Differences and similarities between mothers' and fathers' risk factors for child maltreatment

Hanne M. Duindam [a,*], Annemiek Vial [b], Merian B.R. Bouwmeester-Landweer [c,d], Claudia E. van der Put [b]

[a] *Utrecht University, the Netherlands*
[b] *Research Institute of Child Development and Education, University of Amsterdam, the Netherlands*
[c] *Department of Pediatrics, Leiden University, the Netherlands*
[d] *Nederlands Centrum Jeugdgezondheid, the Netherlands*

ARTICLE INFO

ABSTRACT

Background: Parental risk factors play an important role in child maltreatment, however, little is known about the role of fathers' risk factors.
Objective: The current study aimed to compare fathers and mothers in terms of (1) the prevalence and impact of risk factors for perpetrating child maltreatment and (2) the interplay of risk factors. Participants: The Dutch sample consisted of 4090 mothers and 3973 fathers who had a newborn and received health-and developmental checks between October 2001 and November 2002.
Methods: Risk factors were assessed using the Instrument for Identification of Parents at Risk for Child Abuse and Neglect (IPARAN) and child maltreatment was defined as a verified report at Child Protection Services in a period of 3-years following completion of the IPARAN. McNemar tests and network analyses were performed.
Results: Results demonstrated that the majority of assessed risk factors were related to perpetrating future child maltreatment for both fathers and mothers. In general, risk factors were more prevalent in mothers than in fathers. *Inability to ask for help* was the risk factor that was most prevalent for both mothers (22.4%) and fathers (22%). The risk factors *worries about raising the child, unhappy during pregnancy*, and *losing control when angry* were more strongly related to future child maltreatment in mothers compared to fathers, whereas risk factors related to their own child maltreatment in the past and *experiencing a lack of support* were more impactful for fathers compared to mothers. For fathers and mothers, belief in physical punishment and risk factors related to their own history of child maltreatment were most central.
Conclusions: Overall, these findings underscore the importance of considering the long-lasting, intergenerational effects of child maltreatment. Intergenerational trauma may put parents at a higher risk of becoming perpetrators; our network results confirm that these risk factors deserve an important spot in prevention efforts.

1. Introduction

Child maltreatment is a serious problem with far-reaching social-emotional, societal, and financial consequences. Prevalence rates of child maltreatment (i.e., child abuse and/or neglect) are high and relatively constant over time, with estimates ranging between 4% and 16% in high income countries (Gilbert et al., 2009; Stoltenborgh et al., 2015). Meta-analytical research has identified the most important risk factors for several forms of child maltreatment (i.e., sexual abuse, Assink et al., 2019; child neglect, Mulder, Kuiper, van der Put, Stams, & Assink,

2018; child physical abuse and neglect, Stith et al., 2009). However, little is known about differences between fathers and mothers in the prevalence and impact of risk factors on child maltreatment, which may be because fathers – and father-related risk factors – have been relatively understudied in the past decades despite their increasing presence in family life (Mulder et al., 2018; Parker & Wang, 2013; Phares et al., 2005). To tackle child maltreatment more effectively, it is important to know to what extent there are parental sex differences in risk factors and how they interact with each other. This knowledge can provide new insights into the etiology of child maltreatment, help develop effective

---

screening instruments, and generally improve clinical practice. Therefore, the aim of the current study was to examine the prevalence, impact, and interrelatedness of risk factors on (perpetrating) child maltreatment in the first three years of children's lives for fathers and mothers in a large sample.

Child maltreatment is the result of an interplay between a wide array of risk factors present in parents, children, and the rearing environment. Several theoretical models have been proposed to explain child maltreatment (e.g., Belsky, 1980; Cicchetti & Rizley, 1981); each model emphasizes how the interplay of not one but multiple protective and risk factors influences the likelihood of child victimization (see also Ciccheti, 1989). For example, Belsky's model (1980) – inspired by Bronfenbrenner's (1979) ecological perspective on child development – highlights how child victimization results from an unbalance in risk and protective factors at four different levels of proximity: (1) the ontogenetic level, which refers to how parental behavior is being influenced by (negative) familial past experiences; (2) the microsystem, which includes current child and parental characteristics; (3) the exosystem, which refers to general characteristics of the family's living environment (i.e., community, parental employment); finally (4) the macrosystem, including society's attitude towards children and child abuse and neglect. In sum, Belsky argued that there are many paths through which an unbalance of several risk and protective factors – at different proximity levels – can lead to child maltreatment. The interplay and significance of risk – and protective – factors present in the child, parents, and environments is also stressed in the transactional model of Cicchetti and Rizley (1981) and a theoretical model of Wolfe (1991), the latter of which argued that (adverse) caregiver behavior is the most central risk factor leading to child maltreatment.

More recently, several pathways have been proposed to explain how the presence of risk factors at different proximity levels of Belsky's model can result in child maltreatment. At the ontogenetic level, attachment theory aims to explain why parents who have been maltreated during their childhood, are at higher risk to maltreat their own children (i.e., intergenerational cycle of child maltreatment). This theory argues that maltreatment victims may have (unresolved) disorganized attachment and maladaptive schemas about themselves and relationships, which can result in the victimization of their own children (e.g., by selecting abusive partners or mimic relationship dynamics experienced in the past; Marshall et al., 2022). Parent-child interactions may generally also trigger traumatic stress for maltreatment victims, overflooding them with emotions and increasing the risk of inappropriate parental behaviors (Marshall et al., 2022). In general, parental stress can play a mediating role between risk factors and child maltreatment (e.g., Miragoli et al., 2018). For example, parental distress appears to be an important mechanism that explains why (perceived) child behavioral problems can lead to a higher chance of physical abuse at the microsystem level (Miragoli et al., 2018). Stress may also be the pathway explaining why risk factors such as poverty (i.e., exosystemic level) or structural racism (i.e., macrosystem level), leading to unequal access to societal resources (e.g., education, housing, employment), could result in neglect or harsher parenting practices (Drake & Jonson-Reid, 2014; Feely, 2022).

In line with the above theoretical models, it has been well established that it is not one risk factor – but rather the accumulation of risk factors – that increases the chance of child maltreatment (e.g., Belsky, 1980; MacKenzie, Kotch, & Lee, 2011). At the same time, few studies have actually examined how these (accumulated) risk factors interact (e.g., Vial, van der Put, Stams, Kossakowski, & Assink, 2020), which seems crucial in enhancing our understanding of the etiology of child maltreatment (MacKenzie, Kotch, & Lee, 2011). One promising way of studying the interrelatedness of risk factors is through network analysis, which is a method that can help map the (strength of) relationships among risk factors, give insight into the (interaction of) most important risk factors for child maltreatment, and illustrate what risk factors reinforce each other (Vial et al., 2020). Altogether this approach can

generate valuable information essential to the successful prevention of the (re)occurrence of child maltreatment.

To our knowledge, only one study has previously examined the interrelatedness of risk factors of child maltreatment (Vial et al., 2020). Vial and colleagues (2020) found that a parental history of child maltreatment (i.e., caregiver was maltreated as a child, history of domestic violence) and being emotionally absent were the most central risk factors in the development of child maltreatment in a clinical sample. They concluded that these risk factors should be addressed first in clinical practice, as this can also reduce the impact of other risk factors (Vial et al., 2020).

Despite the general lack of knowledge on the interrelatedness of risk factors, several studies have tried to identify the individual risk factors for child maltreatment. Meta-analyses have helped solidify the bulk of data from individual studies (Assink et al., 2016, 2019; Mulder et al., 2018; Stith et al., 2009). These meta-analyses have demonstrated that parental related risk factors in particular play a prominent role in child maltreatment perpetration. For example, Stith and colleagues (2009) found that parental psychopathology, parental stress and anger, parents viewing their child as 'problematic,' parent–child relationship problems, and family conflict were important predictors of physical abuse and neglect. The meta-analysis by Assink and associates (2016) confirmed the importance of parental risk factors – over and above child related risk factors – in different types of child maltreatment. For example, they found issues such as a parental history of abuse and/or antisocial behavior, parental (mental) health problems, inadequate parenting, and familial relationship difficulties to be important risk factors (Assink et al., 2016).

Despite the centrality of parental risk factors for child maltreatment, few studies have examined the extent to which these may differ for fathers and mothers. Research on two-parent households is scarce and has tended to focus on mother-father dyads. Little is known about relevant father related risk factors (Stith et al., 2009). As a result, today's screening instruments and interventions tend to lack the integration of knowledge on father-related risk factors (Bouwmeester-Landweer, 2006). This is concerning because often both parents are involved as perpetrators (van Berkel et al., 2020). In the few studies that have been conducted on this topic, risk factors have frequently been identified based on mothers' account of fathers behavior and should therefore be interpreted cautiously (Phares & Compas, 1992; Pittman & Buckley, 2006). Even though the research base is thin, study findings seem to suggest there is a difference in risk factors between fathers and mothers (Guterman & Lee, 2005). In their review of the literature, Guterman & Lee (2005) found factors such as a young age, maltreatment victimization, unemployment, substance abuse, and undermining of the mother to be father-related risk factors for physical abuse. To our knowledge, only two studies have directly compared fathers' and mothers' risk factors for child maltreatment (i.e., Coohey, 2006; Pittman & Buckley, 2006). Pittman and Buckley (2006) compared the perceptions of 2841 parental offenders (mothers and fathers) in terms of personal distress, interpersonal and marital problems, and aspects of family climate in the US. All parents in the study had been substantiated for physical abuse, psychological abuse, or neglect of a child in their family. Pittman and Buckley (2006) found that mothers who had abused their child(ren) reported being more stressed and unhappy, compared to father abusers. They also reported more problems from people outside the family, compared to fathers. Fathers, on the other hand, had more rigid expectations of their child and experienced the family structure to be less cohesive and organized. Coohey (2006) examined risk factors for the reoccurrence of child maltreatment in 137 families in the US, with mostly physically abusive fathers. She compared actual risk factors for reoccurrence, to the risk assessment of investigators. A higher risk score for mothers (as judged by investigators) was associated with mental health problems, whereas for fathers problems with alcohol and drugs were associated with a higher risk score. However, this study demonstrated that the actual risk of reoccurrence of child maltreatment was

highest when the father had maltreated or severely injured a child in the past, had not taken responsibility for his behavior, was unemployed, and lived in a household with young stepchildren, in combination with a mother with a criminal past (Coohey, 2006).

In conclusion, much is still unknown about the differences in risk factors between mothers and fathers and more research is needed. In a recent study by our research team the predictive validity of a screening instrument for child maltreatment was tested in a sample of fathers and mothers. The predictive validity of the instrument was higher than clinical judgment of professional, whereas highest predictive validity was found for a combination of the two (van der Put et al., 2017). In this study, overlap as well as differences between the impact of risk factors of fathers and mothers were found (van der Put et al., 2017). To further explore these differences and add to the scarce body of literature, the first aim of the present study was to examine and compare the prevalence and impact of risk factors for the perpetration of child maltreatment in the first three years of children's lives for fathers and mothers. As previous research has indicated that risk factors interact with each other (e.g., Vial et al., 2020), the second goal of the study was to examine the interplay of risk factors for fathers and mothers in a large, Dutch sample, using a network analysis approach. In the current study, only parental risk factors were examined, due to the important role they play (over and above other risk factors) in child maltreatment (Assink et al., 2016; Stith et al., 2009). The focus was on risk factors – rather than protective factors – as they have been found to be more predictive of child maltreatment risk (i.e., Vanderbilt-Adriance & Shaw, 2008; van der Put, Assink, & Stams, 2016). To our knowledge, this is the first study that has examined the interrelatedness of risk factors separately for fathers and mothers using a network approach in a large non-clinical sample.

2. Methods

2.1. Sample

Nurses at Youth Health Care Centers (YHCs) routinely monitor the wellbeing (health, development, safety) of all children aged 0–4 years in the Netherlands. Health- and developmental check-ups are performed regularly, reaching nearly all Dutch infants (95–98%; Bouwmeester-Landweer, 2006). For the current study, all families with newborns living in the province of South Holland between October 2001 and November 2002 (N = 8899) were approached as part of these nationwide check-ups conducted by YHCs nurses. In a previous study (Bouwmeester-Landweer, 2006), demographics of the sample-region (province of South Holland) were compared to the general Dutch population. Results indicated that families in the sample-region were similar to families at a national level in terms of important background characteristics, such as the rate of single parent household, women < 20-years-old giving birth, newborns deceased in first year, and number of households with children (Bouwmeester-Landweer, 2006).

Of the 8899 contacted families, a total of 4899 families decided to participate, including 4882 mothers and 4704 fathers. Only complete questionnaires were included in the current study, resulting in a final sample of 4090 mothers and 3973 fathers.

Unfortunately, it is unknown to what extent there were differences in study variables/demographics between contacted families (N = 8899) and families who consented to participation (n = 4899). For most parents (65.9%) reasons for parental non-response were unknown. Some families refused participation, or the questionnaire was returned blank (18.7%), other families had relocated or did not visit the clinic (8.9%), and for some families comprehension of the Dutch language was insufficient (5.9%) or the newborn was deceased after the questionnaire was sent (0.6%) (Bouwmeester-Landweer, 2006). This overall response rate is considered high, given that the surveys were mailed (Bouwmeester-Landweer, 2006). The differences between participating families and responding families (gave consent but one of partners did not fill out the questionnaire, n = 187), is also unknown due to missing questionnaires of responding families (Bouwmeester-Landweer, 2006).

2.2. Procedure

To assess parental risk factors for child maltreatment, questionnaires were sent out to all families in the province of South Holland within five days of the birth of a newborn. During the first health-and developmental check-up, which takes place at the family's home approximately 14 days post-birth, nurses followed up about the questionnaire. Nurses had been trained to explain the research project, answer any questions likely to arise, and provide assistance where needed. Families gave their consent for study participation by completing a consent form and giving it to the nurse or sending it via post. In case families needed more time to fill out the questionnaires, they were given the option to either submit the questionnaire by mail or take it to the YHCs during their first visit (at approximately one-month post-birth). Written reminders were sent to families who were non-responsive. Nurses also filled out a questionnaire about parental risk factors for child maltreatment, these results are included in previous publications (e.g., Bouwmeester-Landweer, 2006). Study procedures were approved by the Ethical Committee of the Leiden University Medical Center.

2.3. Measures

Parental risk factors for child maltreatment were assessed using the Instrument for Identification of Parents at Risk for child Abuse and Neglect (IPARAN; Bouwmeester-Landweer, 2006). This actuarial risk assessment instrument consists of 16 items to be completed separately by mothers and fathers (see Appendix for the item description). Parents from the same household filled in the same questionnaire, which was how these data points were linked.

The IPARAN has been used in the Netherlands to help identify families at risk for child maltreatment early on, in order to set up preventative home-visits for the first 18-months of the newborn's life. The instrument has been designed based on a review of the literature on important risk factors for child maltreatment (for more information, see Bouwmeester-Landweer, 2006). As a result, 13 risk factors were identified across three system domains (Bouwmeester-Landweer, 2006). Risk factors in the ontogenic system included: history of abuse (physical, emotional, sexual), witnessing of parental violence during parents' own childhood, strong conviction in favor of physical punishment, ambivalence towards becoming a parent/view of own parental competence, young parental age, mental health problems within the past three years, substance/alcohol dependency, and temper inhibition problems. The microsystem risk factors in the instrument were: single parenthood, prematurity and dysmaturity of the newborn, tendency to resort to physical force to solve spousal-conflicts, and little partner support expectancy. Finally, social isolation was included as an important risk factor of the exosystem.

Each of these thirteen risk factors are captured by one item, except for the social isolation risk factors: different aspects of this risk factor are reflected in four items. Therefore, the IPARAN has a total of 16 items. The IPARAN is generally utilized to assess the overall risk for child maltreatment based on the accumulation of risk factors. As the goal of the current study was to assess the difference between mothers' and fathers' prevalence, impact, and interrelatedness of risk factors, the item scores were converted into a binary risk status (risk versus non-risk). Previous research has demonstrated acceptable psychometric properties of the IPARAN in the same sample, including good predictive validity (van der Put et al., 2017) and acceptable concurrent validity, discriminatory, power, and feasibility (Horrevorts et al., 2017).

Child maltreatment was counted as present when at least one substantiated report had been filed for the family with the Dutch Child Protection Services (CPS)'s hotline during the 3-years after IPARAN completion (dichotomous variable: at least one verified report versus

none). The CPS is a service agency that registers – and investigates – all reports of child maltreatment in the Netherlands. The CPS' hotline is available for anybody (e.g., citizens, teachers, other professionals working with children) who wants to discuss – or file – a (suspected) child maltreatment case. The match between questionnaires and CPS reports was made based on identifying information, such as date of birth, name, and address. The data matches were made by CPS, researchers did not receive identifying information.

2.4. Data-analysis

To examine and compare the risk factor prevalence of fathers and mothers, McNemar tests were performed. The impact of risk factors for fathers and mothers was assessed by calculating phi correlations between the risk factors (i.e., IPARAN items) and future reports of child maltreatment (i.e., at least one verified report versus none). Next, Z tests for correlations were conducted to assess the extent to which the impact of risk factors was significantly different between mothers and fathers.

To test the interrelatedness of risk factors, networks with risk factors for child maltreatment were first constructed separately for mothers and fathers; then combined, as mothers' and fathers' risk factors may also interact. To construct the networks, we used the R-package "qgraph" in the software program R (version 3.6.3.; Epskamp, Cramer, Waldorp, Schmittmann, & Borsboom, 2012). The networks graphically display the partial correlations between risk factors. Each circle in the network (i.e., node) denotes a risk factor. The line between two nodes is called an 'edge.' The edge stands for the correlation between two risk factors, while accounting for the influence of other risk factors. The thicker the edge, the stronger the association between the two risk factors. This "thickness" of the line between two risk factors is referred to as the edge weight, altogether it demonstrates the strength of the unique correlation between two risk factors.

Next, to determine the strength of the relationship of risk factors with all other risk factors, "node strength centrality" was calculated. The stronger the associations of one factor with the sum of all other factors, the more central this factor is.

Finally, to assess the stability of the networks, correlation stability (CS) coefficients were calculated. CS coefficients give insight into the stability of the node strength centrality and edge weights. CS coefficients of 0.25 – preferably 0.50 – or above indicate stable edge weights and centrality measures (Epskamp et al., 2018).

3. Results

For 27 children in our sample (0.4%), a report of maltreatment was registered by CPS. In the Netherlands, all types of maltreatment can be reported to CPS, in the current study the CPS reports made mostly concerned family violence, physical child abuse, and child neglect. The maltreatment cases were all within the family. The sample in the current study was big ($N = 4899$), consequently relatively weak correlations may have been significant. The point-biserial correlation (rpb) values for small, medium and large effect sizes for a 50% base rate are 0.10, 0.24 and 0.37 respectively (Rice & Harris, 2005). For base rates other than 50%, rpb values for small, medium, and large effects can be calculated using the conversion formula (after Rosenthal, 1991; Swets, 1986) provided by Rice and Harris (2005). Using that formula, we found the rpb values for small, medium and large effect sizes for a 0.4% base rate to be 0.01, 0.03 and 0.05 respectively.

3.1. Prevalence of risk factors of mothers and fathers

As illustrated in Table 1, the risk factor *inability to ask for help if needed* was most prevalent for both mothers (22.4%) and fathers (22.0%). Followed by *feeling unaccepted in the neighborhood*, which was reported by 13.9% of mothers and 15.9% of fathers. The least prevalent risk factors were *losing control when angry*, present in 0.1% of mothers

Table 1

Prevalence and comparison of risk factors for mothers ($n = 4090$), fathers ($n = 3973$), and mother-father couples.

		Mothers ($n = 4090$)	Fathers ($n = 3973$)	Mothers & fathers[a] ($n = 3653$)
	Risk factor	%	%	%
1.	Expects insufficient support from partner	2.1***	0.5	0.3
2.	Worried about raising the child	0.4	0.4	0.2
3.	Unhappy during pregnancy	0.5*	0.3	0.1
4.	Feelings of unsafety during own childhood	4.2	3.6	0.5
5.	Violence between parents during own childhood	4.3**	2.9	0.4
6.	Felt hit too much during own childhood	2.7	2.3	0.1
7.	Dysphoria	5.6***	2.3	0.6
8.	Physical violence with partner	0.8	0.7	0.5
9.	Believes hitting is part of good upbringing	0.8*	1.4	0.5
10.	Sexual abuse before the age of 16	3.7***	0.7	0.2
11.	Insufficient acceptance by family	3.3	3.7	0.4
12.	Losing control when angry	0.1	0.2	0.1
13.	Feeling unaccepted in the neighborhood	13.9**	15.9	8.6
14.	Insufficient support	4.0	3.5	1.2
15.	Unable to ask for help	22.4	22.0	9.8
16.	Substance dependency	0.3***[1]	2.0[2]	0.2

Note. McNemar test to test the difference in the prevalence of the risk factors between mothers and fathers * $p < .05$, ** $p < .01$, *** $p < .001$.

Mothers & fathers[a] = risk factors are present for both mothers and fathers.

[1] "not applicable" for 36.2%.

[2] "not applicable" for 26.0%.

and 0.2% of fathers, and *worried about raising the child*, which was prevalent for 0.4% of mothers and fathers.

In terms of differences in risk factors between mothers and fathers, the following five risk factors were significantly more prevalent in mothers than in fathers (see Table 1): *expects insufficient support from partner, unhappy during pregnancy, violence between parents during own childhood, dysphoria* and *sexual abuse before the age of 16. Feeling unaccepted in the neighborhood* and *believes hitting is part of good upbringing* were the only two risk factors more prevalent in fathers than in mothers.

The substance dependency item (*I should actually drink less alcohol/take fewer drugs*) could not be included in the current study. This item had an extremely low prevalence, particularly for mothers, and a disproportionately high number of "not applicable" responses (36.2% for mothers, 26.0% for fathers), probably due to the item including both alcohol and drug use, causing networks to become instable. Therefore, it was removed from subsequent analyses.

3.1.1. Impact of risk factors of mothers and fathers

The phi correlations between risk factors (IPARAN items) and future reports of child maltreatment are reported in Table 2, separately for mothers and fathers. For mothers and fathers, there were respectively nine and ten risk factors that each significantly correlated with future reports of child maltreatment (see Table 2). For mothers, these were (in order of strongest to weakest correlation): *worried about raising the child, physical violence with partner, losing control when angry, unhappy during pregnancy, insufficient support, feelings of unsafety during own childhood, violence between parents during own childhood, dysphoria,* and *believes hitting is part of good upbringing*.

For fathers, the following ten risk factors were correlated with future reports of child maltreatment (in order of strongest to weakest correlation): *physical violence with partner, worried about raising the child, insufficient support, felt hit too much during own childhood, losing control when angry, feelings of unsafety during own childhood, insufficient acceptance by*

Table 2
Impact of risk factors for mothers and fathers: Phi correlations between risk factors and future reports of child maltreatment.

		Mothers (n = 4090)	Fathers (n = 3973)	
	Risk factor			z
1.	Expects insufficient support from partner	-0.008	-0.004	−0.18
2.	Worried about raising the child	0.212***	0.126***	3.98***
3.	Unhappy during pregnancy	0.057***	-0.003	2.7**
4.	Feelings of unsafety during own childhood	0.054***	0.060***	−0.27
5.	Violence between parents during own childhood	0.052***	0.039*	0.58
6.	Felt hit too much during own childhood	0.017	0.078***	−2.74**
7.	Dysphoria	0.043**	-0.009	2.33*
8.	Physical violence with partner	0.195***	0.137***	2.68**
9.	Believes hitting is part of good upbringing	0.043**	0.032*	0.49
10.	Sexual abuse before the age of 16	-0.011	0.043**	−2.42*
11.	Insufficient acceptance by family	0.014	0.055 ***	−1.84
12.	Losing control when angry	0.159***	0.074***	3.87***
13.	Feeling unaccepted in the neighborhood	0.002	0.021	−0.85
14.	Insufficient support	0.055***	0.100***	−2.03*
15.	Unable to ask for help	0.011	0.019	−0.36

Note. * p <.05, ** p <.01, *** p <.001.

family, sexual abuse before the age of 16, violence between parents during own childhood, and believes hitting is part of good upbringing.

As illustrated by the z-scores in Table 2, there was a difference between mothers and fathers in the impact of risk factors. The following risk factors were more strongly associated with future child abuse in mothers than in fathers: worries about raising a child, unhappy during pregnancy, dysphoria, physical violence with partner, and losing control when angry. Only some risk factors were more impactful for fathers than for mothers: felt hit too much during own childhood, sexual abuse before the age of 16, and insufficient support.

3.2. Interrelatedness of risk factors

Figs. 1 and 2 display the networks of the risk factors for mothers and fathers respectively. Additionally, Fig. 3 visualizes the interrelatedness of mothers' and fathers' risk factors together in one network.

Mothers' network of risk factors. This network was sufficiently stable, as indicated by the CS-coefficient of 0.36 for the edge weights and 0.52 for the centrality coefficient, which are both above the 0.25 threshold. As illustrated in Fig. 1, there are two clusters of risk factors in the

mothers' network. Cluster one includes the following risk factors: *Worries about raising the child* (item 2) is strongly correlated with *unhappiness during pregnancy* (item 3) and *insufficient support* (item 14). The second cluster consists of risk factors mostly related to the mothers' past. *Insufficient acceptance by family* (item 11) is strongly related to *feelings of unsafety during own childhood* (item 4), which is strongly connected to *violence between parents during own childhood* (item 5) and *felt hit too much during own childhood* (item 6). The latter two (item 5 and 6) are also strongly correlated and *violence between parents during own childhood* is uniquely related to *sexual abuse before the age of 16* as well (item 10).

Table 3 displays the risk factors' centrality coefficients, which represents a risk factor's relationship to all the other risk factors, thereby providing an indication of how central (i.e., influential) a risk factor is in the network. The risk factors *violence between parents during own childhood* (item 5), *feelings of unsafety during own childhood* (item 4), and *insufficient support* (item 14) had the highest centrality coefficient, meaning that they were the most central risk factors in the network. *Physical violence with partner* (item 8), *believes hitting is part of good upbringing* (item 9), and *losing control when angry* (item 12) were the least central in the network. As illustrated in Fig. 1, these risk factors are not

1: Expects insufficient support from partner
2: Worried about raising the child
3: Unhappy during pregnancy
4: Feelings of unsafety during own childhood
5: Violence between parents during own childhood
6: Felt hit too much during own childhood
7: Dysphoria
8: Physical violence with partner
9: Believes hitting is part of good upbringing
10: Sexual abuse before the age of 16
11: Insufficient acceptance by family
12: Losing control when angry
13: Feeling unaccepted in the neighborhood
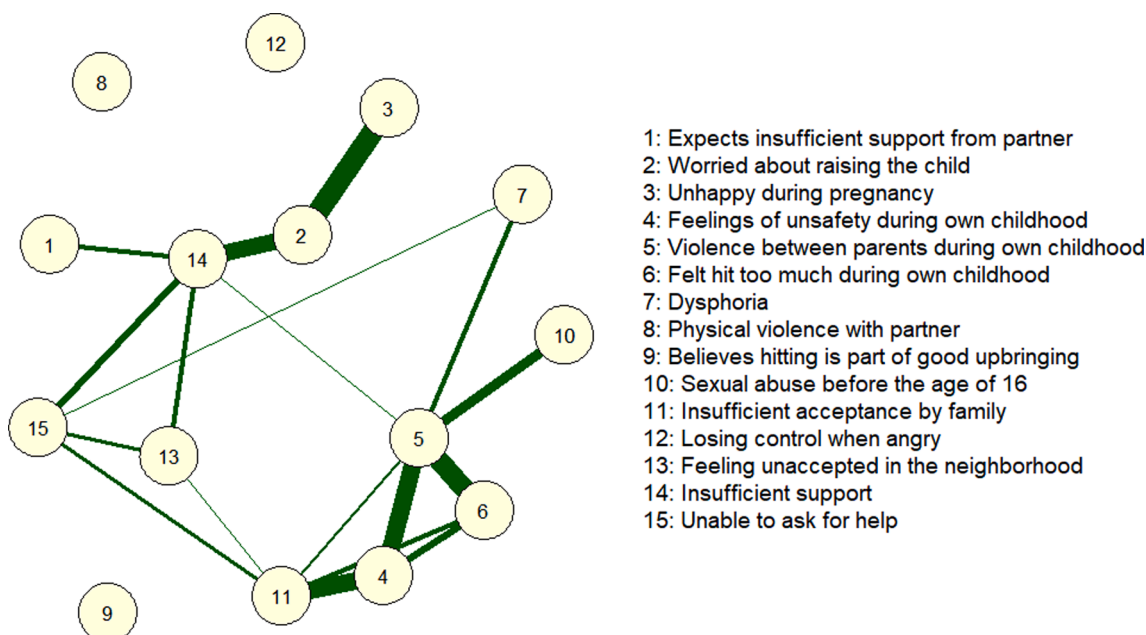14: Insufficient support
15: Unable to ask for help

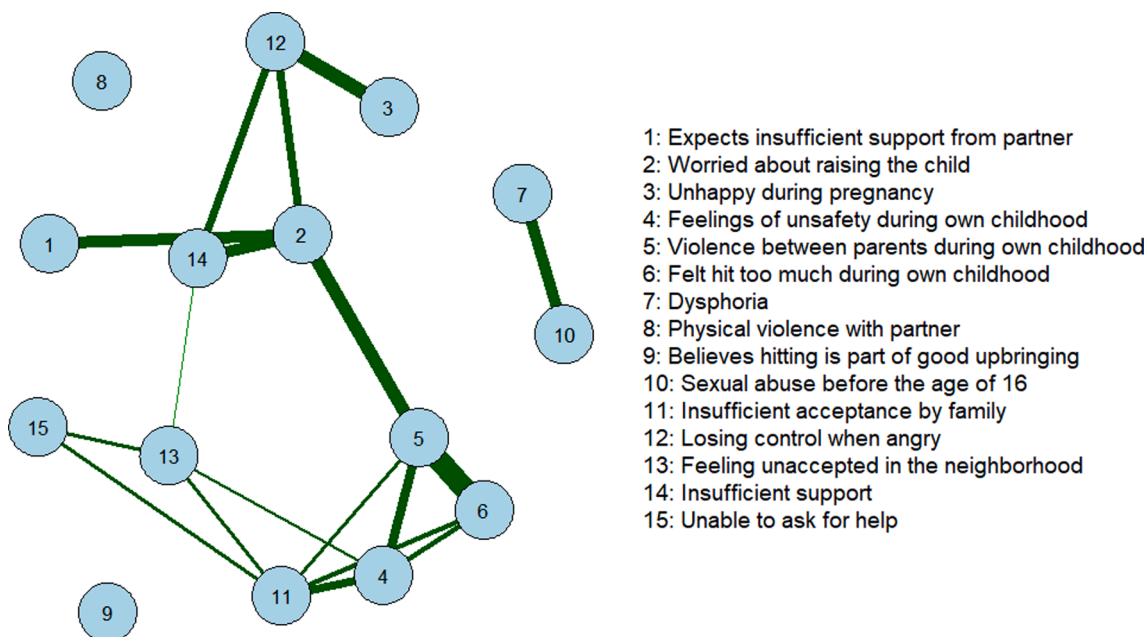**Fig. 1.** Network of mothers' risk factors (n = 4090).

Fig. 2. Network of fathers' risk factors (*n* = 3973). *Note.* The father network is reported for exploratory purposes, this network was unstable and could therefore not be interpreted.
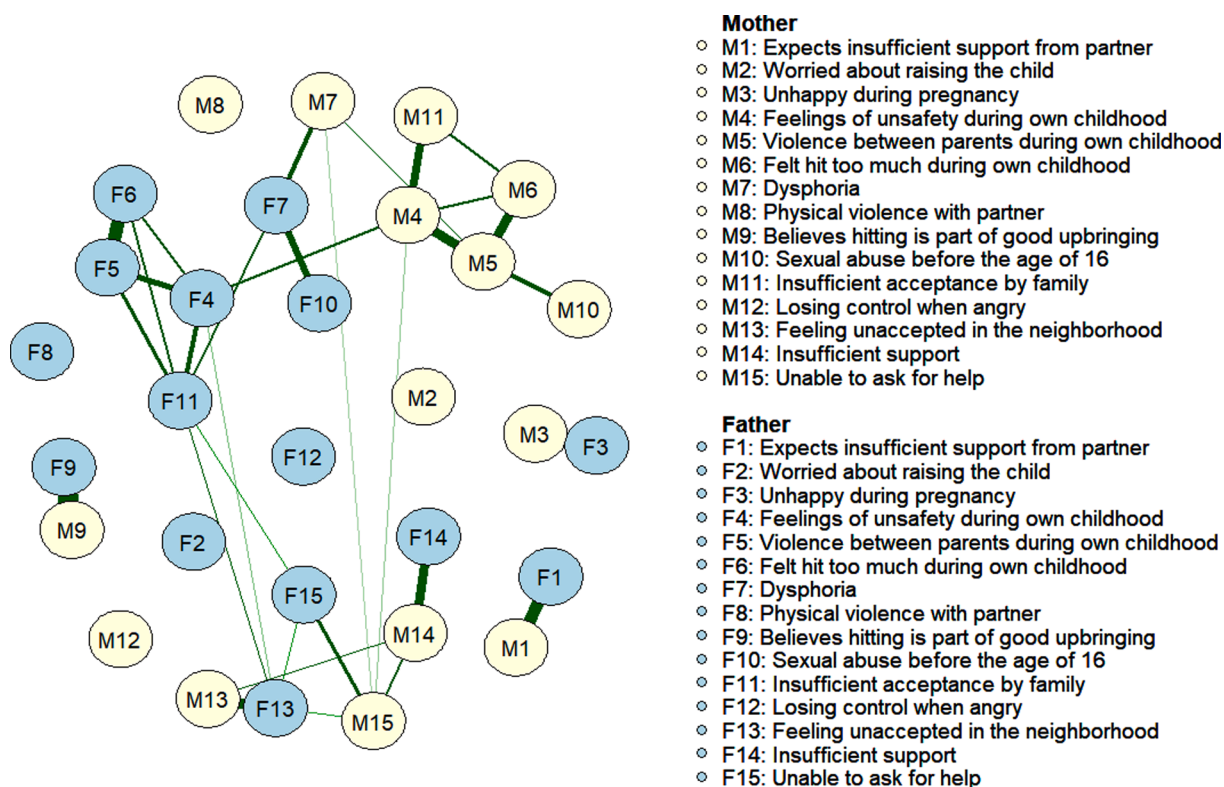
1: Expects insufficient support from partner
2: Worried about raising the child
3: Unhappy during pregnancy
4: Feelings of unsafety during own childhood
5: Violence between parents during own childhood
6: Felt hit too much during own childhood
7: Dysphoria
8: Physical violence with partner
9: Believes hitting is part of good upbringing
10: Sexual abuse before the age of 16
11: Insufficient acceptance by family
12: Losing control when angry
13: Feeling unaccepted in the neighborhood
14: Insufficient support
15: Unable to ask for help

Mother
○ M1: Expects insufficient support from partner
○ M2: Worried about raising the child
○ M3: Unhappy during pregnancy
○ M4: Feelings of unsafety during own childhood
○ M5: Violence between parents during own childhood
○ M6: Felt hit too much during own childhood
○ M7: Dysphoria
○ M8: Physical violence with partner
○ M9: Believes hitting is part of good upbringing
○ M10: Sexual abuse before the age of 16
○ M11: Insufficient acceptance by family
○ M12: Losing control when angry
○ M13: Feeling unaccepted in the neighborhood
○ M14: Insufficient support
○ M15: Unable to ask for help

Father
◎ F1: Expects insufficient support from partner
◎ F2: Worried about raising the child
◎ F3: Unhappy during pregnancy
◎ F4: Feelings of unsafety during own childhood
◎ F5: Violence between parents during own childhood
◎ F6: Felt hit too much during own childhood
◎ F7: Dysphoria
◎ F8: Physical violence with partner
◎ F9: Believes hitting is part of good upbringing
◎ F10: Sexual abuse before the age of 16
◎ F11: Insufficient acceptance by family
◎ F12: Losing control when angry
◎ F13: Feeling unaccepted in the neighborhood
◎ F14: Insufficient support
◎ F15: Unable to ask for help

Fig. 3. Network of mothers' and fathers' risk factors combined (*n* = 3653).

correlated with any other risk factors.

Fathers' network of risk factors. This network was insufficiently stable, as indicated by the CS-coefficient of 0.21 for the edge weight and 0.13 for the node strength centrality, which are both below the 0.25 threshold. This means that the strength of the relationship between risk factors and centrality of risk factors are not stable enough to be interpreted. For exploratory purposes, the network of fathers' risk factors is displayed in Fig. 2. The father network is similar to the ones of mothers.

However, there are some exceptions. First, the risk factor *losing control when angry* appears to play a more central role in the network for fathers than for mothers. Second, the risk factor *expecting insufficient support* appears slightly more prominent in the network of fathers. Also unique to the fathers' risk factor network, is the apparent link between *sexual abuse before the age of 16* (item 10) and *dysphoria* (item 7; see Table 3 and Fig. 2).

Combined network of mothers' and fathers' risk factors. The measures in

Table 3

Standardized node strength centrality coefficients (z-scores) of mothers' and fathers' network.

		Network			
		Mothers (*n* = 4090)	Fathers[a] (*n* = 3973)	Mothers and fathers (*n* = 3653)	
	Risk factor			Mothers	Fathers
1.	Expects insufficient support from partner	−0.8527	−0.5587	0.13	0.13
2.	Worried about raising the child	0.8782	1.7766	−1.51	−1.51
3.	Unhappy during pregnancy	−0.0204	−0.4014	0.40	0.40
4.	Feelings of unsafety during own childhood	1.1642	0.4074	1.64	0.75
5.	Violence between parents during own childhood	2.0367	1.9165	1.91	1.40
6.	Felt hit too much during own childhood	0.6563	0.7905	0.58	0.85
7.	Dysphoria	−0.7549	−0.5550	−0.56	0.34
8.	Physical violence with partner	−1.1713	−1.3476	−1.51	−1.51
9.	Believes hitting is part of good upbringing	−1.1713	−1.3476	1.03	1.03
10.	Sexual abuse before the age of 16	−0.6074	−0.5550	−0.90	−0.57
11.	Insufficient acceptance by family	0.6715	0.3620	−0.06	0.82
12.	Losing control when angry	−1.1713	0.7270	−1.51	−1.51
13.	Feeling unaccepted in the neighborhood	−0.4675	−0.5204	0.22	0.36
14.	Insufficient support	0.9123	0.1464	0.22	−0.38
15.	Unable to ask for help	−0.1025	−0.8408	−0.18	−0.48

Note. Fathers[a] = the z-scores of the father network are reported for exploratory purposes, this network was unstable and could therefore not be interpreted.

this network were sufficiently stable, as the CS-coefficient for the edge weights was 0.60 and the CS-coefficient for the centrality coefficient was 0.44. This network illustrates the interrelatedness of mother and father risk factors combined. As illustrated in Fig. 3, in the combined network there is also a cluster of risk factors related to parents' own experience of unsafety during their childhood (item 4, 5, 6, 11), and this cluster is present in both fathers and mothers (see Table 4 in the appendix for an overview of the edge weights).

Believes hitting is part of a good upbringing (item 9) was not correlated to other risk factors in the individual parental networks. It was uniquely (and strongly) correlated for mothers and fathers in the combined network. This was also the case for *insufficient support from networks* (item 14) and *insufficient support from partner* (item 1); to a lesser extent for the risk factors *dysphoria* (item 7), *inability to ask for help* (item 15), and *feeling unaccepted in the neighborhood* (item 13).

Some risk factors of fathers and mothers are not related with any other risk factors in the combined network, that is, *physical violence with partner* (item 8), *losing control when angry* (item 12), *worried about raising a child* (item 2). Finally, *sexual abuse before the age of 16* (item 10) was related to the risk factor of *dysphoria* (item 7) for fathers, and to *violence between parents during own childhood* (item 5) for mothers.

In the combined network (see Table 3), the most central risk factors are: *violence between parents during own childhood* (item 5) and *believes hitting is part of a good upbringing* (item 9). Followed by *unsafety during own childhood* (item 4), which is more central for mothers (*z* = 1.64) than fathers (*z* = 0.75), and *felt hit too much during own childhood* (item 6), which is more central for fathers (*z* = 0.85) than mothers (*z* = 0.58). *Insufficient acceptance by family* (item 11) is central for fathers (*z* = 0.82) but not for mothers (*z* = -0.06) in the combined network.

4. Discussion

The aim of the current study was twofold. The first goal was to examine and compare the prevalence and impact of risk factors for perpetrating child maltreatment in a large community sample of fathers and mothers who were approached for nationwide preventative checkups. Currently, too little is known about relevant father risk factors, despite fathers' role in family life and child maltreatment (Lucas et al., 2002; Stiffman et al., 2002; Stith et al., 2009). The second goal of this study was to gain insight into the interaction between risk factors for child maltreatment, by examining the interrelatedness of risk factors for mothers, fathers, and couples (mothers and fathers combined), utilizing a network approach. This is crucial as it is the interaction of multiple risk factors that causes the development of child maltreatment in families (e. g., Belsky, 1980; Lamela & Figueiredo, 2018). In general, most previous research has not examined these interactions nor has it considered the role of father-related risk factors.

4.1. Prevalence and impact of risk factors for mothers and fathers

In terms of study aim one, the two most prevalent risk factors for both mothers and fathers were exosystemic and related to feelings of social isolation, including *being unable to ask for help* and *feeling unaccepted in the neighborhood*. The other risk factors were generally less common and related to parents and their past. In general, most risk factors were more prevalent in mothers than in fathers. A possible explanation might be that women report more openly about the difficulties they experience (e.g., Singleton & Lewis, 2003) or they may experience more burden as a result of carrying more family labor tasks than fathers (e.g., Riina & Feinberg, 2012). Some evidence also suggests that women are at a higher risk to become a victim of abuse (e.g., Assink et al., 2019). However, two risk factors were more prevalent in fathers than in mothers. Fathers more often indicated that they *believed hitting is part of a good upbringing*. Perhaps fathers more often acknowledged a more permissive attitude towards hitting in line with their traditional role as "discipliner" (Ferrari, 2002). Although, interestingly, some research suggests that mothers more often hit their children compared to fathers (e.g., Lee, Altschul, & Gershoff, 2015). Fathers also *felt unaccepted in the neighborhood* more often than mothers. This is in line with other research that found that fathers experienced more stress related to social isolation compared to mothers (e.g., Widarsson et al., 2013).

In terms of the impact of risk factors, the majority of assessed risk factors were (weakly) related to future reports of child maltreatment within the three years of children's lives, for both fathers and mothers, which confirms the relevance of these items in assessing the risk of child maltreatment (van der Put et al., 2017). The strength of these correlations is comparable to previous research on risk factors and child maltreatment as demonstrated by several meta-analyses (e.g., Assink et. al, 2016; Stith et al, 2009). It is important to consider the presence of these individual risk factors, even when weakly related, because it is the accumulation of multiple risk factors that ultimately increases the likelihood of victimization of child maltreatment (i.e., Lamela & Figueiredo, 2018; MacKenzie, Kotch, & Lee, 2011).

The two risk factors most strongly related to future reports of child maltreatment, were the same for both mothers and fathers: *worries about raising the child* and *physical violence with partner*. This is in line with previous research that confirms the importance of these risk factors (e. g., Assink et al., 2016). It is thereby important to mention that in the current study, *worries about raising the child* was measured by the item "I dread raising this child" (see Appendix). There could be a variety of causes for 'dreading to raise a child', high parental stress levels (potentially related to being unemployed or living in poverty), parental psychiatric or physical issues or child behavioral problems, which have all previously been identified as risk factors of child maltreatment (e.g., Assink et al., 2016). This item could also more generally reflect parents feeling insecure about their parenting skills.

In terms of the differences between mothers and fathers, it appeared that the dynamic risk factors – such as *worries about raising the child, losing control when angry* – were more strongly related to future reports of child maltreatment for mothers. Whereas for fathers, risk factors related to their own child maltreatment in the past (i.e., *feeling hit too much, sexual abuse before the age of 16*) were more impactful, in addition to the dynamic risk factor of experiencing *a lack of support*.

4.2. The interrelatedness of risk factors for mothers and fathers

The second aim of the study was to examine the interrelatedness of risk factors, first in separate networks for mothers and fathers. The network for mothers illustrated two clusters, one of which consisted of risk factors related to raising a child (i.e., *worries about raising the child, unhappiness during pregnancy,* and *insufficient support*). The other cluster consisted of risk factors related to mothers' own experience of child maltreatment (i.e., *feelings of unsafety during own childhood, violence between parents during own childhood, felt hit too much during own childhood, violence between parents during own childhood, sexual abuse before the age of 16*), which also extended to feeling *insufficiently accepted by family* in the present. As the network for fathers was unstable, it could not be interpreted. Interestingly though, similar clusters appeared present for fathers and for mothers.

As mothers and fathers also influence each other, their risk factors were then assessed in a combined network of risk factors of parent couples. This network mostly demonstrated comparable clusters to the separate mother and (instable) father network. There was one noticeable cluster in the combined network for both mothers and fathers with risk factors related to parents' own experience of child maltreatment. This network consisted of the risk factors: *feelings of unsafety during own childhood, violence between parents during own childhood, felt hit too much during own childhood,* and *insufficient acceptance by family*. Overall, *violence between parents during own childhood* was the most central risk factor in this combined network, which is in line with the individual network for mothers. It has been suggested that the consequences of maltreatment during childhood, such as (unresolved) disorganized attachment, maladaptive schemas, and traumatic stress (Marshall et al., 2022), may increase the chance of becoming a perpetrator oneself. Findings from the current network analysis seem to confirm the intergenerational influences. Child maltreatment victims may be at higher risk to, for example, select abusive partners or mimic the relationship dynamics of the past (Marshall et al., 2022). Although no theory has yet been able to fully explain the intergenerational risk of child maltreatment (Marshall et al., 2022), the findings of the maternal and combined network in the current study underscore once again the importance of considering the role that intergenerational transmission plays in child maltreatment risk (e.g., Assink et al., 2018).

The second most central risk factor in the combined network was *believing that hitting is part of a good upbringing*, which strongly – and uniquely – correlated for the parent couples, in line with previous research that found that believing in physical punishment can be an important pathway to child maltreatment (e.g., Smith Slep & O'Leary, 2007). Interestingly there were more mother-father risk factor pairs that – for the most part – solely related to each other. This seems to suggest that there is congruence among parents about the family- and community-level difficulties they experience in terms of their *unhappiness during pregnancy*, feelings of *insufficient partner support*, perceived *unacceptance in the neighborhood*, and feelings of *insufficient support* overall. Surprisingly, *physical violence with partner* did not correlate for the parent couples and was also one of the least central risk factors, which is unexpected based on research that suggests that child abuse often occurs in a context of domestic violence (van Berkel et al., 2020). For both fathers and mothers this risk factor had one of the strongest correlations with future reports of child maltreatment, which may seem contradictory. However, centrality of a risk factor only informs you how strong the risk factor's relation is to other risk factors in the network (i.

e., how strong their influence is on other risk factors in the network; Borsboom & Cramer, 2013). Despite the lack of centrality, the high impact of the partner violence risk factor does underscore the importance of addressing physical partner violence in prevention efforts.

One final finding of the combined network is that the risk factor *sexual abuse before the age of 16* appears to play a different role in the networks of mothers and fathers. For mothers, this risk factor was related to the cluster of other risk factors related to their own history with child maltreatment, confirming how abuse often co-occurs in the context of other forms of child maltreatment adversities (Jonson-Reid, Drake, Chung, & Way, 2003; Euser et al., 2013). For fathers, on the other hand, this risk factor was solely related to *dysphoria*, meaning that there is a link between dysphoria and being a victim of sexual abuse for fathers only. Previous research has shown that general disclosure rates of sexual abuse are lower for male than female victims (e.g., O'Leary, Easton, & Gould, 2017) and often more delayed (e.g., Romano, Moorman, Ressel, & Lyons, 2019). Male victims are also likely to receive negative reactions towards exposure (Easton, 2013), and they are overall less likely to receive help than female victims (e.g., Hohendorff, Habigzang, & Koller, 2017), resulting in high rates of mental health problems among male adult victims (e.g., O'Leary et al., 2017). Considering this previous research, the relationship between feelings of dysphoria and past sexual abuse for fathers in our community sample, may also be indicative of a lack of help for male adult victims resulting in continuing difficulties in adulthood.

4.3. Clinical implications

Overall, current findings have important implications for clinical practice. Unsurprisingly, findings demonstrated that both mother and father related risk factors were related to future reports of child maltreatment in the first three years of children's lives, which underscores the importance of also including fathers in risk assessment and prevention programs (Smith et al., 2012). Many of the risk factors of mothers and fathers seemed to (solely) reinforce each other (e.g., unhappiness during pregnancy, belief in physical punishment), which also seems to suggest that intervening at a systemic level with both parents is warranted for.

Networks in the current study were based on a sample of fathers and mothers in the general population, with relatively low levels of child maltreatment reports, making its findings relevant for prevention efforts. The most central risk factors in the parent-network for both mothers and fathers were the cluster of risk factors related to parents' own child maltreatment in the past. The most central risk factors in a network most likely contribute to the development of other risk factors (Borsboom & Cramer, 2013).Therefore, if the impact of the central risk factor of past child maltreatment diminishes in a family, the impact of other risk factors may also reduce as their impact may be caused by the central factor (Vial et al., 2020). In efforts to reduce the risk of child maltreatment, it might therefore be helpful to focus on these central risk factors first. Even though parents' traumatic past cannot be changed, these findings confirm that parental histories of child maltreatment should be assessed (preferably using multiple sources of information) and subsequently receive attention in prevention efforts (Madigan et al., 2019). Evidence-based trauma treatment may also be helpful for parents who have experienced abuse.

For fathers more attention also needs to be paid to potential sexual trauma as this risk factor was related to current mental health difficulties for fathers only. Moreover, child sexual abuse also had a stronger impact on future reports of child maltreatment in fathers than in mothers. In research and practice, male sexual abuse victims have been referred to as the "invisible" victims (Gagnier & Collin-Vézina, 2016); findings of the current study underline the importance of adequate assessment and support needed for fathers who are sexual abuse victims.

Lastly, assessing and addressing permissive attitudes towards physical punishment is also an important clinical implication of the parental

network, as believing that hitting is part of a good upbringing was the second most central risk factor in the parental network. Changing normative parenting behavior through intervention efforts, can be effective in helping to reduce corporal punishment (Wissow, 2015). A recent systematic review and meta-analysis found support for behavioral parenting programs based on social learning theory in reducing child physical abuse recurring (Vlahovicova et al., 2017). Other prevention and intervention programs to reduce the use of corporal punishment by parents have also been recommended (for an overview, see Gershoff, 2002; Wissow, 2015).

4.4. Limitations

Study results should be considered in the light of the following limitations. First, data collection occurred approximately 20 years ago (Bouwmeester-Landweer, 2006). Over the last two decades, there could have been changes in the prevalence of child maltreatment and risk factors. In general, the prevalence and impact of risk factors for child maltreatment may increase under certain socioeconomic conditions (e. g., pandemics, crises; Ðapić, Flander, & Prijatelj, 2020), making findings of studies collected under different conditions perhaps less applicable. However, we do expect the strength of the relationship between risk factors to be more or less stable over time. Recently, one study also found that child maltreatment prevalence in the Netherlands has remained constant in the last decade, including a stability in identified familiar risk factors (van Berkel et al., 2020).

Second, the network of father risk factors was unstable. Network instability can be due to several reasons, including but not limited to: sample heterogeneity, dense network structures, or model misfits (Fried, 2018). To pinpoint the exact reason as to why our network for fathers was unstable, further research is needed. It could be that subpopulations exist within our community sample. At the same time, the combined network of mother-father couples was stable, which seems important to consider as this network more closely reflected reality (i.e., mother-father couples were together at the time of this study; therefore, risk factors are likely to interact).

Third, even though the assessed parental risk factors have been proven to be important in the screening of potential child maltreatment (van der Put et al., 2017), they are not all encompassing: meta-analytic research has identified other relevant (parental and non-parental) risk factors (e.g., a non-nuclear family structure for sexual abuse, Assink et al., 2019; e.g., parental anger/hyper-reactivity, family conflict, family cohesion for physical abuse, Stith et al., 2009). Ideally, to better understand risk for maltreatment, all relevant risk factors of different population types (clinical, community) are included to mimic reality as closely as possible (e.g., Vial et al., 2020). In this regard, it is also important to mention that the risk factor of substance dependency could not be included in the current study, even though this is an important risk factor (e.g., Walsh, MacMillan, & Jamieson, 2003). Examining alcohol and drug use as separate risk factors might result in more accurate estimations of substance dependency in the future.

Fourth, the occurrence of child maltreatment was assessed using substantiated child maltreatment reports within only the first three years post-birth. As a result, the child maltreatment found in the current study may be an underestimation of the actual occurrence of child maltreatment. Only the most severe cases of the most "easily detectable" forms of child maltreatment (e.g., physical abuse) may have been captured in our child maltreatment measure. Other forms of child maltreatment that are less easily detectable in the first three years of life (e.g., sexual abuse, emotional abuse), may have been missed.

The three-year-follow-up period might also partially explain why not all risk factors in the current study were related to a CPS report. A longer follow-up period, or additional assessments of child maltreatment, may have resulted in more significant correlations between risk factors and child maltreatment. As previous research has repeatedly found the risk factors measured by the IPARAN are relevant to consider in light of child

maltreatment prevention (Assink et al., 2016; Stith et al., 2009), we found it important to include all in our networks.

Fifth, the sample in the current study came from one region in the Netherlands (province of South Holland); therefore, it is unclear to what extent the current sample is representative of the Dutch population more generally. In an effort to assess the representativeness, demographics of the sample-region were compared to the general Dutch population. Results indicated that families in the sample-region were similar to families at a national level, in terms of important background characteristics, such as the rate of single parent household, women < 20-years-old giving birth, newborns deceased in first year, and number of households with children (Bouwmeester-Landweer, 2006). Therefore, we expect that the current sample was representative of the Dutch population (Bouwmeester-Landweer, 2006).

Finally, in this study the focus was on single-parent household and father-mother couples, even though the number of children growing up in other household forms, such as blended families and same-sex parent household, has been increasing (OECD, 2011). Current study findings may therefore not be generalizable to children growing up in other household-compositions.

4.5. Future research

Based on the current findings, several recommendations for future research can be formulated. Current results demonstrated similarities and differences between the prevalence, impact and interrelatedness of risk factors for mothers and fathers in the general population. Due to the instability of the fathers' network, it would be interesting to examine whether subpopulations are present in community samples (Vial et al., 2020). In addition, it is currently not yet possible to model father-mother dependency in network analyses, which is important for future research to examine as this may have influenced current results. It would also be interesting for future research to compare the (interrelatedness) of mother and father risk factors in a clinical sample as previous research has found differences between networks of community and clinical samples (Vial et al., 2020). In addition, it may also be interesting to examine to what extent the intervention effectiveness can be improved when adjusted for mothers and fathers based on the specific role of risk factors in these groups. Finally, mothers and fathers in the current study were pairs. In general, future research would benefit from including more diverse family structures (e.g., same-sex couples). It would also be relevant in the future to examine the (lack of) interrelatedness of risk factors for former couples who are divorced or separated in a combined network; that of blended families including (step)mothers and fathers. This seems particularly relevant for clinical practice as divorce and blended families are common (e.g., Zeleznikow & Zeleznikow, 2015). This includes single parent households (i.e., father-only, mother-only households), which is around 15% of European households with dependent children (Nieuwenhuis & Maldonado, 2018).

4.6. Conclusion

Overall, this study yielded important new insights with regards to the prevalence, impact, and interrelatedness of child maltreatment risk factors for mothers and fathers. Similarities as well as differences were found between risk factors of mothers and fathers in a large sample in the Netherlands. For fathers and mothers, belief in physical punishment and risk factors related to their own history of child maltreatment were most central. An important difference between the relationship of risk factors for mothers and fathers, was that for fathers a history of sexual abuse before the age of 16 was related to poorer mental wellbeing. Overall, these findings underscore the importance of considering the long-lasting, intergenerational effects of child maltreatment. Parents who have been abused themselves as children, may experience more challenges in raising children due to traumatic stress, (unresolved) disorganized attachment, and maladaptive schemas making them

vulnerable to unhealthy partner selection or dynamics (Marshall et al., 2022). Intergenerational trauma may put parents at a higher risk of becoming perpetrators; our network results confirm that these risk factors deserve an important spot in prevention efforts.

CRediT authorship contribution statement

Hanne M. Duindam: Writing – original draft, Writing – review & editing, Methodology, Conceptualization. **Annemiek Vial:** Formal analysis, Methodology, Visualization, Writing – review & editing. **Merian B.R. Bouwmeester-Landweer:** Data curation, Writing – review & editing, Investigation. **Claudia E. van der Put:** Conceptualization, Supervision, Methodology, Writing – review & editing, Funding acquisition.

Declaration of Competing Interest

Data availability

The data that has been used is confidential.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.childyouth.2023.106902.

References

Assink, M., Spruit, A., Schuts, M., Lindauer, R., van der Put, C. E., & Stams, G. J. J. M. (2018). The intergenerational transmission of child maltreatment: A three-level meta-analysis. *Child Abuse and Neglect, 84*(July), 131–145. https://doi.org/10.1016/j.chiabu.2018.07.037

Assink, M., van der Put, C. E., Kuiper, K. C., Mulder, T. M., & Stams, G. J. J. M. (2016). *Risicofactoren voor kindermishandeling: een meta-analytisch onderzoek naar risicofactoren voor seksuele mishandeling, fysieke mishandeling en verwaarlozing. [Risk factors for child maltreatment: a meta-analytical investigation of risk factors for sexual a.* https://dare.uva.nl/search?identifier=211e3640-6638-44d4-b19e-cb7b4efae89c.

Assink, M., van der Put, C. E., Meeuwsen, M. W. C. M., de Jong, N. M., Oort, F. J., Stams, G. J. J. M., & Hoeve, M. (2019). Risk factors for child sexual abuse victimization: A meta-analytic review. *Psychological Bulletin, 145*(5), 459–489. https://doi.org/10.1037/bul0000188

Belsky, J. (1980). Child maltreatment: An ecological integration. *American Psychologist, 35*(4), 320–335. https://doi.org/10.1037//0003-066x.35.4.320

Borsboom, D., & Cramer, A. O. J. (2013). Network analysis: An integrative approach to the structure of psychopathology. *Annual Review of Clinical Psychology, 9*, 91–121. https://doi.org/10.1146/annurev-clinpsy-050212-185608

Bouwmeester-Landweer, M. (2006). *Early home visitation in families at risk for child maltreatment.* https://scholarlypublications.universiteitleiden.nl/handle/1887/4396.

Ciccheti, D. (1989). *Child maltreatment: Theory and research on the causes and consequences of child abuse and neglect.* Cambridge University Press.

Cicchetti, D., & Rizley, R. (1981). Developmental perspectives on the etiology, intergenerational transmission, and sequelae of child maltreatment. *New Directions for Child and Adolescent Development, 11*, 31–35.

Coohey, C. (2006). Physically abusive fathers and risk assessment. *Child Abuse and Neglect, 30*(5), 467–480. https://doi.org/10.1016/j.chiabu.2004.10.016

Đapić, M.-R., Flander, G.-B., & Prijatelj, K. (2020). Children behind closed doors due to covid-19 isolation: Abuse, neglect and domestic violence. *Archives of Psychiatry Research, 56*(2), 181–192. https://doi.org/10.20471/dec.2020.56.02.06

Drake, B., & Jonson-Reid, M. (2014). Poverty and child maltreatment. In J. E. Korbin, & R. D. Krugman (Eds.), *Handbook of child maltreatment* (pp. 131–148). Netherlands: Springer.

Easton, S. D. (2013). Disclosure of child sexual abuse among adult male survivors. *Clinical Social Work Journal, 41*(4), 344–355. https://doi.org/10.1007/s10615-012-0420-3

Epskamp, S., Borsboom, D., & Fried, E. I. (2018). *Estimating psychological networks and their accuracy : A tutorial paper.* 195–212. 10.3758/s13428-017-0862-1.

Epskamp, S., Cramer, A., Waldorp, L., Schmittmann, V., & Borsboom, D. (2012). qgraph: Network Visualizations of Relationships in. *Journal of Statistical Software, 48*(4), 1–18.

Euser, S., Alink, L. R. A., Pannebakker, F., Vogels, T., Bakermans-Kranenburg, M. J., & Van IJzendoorn, M. H. (2013). The prevalence of child maltreatment in the Netherlands across a 5-year period. *Child Abuse and Neglect, 37*(10), 841–851. 10.1016/j.chiabu.2013.07.004.

Feely, M. (2022). Changed for the Better: The Modifiable Maltreatment Factors Framework. *Societies, 12*(1). https://doi.org/10.3390/soc12010021

Ferrari, A. M. (2002). The impact of culture upon child rearing practices and definitions of maltreatment. *Child Abuse and Neglect, 26*(8), 793–813. https://doi.org/10.1016/S0145-2134(02)00345-9

Fried, E. I. (2018). *FAQ on network stability, part II: Why is my network unstable?* https://psych-networks.com/network-stability-part-ii-common-problems-and-questions/.

Gagnier, C., & Collin-Vézina, D. (2016). The Disclosure Experiences of Male Child Sexual Abuse Survivors. *Journal of Child Sexual Abuse, 25*(2), 221–241. https://doi.org/10.1080/10538712.2016.1124308

Gershoff, E. T. (2002). Corporal punishment by parents and associated child behaviors and experiences: A meta-analytic and theoretical review. *Psychological Bulletin, 128*(4), 539–579. https://doi.org/10.1037/0033-2909.128.4.539

Gilbert, R., Widom, C. S., Browne, K., Fergusson, D., Webb, E., & Janson, S. (2009). Burden and consequences of child maltreatment in high-income countries. *The Lancet, 373*(9657), 68–81. https://doi.org/10.1016/S0140-6736(08)61706-7

Guterman, N. B., & Lee, Y. (2005). The role of fathers in risk for physical child abuse and neglect: Possible pathways and unanswered questions. *Child Maltreatment, 10*(2), 136–149. https://doi.org/10.1177/1077559505274623

Hohendorff, J. V., Habigzang, L. F., & Koller, S. H. (2017). "A boy, being a victim, nobody really buys that, you know?": Dynamics of sexual violence against boys. *Child Abuse and Neglect, 70*(August 2016), 53–64. https://doi.org/10.1016/j.chiabu.2017.05.008

Horrevorts, E. M. B., Van Grieken, A., Mieloo, C. L., Hafkamp-De Groen, E., Bannink, R., Bouwmeester-Landweer, M. B. R., … Raat, H. (2017). Concurrent validity, discriminatory power and feasibility of the instrument for Identification of Parents At Risk for child Abuse and Neglect (IPARAN). *BMJ Open, 7*(8), 1–9. https://doi.org/10.1136/bmjopen-2017-016140

Jonson-Reid, M., Drake, B., Chung, S., & Way, I. (2003). Cross-type recidivism among child maltreatment victims and perpetrators. *Child Abuse and Neglect, 27*(8), 899–917. https://doi.org/10.1016/s0145-2134(03)00138-8

Lamela, D., & Figueiredo, B. (2018). A cumulative risk model of child physical maltreatment potential: Findings from a community-based study. *Journal of Interpersonal Violence, 33*(8), 1287–1305. https://doi.org/10.1177/0886260515615142

Lee, S. J., Altschul, I., & Gershoff, E. T. (2015). Wait until your father gets home? Mothers' and fathers' spanking and development of child aggression. *Children and Youth Services Review, 52*, 158–166. https://doi.org/10.1016/j.childyouth.2014.11.006

Lucas, D. R., Wezner, K. C., Milner, J. S., McCanne, T. R., Harris, I. N., Monroe-Posey, C., & Nelson, J. P. (2002). Victim, perpetrator, family, and incident characteristics of infant and child homicide in the United States Air Force. *Child Abuse and Neglect, 26*(2), 167–186. https://doi.org/10.1016/S0145-2134(01)00315-5

MacKenzie, M. J., Kotch, J. B., & Lee, L. C. (2011). Toward a cumulative ecological risk model for the etiology of child maltreatment. *Children and Youth Services Review, 33*(9), 1638–1647. https://doi.org/10.1016/j.childyouth.2011.04.018

Madigan, S., Cyr, C., Eirich, R., Fearon, R. M. P., Ly, A., Rash, C., … Alink, L. R. A. (2019). Testing the cycle of maltreatment hypothesis: Meta-analytic evidence of the intergenerational transmission of child maltreatment. *Development and Psychopathology, 31*, 23–51. https://doi.org/10.1017/S0954579418001700

Marshall, C., Langevin, R., & Cabecinha-Alati, S. (2022). Victim-to-Victim Intergenerational Cycles of Child Maltreatment: A Systematic Scoping Review of Theoretical Frameworks. *International Journal of Child and Adolescent Resilience, 9*(1), xx–xx. https://www.ijcar-rirea.ca/index.php/ijcar-rirea/article/view/283.

Miragoli, S., Balzarotti, S., Camisasca, E., & Di Blasio, P. (2018). Parents' perception of child behavior, parenting stress, and child abuse potential: Individual and partner influences. *Child Abuse and Neglect, 84*(March), 146–156. https://doi.org/10.1016/j.chiabu.2018.07.034

Mulder, T.-M., Kuiper, K.-C., van der Put, Stams, G.-J.-J.-M., & Assink, M. (2018). Risk factors for child neglect: A meta-analytic review. *Child Abuse and Neglect, 77*, 198–210. https://doi.org/10.1016/j.chiabu.2018.01.006

Nieuwenhuis, R., & Maldonado, L. C. (2018). The triple bind of single-parent families: Resources, employment and policies to improve well-being. In R. Nieuwenhuis, & L. C. Maldonado (Eds.), *The triple bind of single-parent families: Resources, employment and policies to improve well-being* (pp. 1–28). Policy Press. https://doi.org/10.2307/j.ctt2204rvq.7.

O'Leary, P., Easton, S. D., & Gould, N. (2017). The Effect of Child Sexual Abuse on Men: Toward a Male Sensitive Measure. *Journal of Interpersonal Violence, 32*(3), 423–445. https://doi.org/10.1177/0886260515586362

OECD. (2011). *Families are changing. Doing better for families.* https://www.oecd.org/els/soc/47701118.pdf.

Parker, K., & Wang, W. (2013). Modern Parenthood. *Pew Research Center's Social & Demographic Trends Project, 14*. http://www.pewsocialtrends.org/2013/03/14/modern-parenthood-roles-of-moms-and-dads-converge-as-they-balance-work-and-family/.

Phares, V., & Compas, B. E. (1992). The role of fathers in child and adolescent psychopathology: Make room for daddy. *In Psychological Bulletin* (Vol. 111(3), 387–412. https://doi.org/10.1037//0033-2909.111.3.387

Phares, V., Fields, S., Kamboukos, D., & Lopez, E. (2005). Still looking for poppa. *American Psychologist, 60*(7), 735–736. https://doi.org/10.1037/0003-066X.60.7.735

Pittman, J. F., & Buckley, R. R. (2006). Comparing maltreating fathers and mothers in terms of personal distress, interpersonal functioning, and perceptions of family climate. *Child Abuse and Neglect, 30*(5), 481–496. https://doi.org/10.1016/j.chiabu.2004.10.017

Rice, M.-E., & Harris, G.-T. (2005). Comparing effect sizes in follow-up studies: ROC area, Cohen's d, and r. *Law and Human Behavior, 29*(5), 615–620. https://doi.org/10.1007/s10979-005-6832-7

Riina, E. M., & Feinberg, M. E. (2012). Involvement in childrearing and mothers' and fathers' adjustment. *Family Relations, 61*, 836–850.

Romano, E., Moorman, J., Ressel, M., & Lyons, J. (2019). Men with childhood sexual abuse histories: Disclosure experiences and links with mental health. *Child Abuse and Neglect, 89*(June 2018), 212–224. 10.1016/j.chiabu.2018.12.010.

Singleton, N., & Lewis, G. (2003). *Better or worse: A longitudinal study of the mental health of adults living in private households in Great Britain.*

Smith Slep, A. M., & O'Leary, S. G. (2007). Multivariate Models of Mothers' and Fathers' Aggression Toward Their Children. *Journal of Consulting and Clinical Psychology, 75*(5), 739–751. https://doi.org/10.1037/0022-006X.75.5.739

Rosenthal, R. (1991). *Meta-analytic procedures for social research.* Sage.

Smith, T. K., Duggan, A., Bair-Merritt, M. H., & Cox, G. (2012). Systematic Review of Fathers' Involvement in Programmes for the Primary Prevention of Child Maltreatment. *Child Abuse Review, 21*(4), 237–254. https://doi.org/10.1002/car.2195

Stiffman, M. N., Schnitzer, P. G., Adam, P., Kruse, R. L., & Ewigman, B. G. (2002). Household composition and risk of fatal child maltreatment. *Pediatrics, 109*(4), 615–621. https://doi.org/10.1542/peds.109.4.615

Stith, S. M., Liu, T., Davies, L. C., Boykin, E. L., Alder, M. C., Harris, J. M., … Dees, J. E. M. E. G. (2009). Risk factors in child maltreatment: A meta-analytic review of the literature. *Aggression and Violent Behavior, 14*(1), 13–29. https://doi.org/10.1016/j.avb.2006.03.006

Stoltenborgh, M., Bakermans-Kranenburg, M. J., Alink, L. R. A., & Van IJzendoorn, M. H. (2015). The prevalence of child maltreatment across the globe: Review of a series of meta-analyses. *Child Abuse Review, 24*, 37–50. 10.1002/car.

van Berkel, S. R., Prevoo, M. J. L., Linting, M., Pannebakker, F. D., & Alink, L. R. A. (2020). Prevalence of child maltreatment in the Netherlands: An update and cross-time comparison. *Child Abuse and Neglect, 103*(October 2019), 104439. 10.1016/j.chiabu.2020.104439.

Swets, J. A. (1986). Indices of discrimination or diagnostic accuracy: Their ROCs and implied models. *Psychological Bulletin, 99*(1), 100–117. https://doi.org/10.1037//0033-2909.99.1.100

van der Put, Assink, M., & Stams, G.-J.-J.-M. (2016). Predicting relapse of problematic child-rearing situations. *Children and Youth Services Review, 61*, 288–295. https://doi.org/10.1016/j.childyouth.2016.01.002

van der Put, C. E., Bouwmeester-Landweer, M. B. R., Landsmeer-Beker, E. A., Wit, J. M., Dekker, F. W., Kousemaker, N. P. J., & Baartman, H. E. M. (2017). Screening for potential child maltreatment in parents of a newborn baby: The predictive validity of an Instrument for early identification of Parents At Risk for child Abuse and Neglect (IPARAN). *Child Abuse and Neglect, 70*(April), 160–168. https://doi.org/10.1016/j.chiabu.2017.05.016

Vanderbilt-Adriance, E., & Shaw, D. S. (2008). Conceptualizing and re-evaluating resilience across levels of risk, time, and domains of competence. *Clinical Child and Family Psychology Review, 11*, 30–58.

Vial, A., van der Put, C., Stams, G. J. J. M., Kossakowski, J., & Assink, M. (2020). Exploring the interrelatedness of risk factors for child maltreatment: A network approach. *Child Abuse and Neglect, 107*(June), Article 104622. https://doi.org/10.1016/j.chiabu.2020.104622

Vlahovicova, K., Melendez-Torres, G. J., Leijten, P., Knerr, W., & Gardner, F. (2017). Parenting Programs for the Prevention of Child Physical Abuse Recurrence: A Systematic Review and Meta-Analysis. *Clinical Child and Family Psychology Review, 20*(3), 1–15. https://doi.org/10.1007/s10567-017-0232-7

Walsh, C., MacMillan, H. L., & Jamieson, E. (2003). The relationship between parental substance abuse and child maltreatment: Findings from the Ontario Health Supplement. *Child Abuse and Neglect, 27*(12), 1409–1425. https://doi.org/10.1016/j.chiabu.2003.07.002

Widarsson, M., Engström, G., Rosenblad, A., Kerstis, B., Edlund, B., & Lundberg, P. (2013). Parental stress in early parenthood among mothers and fathers in Sweden. *Scandinavian Journal of Caring Sciences, 27*(4), 839–847. https://doi.org/10.1111/j.1471-6712.2012.01088.x

Wissow, L. (2015). Corporal Punishment and Children's Mental Health: Opportunities for Prevention. In J. Lindert, & I. Levav (Eds.), *Violence and Mental Health* (pp. 123–131). Springer.

Wolfe, D. A. (1991). *Preventing physical and emotional abuse of children.* Guilford Press.

Zeleznikow, L., & Zeleznikow, J. (2015). Supporting blended families to remain intact: A case study. *Journal of Divorce and Remarriage, 56*(4), 317–335. https://doi.org/10.1080/10502556.2015.1025845