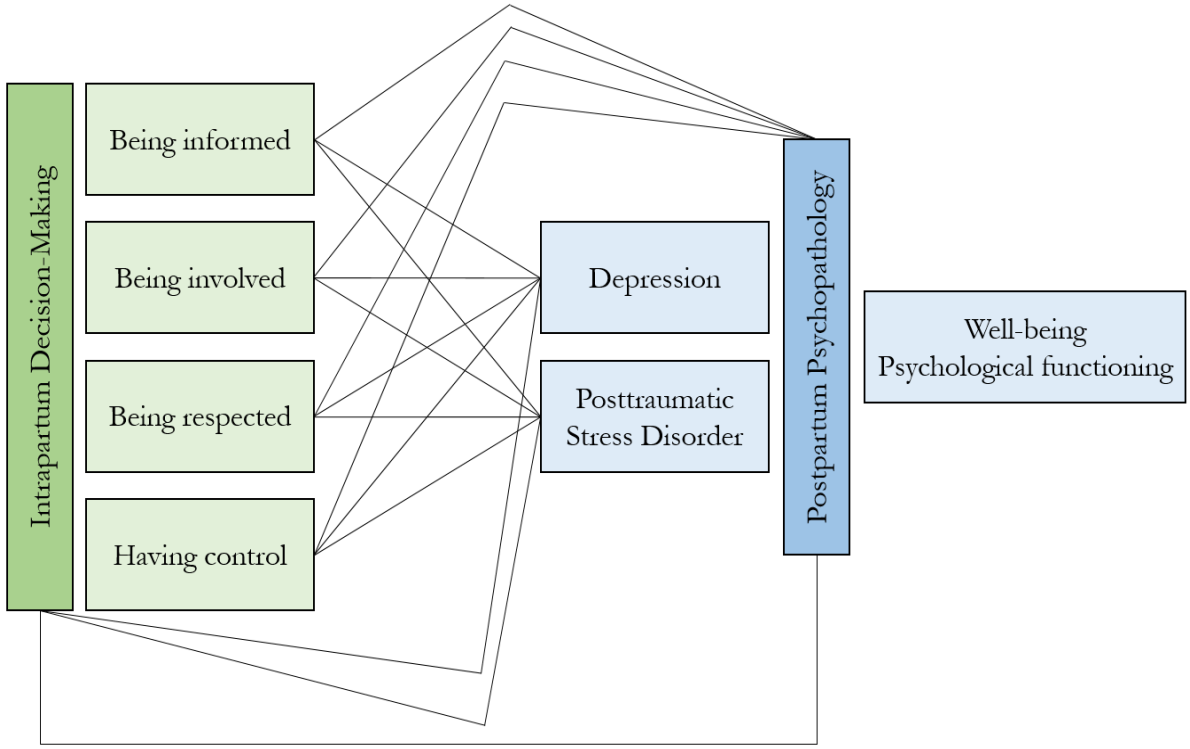


Figure Captions

Figure 1: PRISMA flowchart for inclusion of studies

Figure 1 Alt Text: The number of identified (n = 6.163), screened (n = 3.223), and included publications (n = 34) is depicted along with the reasons of exclusion at each stage of the process.

Figure 3: Funnel plot of the association between decision-making and psychopathology and trim-and-fill funnel plot of the association between decision-making and PP-PTSD

Figure 3 Alt Text: One scatter plot of the effect sizes against the standard error. The effect sizes are equally distributed on both sides of the mean effect size (r = -0.25). Second scatter plot of the effect sizes against the standard error with six additional white dots on the left side of the mean indicating the studies potentially missing due to publication bias.

Tables

Table 2. Included studies

Authors	Year	*N*	Country	Design	Quality
Astbury et al.	1994	771	Australia	Cross-sectional	Weak
Avignon et al.	2021	794	Switzerland	Cross-sectional	Weak
Ayers et al.	2014	76	UK	Longitudinal (cross-sectional data used)	Moderate
Beck et al.	2011	1 573	USA	Longitudinal only post-birth	Weak
Creedy et al.	2000	592	Australia	Longitudinal (cross-sectional data used)	Weak
Czarnocka & Slade	2000	298	UK	Longitudinal only post-birth	Strong
De Schepper et al.	2016	340	Belgium	Longitudinal only post-birth	Moderate
DeLuca & Lobel	2014	240	USA	Longitudinal (cross-sectional data used)	Weak
Denis et al.	2011	239	France	Longitudinal only post-birth	Moderate
Fair & Morrison	2012	33	USA	Longitudinal (cross-sectional data used)	Weak
Ford & Ayers	2011	138	UK	Longitudinal pre- and post-birth	Moderate
Gökçe İsbİr et al.	2016	270	Turkey	Longitudinal (cross-sectional data used)	Strong
Green & Baston	2003	425	UK	Longitudinal (cross-sectional data used)	Moderate
	2003	564	UK	Longitudinal (cross-sectional data used)	Moderate
Green et al.	1990	825	UK	Longitudinal (cross-sectional data used)	Moderate
Henderson & Redshaw	2013	5 333	UK	Cross-sectional	Weak
Keogh et al.	2002	42	UK	Longitudinal (cross-sectional data used)	Moderate
King et al.	2017	157	UK	Cross-sectional	Weak
Kjerulff et al.	2021	3 080	USA	Longitudinal (cross-sectional data used)	Weak
Kountanis et al.	2021	600	USA	Longitudinal pre- and post-birth	Moderate
Leeds & Hargreaves	2008	102	UK	Cross-sectional	Weak
Limmer et al.	2021	2 045	Germany	Cross-sectional	Weak
Martinez-Vázquez et al.	2021	839	Spain	Cross-sectional	Weak
Michels et al.	2013	664	Australia	Cross-sectional	Weak
Mohammad et al.	2011	353	Jordan	Longitudinal pre- and post-birth	Moderate
Oelhafen et al.	2021	6 054	Switzerland	Cross-sectional	Weak
Redshaw & Henderson	2013	5 332	UK	Cross-sectional	Weak
Small et al.	2003	318	Australia	Cross-sectional	Weak
Soet et al.	2003	112	USA	Longitudinal pre- and post-birth	Moderate
Sorenson & Tschetter	2010	71	USA	Cross-sectional	Weak
Souza et al.	2017	432	Brazil	Cross-sectional	Weak
Stevens et al.	2012	187	USA	Cross-sectional	Weak
Sudhinaraset et al.	2021	1 014	Kenya	Longitudinal only post-birth	Moderate
Tomsis et al.	2021	306	Israel	Longitudinal only post-birth	Weak
Verreault et al.	2012	367	Canada	Longitudinal pre- and post-birth	Weak

Note. Green & Baston (2003) report separate statistical analyses for primiparas and multiparas; thus, the publication appears twice.

Table 4. Main effects of intrapartum decision-making on postpartum psychopathology

Psychological outcome	*r*	SE	95% CI	Total I^2	*k*	*N*(ES)
Overall Psychopathology	-0.25***	0.0242	-0.29; -0.20	94.1%***	35	55
PP-D	-0.19***	0.0351	-0.27; -0.12	91.9%***	13	18
PP-PTSD	-0.29***	0.0317	-0.35; -0.22	92.3%***	21	30
Other	-0.20*	0.0617	-0.35; -0.05	94.2%***	5	7

Note: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.0001$. I^2 = percentage of variability across all levels that is not due to sampling error. *k* = number of independent studies. *N*(ES) = number of effect sizes. Other = well-being and psychological functioning.

Table 5. Main effects of intrapartum decision-making dimensions on postpartum psychopathology

	r	SE	95% CI	Total I^2	*k*	*N* ES
Overall Psychopathology						
Information	-0.22**	0.0472	-0.34; -0.10	82.2%***	6	7
Involvement	-0.23***	0.0481	-0.33; -0.12	97.2%***	15	18
Respect	-0.28***	0.0436	-0.37; -0.19	96.6%***	14	14
Control	-0.25***	0.0267	-0.30; -0.19	54.8%**	14	16
PP-D						
Information	-0.18*	0.0377	-0.35; -0.03	53.7%	3	3
Involvement	-0.14	0.1013	-0.42; -0.15	94.1%***	5	5
Respect	-0.25*	0.0659	-0.43; -0.07	95.8%***	5	5
Control	-0.12**	0.0336	-0.27; -0.09	46.9%	5	5
PP-PTSD						
Information	-0.37	0.0858	-0.15; -0.72	50.5%	2	2
Involvement	-0.31***	0.0591	-0.44; -0.17	96.3%***	10	10
Respect	-0.32**	0.0637	-0.47; -0.16	95.5%***	8	8
Control	-0.25***	0.0238	-0.31; -0.20	7.1%	10	10

Note: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.0001$. I^2 = percentage of variability across all levels that is not due to sampling error. *k* = number of independent studies. *N* ES = Number of effect sizes.

Table 6. Moderator analyses

Moderator	*b*	Omnibustest	Test for residual heterogeneity	*k*	*N* ES
Level 3					
Study Quality	0.082	F(1, 53) = 2.968	QE (53) = 2066.045***	34	55
Country (high-income vs. not)	-0.063	F(1, 53) = 0.879	QE (53) = 2282.205***	34	55
Mean Age	-0.011	F(1, 51) = 0.776	QE (51) = 2236.129***	33	52
Single women in sample (%)	-0.002	F(1, 35) = 0.412	QE (35) = 280.736***	23	37
Primiparous women in sample (%)	-0.001	F(1, 44) = 1.700	QE (44) = 1504.409***	28	46
Vaginal birth non-instrumental (%)	0.001	F(1, 26) = 0.854	QE (26) = 1602.162***	18	28
Unplanned CS /instrumental birth (%)	-0.000	F(1, 26) = 0.029	QE (26) = 1328.665***	17	28
Planned CS (%)	-0.007*	F(1, 31) = 6.711	QE (31) = 585.345***	20	33
General level of intervention (high vs. low)	-0.007	F(1, 41) = 0.009	QE (41) = 1717.292***	27	43
Level 2					
Outcome measurement method (questionnaire vs. interview)	0.047	F(1, 47) = 0.504	QE (47) = 2201.281***	30	49
Number of items in outcome measurement	-0.005	F(1, 52) = 2.067	QE (52) = 1392.540***	33	54
Number of items in decision-making measurement	-0.003	F(1, 52) = 1.071	QE (52) = 2146.891***	33	54
Measurement time point (days after birth)	-0.043	F(1, 51) = 0.983	QE (51) = 396.552***	33	52

Note: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.0001$. *k* = number of independent studies. *N* ES = Number of effect sizes.

Figures

Figure 1

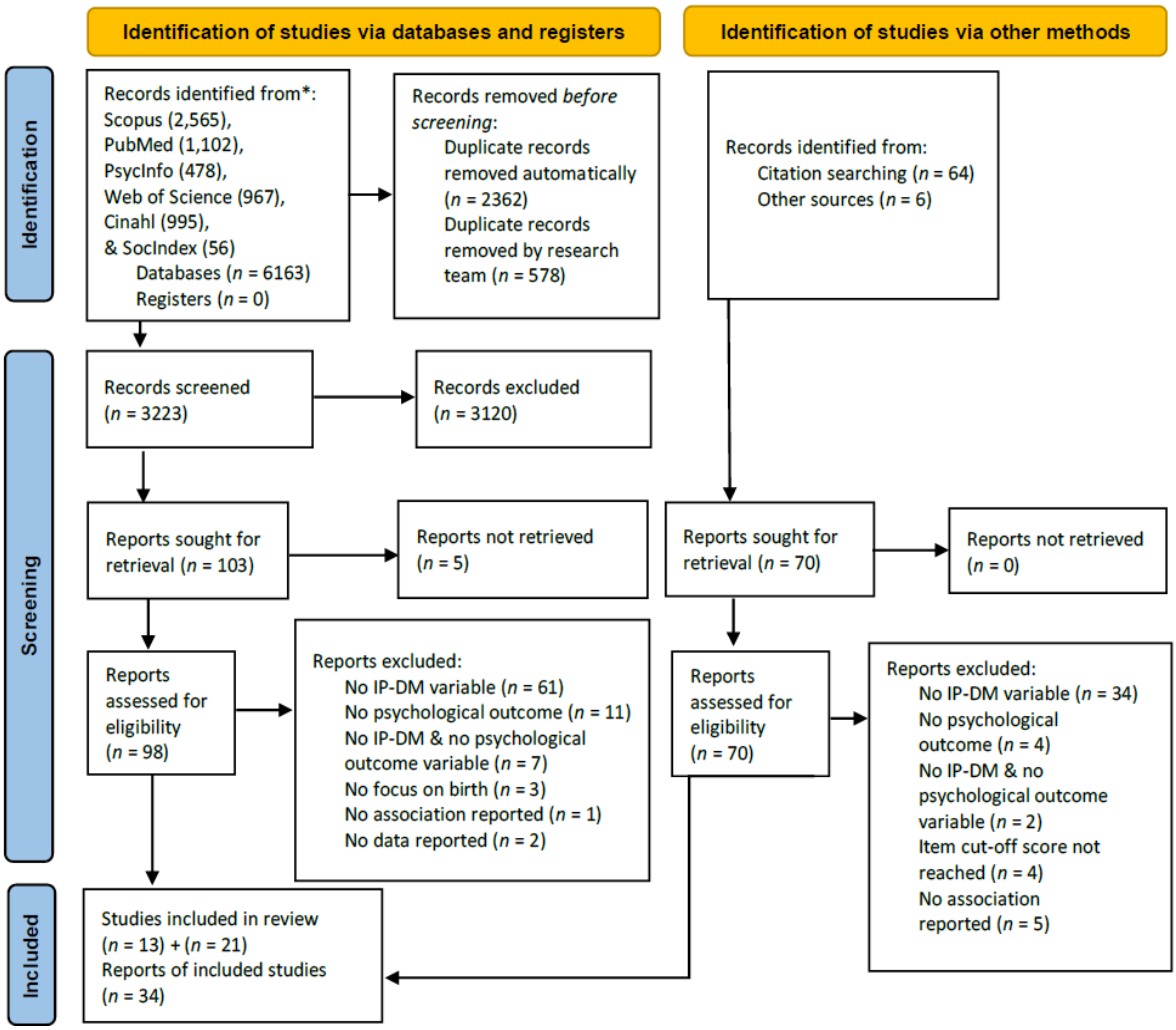
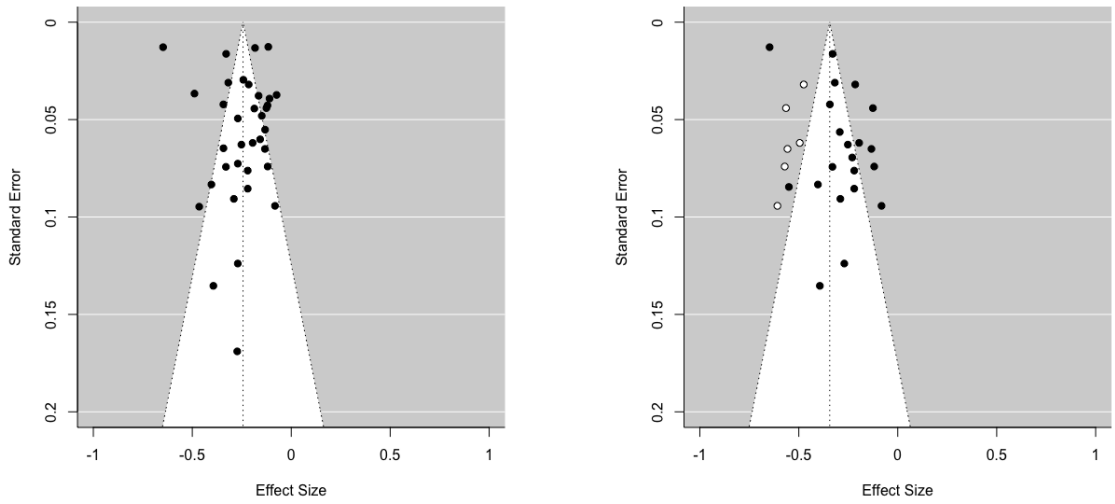


Figure 3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Effect Size
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Effect Size

Conflict of interest: all authors have no conflict of interest to declare.

Study 2: Parent training programs for preventing and treating antisocial behavior in children and adolescents: A comprehensive meta-analysis of international studies

Bibliographic information:

Beelmann, A., Arnold, L. S., & Hercher, J. (2023). Parent training programs for preventing and treating antisocial behavior in children and adolescents: A comprehensive meta-analysis of international studies. *Aggression and Violent Behavior*, *68*, 101798. https://doi.org/10.1016/j.avb.2022.101798

Author contributions:

	1st author	2nd author	3rd author
Conceptualization	x		
Data curation	x	x	x
Formal Analysis	x	x	
Methodology	x	x	x
Project administration	x		
Software	x	x	
Supervision	x		
Visualization	x	x	
Writing – original draft	x	x	
Writing – review & editing	x	x	x

Study 3: The effects of relationship education in low-income couples: A meta-analysis of randomized-controlled evaluation studies

Bibliographic information:

Arnold, L. S., & Beelmann, A. (2019). The Effects of Relationship Education in Low-Income Couples: A Meta-Analysis of Randomized-Controlled Evaluation Studies. *Family Relations*, *68*(1), 22–38. https://doi.org/10.1111/fare.12325

Author contribuions:

	1st author	2nd author
Conceptualization	x	
Data curation	x	
Formal Analysis	x	
Methodology	x	x
Project administration	x	x
Software	x	
Visualization	x	
Writing – original draft	x	x
Writing – review & editing	x	x

Appendix

Ehrenwörtliche Erklärung

Hiermit erkläre ich, dass mir die geltende Promotionsordnung der Fakultät für Sozial- und Verhaltenswissenschaften der Friedrich-Schiller-Universität Jena bekannt ist.

Ferner erkläre ich, dass ich die vorliegende Arbeit selbst und ohne die unzulässige Hilfe Dritter angefertigt habe. Ich habe keine Textabschnitte eines Dritten oder eigener Prüfungsarbeiten ohne Kennzeichnung übernommen und alle von mir benutzten Hilfsmittel und Quellen in der Arbeit angegeben.

Eine Auflistung der Personen, die an der Erstellung der Artikel beteiligt waren, ist den einzelnen Originalarbeiten vorangestellt.

Ferner erkläre ich, dass ich nicht die Hilfe eines Promotionsberaters in Anspruch genommen und dass Dritte weder unmittelbar noch mittelbar geldwerte Leistungen von mir für Arbeiten erhalten haben, die im Zusammenhang mit dem Inhalt der vorliegenden Dissertation stehen.

Die Arbeit wurde weder im In- noch Ausland in gleicher oder ähnlicher Form einer anderen Prüfungsbehörde vorgelegt. Weder früher noch gegenwärtig habe ich an einer anderen Hochschule eine Dissertation eingereicht.

Ich versichere, dass ich nach bestem Wissen die reine Wahrheit gesagt und nichts verschwiegen habe.

Leipzig, den 06.06.2023

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