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Early childhood attachment stability to mothers, fathers, and both parents as a network: associations with parents' well-being, marital relationship, and child behavior problems

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ABSTRACT

This study examines the stability of child attachment to mothers and fathers separately, and to both parents as a network between the infancy and preschool periods using a sample of 143 biparental families and their children (73 boys) recruited from the general population. Attachment was assessed at 15 months with the Strange Situation Procedure (SSP) and at 45 months with the Preschool Attachment Classification Coding System (PACS). First, results show no stability in attachment to mothers, to fathers, or to both parents as a network. Second, parents' mental health, life satisfaction, marital satisfaction, and child externalizing behavior are associated with attachment stability. Taken altogether, group comparisons reveal that children with a stable secure attachment to both parents as a network have parents with higher levels of well-being and exhibit less problem behaviors than children with 1) a stable secure attachment to one parent and an unstable attachment to the other parent (from secure to insecure or from insecure to secure), or 2) who never had a stable secure attachment to either parent. This study highlights the significance of attachment to both parents as a network over time as it is associated with developmental outcomes.

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Child attachment to caregivers has emerged in the course of mammalian evolution to help develop a parent–child bond that maintains the proximity required to nurture and protect the offspring (Bowlby, 1969). However, the vast majority of studies involving families with young children have focused solely on child attachment to mothers. We know today that apart from their primary attachment figure, typically the mother, young children also develop attachment relationships with several other significant caregivers, who fulfill their daily needs, such as fathers, grandparents, older siblings, and child care

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workers (Cassidy, 2016; Howes & Spieker, 2016). In comparison with attachment to mothers, attachment to fathers remains highly understudied, even though fathers have become more involved in childcare in recent decades (Bianchi et al., 2006). Furthermore, given the dynamic aspect of attachment models, researchers have been interested in how attachment evolves over time, particularly during the first years of development when the child is more vulnerable. However, very few studies have examined the stability of attachment to mothers and to fathers, and none have considered an integrated model encompassing attachment to both parents.

According to the family systems theory, attachment-caregiving relations exist within a network of family relationships, interconnected and influenced by the well-being of each family member (Hill et al., 2003). Within a family context, collaborative parenting can establish a relational network that enables parents to adapt to their child's needs and their own availability (likely to vary over time). This dynamic allows one parent to assist the child when the other is unavailable, thereby maintaining the homeostasis of the family system (Dubois-Comtois & Moss, 2008). Integrating attachment theory into the broader framework of the family systems theory, which includes considering the child's attachment to both parents and the well-being of mothers and fathers over time, allows for a more comprehensive understanding of attachment and correlates within the evolving family ecology. Drawing from attachment and family systems theories, the current study investigates child attachment stability to fathers, mothers, and both parents, along with predictors and consequences for child adjustment.

Attachment stability in early childhood

While attachment theory posits a continuity in attachment throughout an individual's lifespan, where attachment internal working models serve as the prototype for all future attachment relationships, it also stipulates that attachment models can be revised based on changes affecting the quality of the relationship (Bowlby, 1969; Kobak et al., 2016). Although mixed results on attachment stability were found from early infancy to adulthood, findings of meta-analytic studies generally support a prototype model (Fraley, 2002; Pinquart et al., 2013; Waters et al., 2022), where early attachment models might be less sensitive to divergent environmental experiences. However, as mentioned by Fraley (2002), it remains uncertain from these findings whether a prototype model would be applicable across various types of attachment relationships. Furthermore, research on stability of attachment has rarely included data on the early childhood period, a critical developmental phase during which children may gradually begin consolidating the attachment relationships they have developed with their primary attachment figures. Therefore, there is a notable gap in our understanding of attachment stability and change to mothers, fathers, and the both of them as a network during the early childhood period.

In particular, Fraley's (2002) meta-analytic findings showed moderate-to-high levels of secure-insecure attachment stability between infancy and preschool/early school-age (between 12 and 18 months: $r = .32$; between 12 and 48 months: $r = .35$; between 12 and 72 months: $r = .67$). Notably, no moderators were tested in the study, which limits our knowledge on the factors that may influence attachment stability. A second meta-analysis on children and adolescents (0–18 years) also found an overall moderate effect size ($k = 225$; $r = .39$) for the secure-insecure attachment stability across two time points. In this study,

effect sizes for attachment stability to fathers ($k = 29$; $r = .46$) and to mothers ($k = 183$; $r = .37$) were not significantly different, but a higher stability to fathers or mothers was found when studies used representational measures (through verbal responses) rather than observational measures such as the *Strange Situation Procedure* (SSP) or the Attachment Q-Sort (Pinquart et al., 2013). Moreover, higher stability was found when Time 1 attachment was assessed at later ages (≥ 6 years) or when time between measurements was short. Taken altogether, results from the two meta-analyses indicate that attachment (in)stability could be explained by developmental changes in attachment needs occurring between infancy and late adolescence and the type of instruments used to measure attachment. Considering that attachment measures are confounded with child age, and that studies in this meta-analysis include children of a wide age range, it is impossible to untangle these two hypotheses.

To reduce the confounding effect of age and measurement, as well as the heterogeneity of effect sizes, Opie et al. (2021) performed a meta-analysis including only studies ($k = 63$) that used the SSP (modified or not) to assess child attachment across early childhood (infancy, toddlerhood, and preschool/school entry). They found a weak-to-moderate combined effect size for the secure-insecure attachment stability ($r = .28$), which was similarly observed at each age group (infant to infant: $r = .32$; infant to toddler: $r = .20$; infant to preschooler: $r = 0.31$; toddler to preschooler: $r = .18$). These results suggest similar, weak to moderate rates of attachment stability throughout the early childhood. Furthermore, results of meta-regressions showed that methodology (attachment coding instruments, interrater reliability), sample (social and medical risk status of the sample), and study (publication year, publication status, and country where the study was conducted) characteristics did not significantly moderate attachment stability. Although 11 studies from this meta-analysis included data on attachment stability to fathers, the authors were unable to examine differences in effect sizes according to the sex of the parent, probably because attachment across time was examined in only two studies with infants, five with infants and toddlers, and one with toddlers and preschoolers. Moreover, only three studies examined attachment stability to fathers between infancy and preschool/school entry.

Studies simultaneously assessing attachment stability to mothers and fathers report similar weak to moderate rates between attachment to mothers (55–78%) and to fathers (50–64%; Belsky et al., 1996; Easterbrooks, 1989; Edwards et al., 2004; Owen et al., 1984). However, some studies have found a greater attachment stability to mothers (91%) than to fathers (66%; e.g. Main & Cassidy, 1988). Most of these studies, conducted in the 1980s and 1990s, have treated the stability of attachment to mothers and to fathers separately. However, a recent meta-analysis ($k = 75$) has shown a significant and moderate correspondence between attachment security to mothers and to fathers ($r = .32$; Pinquart, 2022). Considering that attachment to mothers and to fathers are not completely independent, studies assessing stability of attachment should take into consideration attachment to both parents as a network. This is consistent with the conceptual framework elaborated by Dagan and Sagi-Schwartz (2018), who have underscored the need to consider the child's attachment network, that is, to both mothers and fathers jointly, when predicting developmental outcomes. For instance, they have suggested two hypotheses related to the number of secure attachments: 1) an additive hypothesis, where a secure attachment to both parents is associated with greater adaptation than an insecure attachment to a single parent, and the latter being associated with greater adaptation than having an insecure attachment to both parents, and 2) a buffering

hypothesis, where a secure attachment to a single parent is equivalent as having a secure attachment to two parents, and both of these configurations lead to greater adaptation than having an insecure attachment to both parents.

Does attachment stability in early childhood predict child adjustment?

There are numerous studies on the association between child attachment and social competence or behavior problems. Results of these studies are important as they speak to the predictive value of attachment in children's level of social functioning and adaptation. Although some studies have shown that child attachment to mothers is generally more predictive of child outcomes than child attachment to fathers (for a review, see Howes & Spieker, 2016), recent studies have shown that attachment insecurity to fathers during preschool is a stronger predictor of externalizing problems in middle childhood than attachment insecurity to mothers (Bureau et al., 2017, 2020). Nevertheless, the recent meta-analysis by Deneault et al. (2021) with 15 samples ($N = 1304$) found a significant and moderate association ($d = .37$) between attachment insecurity to fathers and externalizing behaviors, an effect size comparable to that found with attachment insecurity to mothers ($d = .31$; see Fearon et al., 2010). Using an individual participant data (IPD) meta-analysis involving 1,097 children (from nine individual studies), Dagan et al. (2022) assessed child to mother and child to father attachment configurations as predictors of internalizing and externalizing problems, aiming to test the additive and buffering hypotheses. They found that attachment insecurity to both parents was related to higher levels of internalizing problems than attachment insecurity to a single parent. They also found that children who were insecurely attached to one parent had more internalizing problems than those who were securely attached to both parents, confirming the additive hypothesis. Configurations of attachment insecurity to parents were not related to externalizing problems, but children who had a disorganized insecure attachment to both parents had more externalizing problems than children of other attachment configurations (Dagan et al., 2022).

A limited number of studies have assessed whether stability of attachment in early childhood predicts child social competence and behavior problems prior to school entry. In a study assessing attachment to mothers, children with a stable secure attachment between 12/18 months and 24 months showed lower levels of externalizing problems at 3.5 years of age than children in the stable insecure groups ($N = 145$; 61% secure-insecure stability between 12 and 18 months and 69% stability between 12/18 and 24 months; Vondra et al., 2001). Another study found stability of attachment security to mothers between 14 and 24 months of age (71%), though there was no stability between these two early assessment points and child attachment at 58 months (14–58 months: 53% and 24–58 months: 44%; $N = 45$; Bar-Haim et al., 2000). Despite this lack of attachment stability, children who remained secure between 14 and 58 months had greater emotional openness than those who moved to an insecure attachment classification. In a sample of low-SES families, a 62% stability of secure-insecure attachment to mothers was found between 14 and 58 months of age ($N = 82$; Fish, 2004). Children who became secure at 58 months had more difficulty getting along with peers, but they were more sociable than children from the other groups. These results highlight the need to better understand the association between attachment stability and child adjustment. In

addition, with the exception of the Vondra et al.'s study, most studies have used fairly small samples. Finally, there are no studies on the stability of attachment to fathers, let alone on the stability of attachment to both parents as an attachment network, and their predictive value for child adjustment.

Do family and parent well-being predict attachment stability in early childhood?

According to attachment theory and research, children develop attachment relationships that are consistent with parenting behaviors (Fearon & Belsky, 2016). There is also a wealth of evidence showing that parental well-being and resources, such as mental health and quality of marital relationships, are associated with caregiving, thereby serving as potential relevant predictors of child attachment (Fearon & Belsky, 2016). A recent systematic review highlighted that parent mental health and well-being play a role in the transmission of attachment (Risi et al., 2021). However, the studies included in this review did not assess whether parent mental health predicted child attachment (in)stability over time. In a study evaluating attachment stability between 12 and 18 months, it was found that children with a stable insecure attachment to mother, in comparison to those with a stable secure attachment, had mothers with significantly more depressive symptoms and higher alcohol consumption. In addition, these mothers showed marginally higher levels of antisocial behaviors (Edwards et al., 2004). Children with a stable insecure attachment to mothers also had fathers with higher alcohol consumption than those with an unstable attachment or stable secure attachment to mothers. Interestingly, within the same study, stability of attachment to fathers was not related to paternal depression, alcohol consumption, or antisocial behaviors. In another study with mothers who were victims of domestic violence, stability of attachment to mothers from ages 1 to 4 was not significantly related to maternal depression (Levendosky et al., 2011). Moreover, enduring parental characteristics, such as negative personality traits, did not predict (in)stability of attachment (Fish, 2004). In summary, findings from studies on parental mental health and attachment stability provide mixed results and warrant further investigation. A critical issue is that most studies showing associations between parental well-being and child attachment stability have considered well-being at single specific time points, overlooking possible changes in parents over time. Given the fluctuation in parental mental health symptoms during early parenthood (Metzger & Gracia, 2023), it is paramount to assess whether these fluctuations are related to child attachment stability.

Moreover, studies have relied on negative or problematic parental characteristics, eclipsing the role of positive parental characteristics. In particular, some studies indicate that parents' greater life satisfaction – a dimension of positive psychology – has been negatively associated with mental health problems (Fergusson et al., 2015) and positively associated with supportive parenting behaviors (Augustijn, 2022). Berger and Spiess (2011) showed that higher levels of maternal satisfaction are associated with greater level of child developmental and adaptation outcomes. According to these authors, one underlying mechanism by which maternal life satisfaction can affect child outcomes is the quality of the attachment relationship, suggesting that more satisfied mothers are more likely to be sensitive and responsive to their children, who are more likely to form more secure attachments. Given the relative stability of life satisfaction in adults (for a review,

see Diener et al., 2006), it could be that this state of well-being plays a role in children's attachment stability to parents.

Within the family environment, the couple relationship is a key factor in the transmission of parenting behaviors and child attachment (Cowan & Cowan, 2009). Children who grow up in a family environment in which parents have a more positive couple relationship are more likely to develop a secure attachment than those exposed to marital discord and dissatisfaction (Fearon & Belsky, 2016). For instance, mothers of children with a stable secure attachment from ages 3.5 to 5.5 years had greater marital satisfaction than mothers of secure children who became insecure at age 5.5 (Moss et al., 2005). Children who were insecure at 15 months and developed a secure attachment to mothers at age 4 had mothers who were more likely to remain with the same partner or maintain the same marital status during this period (Fish, 2004). In a high-risk sample, children with a stable secure attachment to mothers between the ages of 1 and 4 were exposed to low levels of domestic violence over time, whereas those with a stable insecure attachment were exposed to high levels of domestic violence (Levendosky et al., 2011). Children with an unstable (secure to insecure or insecure to secure) attachment experienced changes in domestic violence that were consistent with those observed in their attachment to mothers. However, a study did not find significant associations between stability of attachment to mothers or to fathers and marital adjustment and aggression (Edwards et al., 2004), emphasizing the need to untangle these associations in further research. Moreover, our knowledge of how fathers' perception of the marital relationship and its role in predicting attachment stability to father is lacking overall.

Objectives

Given the few studies that have examined stability of attachment between infancy and preschool age (see Opie et al., 2021) and the dearth of studies on the stability of attachment to fathers and to both parents as a network in particular, the current study examines stability of attachment through three overarching objectives. The first objective is to examine three trajectories of children's secure-insecure attachment, that is stability of attachment to 1) mothers, 2) fathers, and 3) both parents as a network across the infancy (Time 1 [T1]: 15 months old) and preschool (Time 2 [T2]: 45 months old) periods. The second objective is to identify whether indicators of quality of marital relationship and parental well-being, such as mental health problems and life satisfaction, predict these three trajectories of attachment stability. In the current study, marital relationship quality was assessed at T1, and parental well-being variables were assessed at T1 and T2. For this reason, only the (dis)continuity in parental well-being is examined in association with attachment stability. Finally, the third objective is to test whether these three attachment stability trajectories are predictive of child adjustment, such as externalizing and internalizing behaviors. In accordance with an additive hypothesis, we expect that children with a stable secure attachment to mothers, fathers, or both parents, in comparison to other children (stable insecure and unstable attachments) 1) have parents with higher levels of marital satisfaction at T1; 2) have parents with lower levels of mental health symptoms and more life satisfaction across T1 and T2; 3) and show lower levels of behavior problems at T2. We also hypothesize that children who were never involved in a stable secure attachment to mothers, to fathers or to both parents (either because they

show stable insecure attachments or unstable (in)secure attachments), in comparison to other children, are more likely to show the most problematic marital and parental characteristics and the highest levels of behavior problems.

Method

Participants

The final sample of this longitudinal study comprises 143 biparental families with their young children. The parents were recruited from the general population between October 2014 and August 2016, through ads in daycares and parents' magazines in the Montreal area (Province of Quebec) as part of a larger research project, the Complementarity of Attachment Relationships (CAR) project. Families participated at two time points at which child attachment was assessed: at Time 1 (T1; $N = 182$), children were 15 months old ($SD = 1.72$; range 12–19 months) and at Time 2 (T2; $N = 143$), children were 45 months ($SD = 4.57$; range 36–84 months). At T1, the mean age of fathers was 34.41 years ($SD = 4.57$; ranging from 25 to 45), and that of mothers was 32.48 years ($SD = 4.49$; ranging from 17 to 46). The average number of years of schooling for fathers was 15.56 years ($SD = 2.59$; ranging from 6 to 23), and for mothers it was 16.11 years ($SD = 2.72$; ranging from 9 to 27). Respectively, 60% of the fathers and 40% of the mothers earned CAD\$50,000 or more per year, and 50% of the sample had a family income over \$95,000. Regarding the main occupation of the fathers, 83% worked full time, 5% worked part time, 6% were in school, and 6% had another occupation (e.g. paternity leave, receiving social benefits, medical leave). For mothers, 59% worked full time, 15% worked part time, 7% were at home with no income, 6% were in school, 5% were on maternity leave, and 8% had another occupation (e.g. receiving social benefits, medical leave). Most parents (80%) were born in Canada, while 10% were from France, 5% from South America, 4% from Africa, and 1% from other countries. All parents were biological parents, and all families were two-headed families. Finally, the average number of children per family was 1.51 ($SD = 0.77$; ranging from 1 to 5). Overall, these data show a predominantly upper middle-class sample.

Parents who participated at T2 were not significantly different than those who dropped out from T1 to T2 on years of schooling, family income, child age, child sex, and whether they were born in Canada or another country (t s between 0.01 and 1.51; χ^2 between 0.28 and 2.36). Fathers and mothers who remained in the study at T2 were on average 2 years older than those who dropped out ($t = 2.04$ and 2.26, respectively).

Procedure

At T1 and T2, families came to the university for a lab visit during which child attachment to both parents was assessed separately, using the SSP or the PACS systems depending on child age. Also, parents completed a series of questionnaires that assessed information on 1) socio-demographic characteristics, marital relationship, parents' mental health symptoms, and life satisfaction at T1; and 2) child behavior problems, parents' mental health symptoms, and life satisfaction at T2. At T1 and T2, child attachment to mothers and to fathers was assessed in a counterbalanced order at a one-month interval. Chi-

square tests yielded no significant differences between the attachment to mothers' distribution of children who were assessed first in the order and those who were assessed second in the order (1 month later; in infancy: $\chi^2 = 2.89$, $p = .41$; in preschool: $\chi^2 = 2.05$, $p = .56$). Similar results were found for fathers (in infancy: $\chi^2 = 4.96$, $p = .18$; in preschool: $\chi^2 = 0.36$, $p = .95$). These results indicated that the one-month counterbalancing was not related to child attachment classifications. All the participants signed a consent form for their participation and that of their child, and the project was approved by the University's ethics committee.

Instruments

Parent-child attachment relationship (T1 and T2)

The Strange Situation Procedure (SSP; Ainsworth et al., 1978) was used to assess the attachment of young children (12–18 months old) to their parents. Considered as the “gold standard” (Lucassen et al., 2011), this procedure is divided into eight structured episodes, each 3 min in length, including two separation-reunion episodes. Instructions are given to the parent at the beginning of the procedure, and age-appropriate toys are provided to the dyad. Using the Ainsworth et al. (1978) and Main and Solomon (1990) coding system, children's behaviors towards the parent upon the reunion are scored along five scales (avoidance, resistance, proximity seeking and contact maintenance, and disorganization) and then classified into one of three organized attachment categories, insecure avoidant (A), secure (B), or insecure resistant (C), or one disorganized category. A disorganized attachment (D) is assigned when the child obtains a score equal to or greater than 5 on the disorganization scale (Main & Solomon, 1990).

Children with a *secure* attachment (B) seek proximity to their parent and accept parental comfort upon their parent's return. Once soothed, they can get back to exploration of the toys available in the room. Children with an *avoidant insecure* attachment (A) minimize distress and do not seek comfort upon the parent's return, but rather they continue to explore albeit in a less committed way. Children with a *Resistant* (ambivalent) insecure attachment (C) maximize distress, resist, and take longer to be comforted. They tend to cling onto the parent, show anger, and cease to explore the toys in an efficient manner. Children with a disorganized attachment (D) show contradictory attachment behaviors, simultaneously seeking and avoiding proximity or comfort. They may also show apprehension of the parent, stereotypical behaviors, and disorientation upon the parent's return. For the present study, an 80% agreement between two trained coders (by E. Carlson) was obtained on 20 cases for the four-way (ABCD) attachment scheme ($\kappa = .67$). Disagreements were resolved by consensus.

The Preschool Attachment Classification System (PACS; Cassidy & Marvin, 1992) was used to assess attachment of preschoolers to their parents. The PACS is a six-classification system focusing on a child's physical proximity to the parent, affective expression, and verbal exchanges and communication patterns. This procedure is divided into five structured episodes including two separation-reunion episodes. The task is explained to the parent and there are no specific instructions given to the parent, other than to act as they normally would with the child. Children with a *secure* (B) attachment seek proximity and reassurance from their caregiver if needed, share positive affect, and have reciprocal interactive behaviors with their parents at reunion. They are able to use their parent as

a secure base for exploration. Children with an *insecure avoidant* (A) attachment display minimal emotion and distress, and they tend to ignore and avoid mothers' attempts at verbal interaction. Children with an *insecure-resistant/ambivalent* (C) attachment alternately demonstrate resistance or oppositional behaviors and tend to show excessive immaturity in the form of passivity and dependent behaviors. Children with a *disorganized-controlling* (Dcont) attachment tend to organize interactions with their parent by directing their parent's attention and behavior either in a caregiving, overly protective way, or punitive, hostile way. Both types of children are engaged in a role-reversed pattern with their parents (Main & Cassidy, 1988). Children with a *behaviorally disorganized* (D) attachment display incomplete or disoriented sequences of behaviors, confusion, or apprehension, as shown by D infants. Finally, children with *insecure-other* (IO) attachment display no clear organized attachment (A, B, or C) or controlling strategy, or combine patterns of avoidant and ambivalent attachments. As performed in past studies (e.g. Moss et al., 2005), we regrouped the D, IO, and Dcont categories under one D category. In the current sample, the 22 children who were assigned a D attachment classification to their mothers were 9 D, 11 IO, and 2 Dcont (1 Dcont punitive and 1 Dcont caregiver) children. The 16 children who were assigned a D attachment to their fathers were 6 D, 7 IO, and 3 Dcont (Dcont caregiver) children. A 79% agreement between two trained coders (by E. Moss) was obtained on 19 cases for the four-way (ABCD) attachment scheme ($\kappa = .54$). Disagreements were resolved by consensus. The two PACS coders were different from those who coded the SSP for infants, and the coders of the PACS and SSP coded only the father-child dyad or the mother-child dyad of the same family.

Marital relationship (T1)

To assess marital relationship, the Marital Harmony Index (MHI; Bigras & Paquette, 2000), was completed by both parents separately. This self-report questionnaire consists of 25 likert-scale questions ranging from "strongly agree" to "strongly disagree," and yields three scales: harmony, negative reciprocity, and avoidance of conflicts. This questionnaire is derived from a Q-sort developed by Lacharité et al. (1991) for which items are in line with the work of Gottman (Katz & Gottman, 1996). Internal consistency (Cronbach's alpha) coefficients for the marital harmony scale (eight items) are .72 for fathers and .75 for mothers; for the negative reciprocity scale (9 items), .82 for fathers and .83 for mothers, and for the avoidance scale (8 items), .50 for fathers and .55 for mothers. Given that internal consistency coefficients for the avoidance scale were low for mothers and fathers, scores on these two scales were not included in analyses. Significant correlations were found between mothers' and fathers' marital harmony ($r = .33$) or negative reciprocity ($r = .41$) scores.

Parental mental health symptoms (T1 and T2)

The five-point Likert self-report Symptom Checklist (SCL-90-R; Derogatis & Savitz, 1999) was used to assess depression, anxiety, and hostility in parents. Internal consistency (Cronbach's alpha) coefficients for mothers and fathers at T1 and T2 are acceptable to excellent (depression: between .84 and .91; anxiety: between .80 and .83; hostility: between .59 and .63). There were no significant correlations between mothers' and fathers' depression ($r = .09$), anxiety ($r = .14$), or hostility ($r = .07$) scores at T1; nor between mothers' and fathers' depression ($r = .12$), anxiety ($r = .04$), or hostility ($r = .10$) scores at T2. Furthermore, moderate-to-high correlations were found between T1 and T2 mothers'

depression ($r = .59$), anxiety ($r = .47$), or hostility ($r = .42$) scores; and between T1 and T2 fathers' depression ($r = .53$), anxiety ($r = .41$), or hostility ($r = .53$) scores.

Life satisfaction (T1 and T2)

Parental life satisfaction was assessed using the French adaptation of the Satisfaction with Life Scale (SWLS; Blais et al., 1989), a widely used unidimensional scale measuring the cognitive component of subjective well-being (Diener et al., 2002). Composed of five items that do not address specific life domains, the SWLS requires respondents to carry out a synthesis of their different life experiences. The items are context-free and allow individuals to assess their life satisfaction according to their own criteria. For each item, the participants indicate, on a scale ranging from 1 "Strongly disagree" to 7 "Strongly agree," their degree of agreement with the statement. Many validation studies of the SWLS have been conducted in different countries and in different languages (DiFabio & Gori, 2016), including French Canadian (Blais et al., 1989). Internal consistency (Cronbach's alpha) coefficients are .86 for fathers and .89 for mothers. Mothers' and fathers' scores are significantly intercorrelated at T1 ($r = .29$) and T2 ($r = .32$).

Child externalizing and internalizing behaviors (T2)

Children's behavior problems were assessed by both parents with the Child Behavior Checklist – CBCL (Achenbach & Rescorla, 2000). The CBCL is a standardized, 100-item questionnaire designed to assess behavioral and emotional problems in children between the ages of 1.5 and 5 years. It comprises seven subscales of symptoms grouped into three scales: internalizing behaviors (emotionally reactive, anxious/depressed, somatic complaints, introversion); externalizing behaviors (attention behaviors and aggressive behaviors); and total behavior problems (all of the above-mentioned syndromes and sleep behaviors). Internal consistency coefficients for the externalizing behavior scale (24 items) are .91 for fathers and mothers, and those of the internalizing behavior scale (36 items) are .86 for fathers and .84 for mothers. T-scores were used in this study, and scores greater than 63 are considered above the clinical threshold. In the current study, mothers' and fathers' scores are significantly intercorrelated for internalizing behaviors ($r = .42$) and externalizing behaviors ($r = .56$). Thus, we computed the mean of mothers' and fathers' scores, yielding one variable for each of the internalizing and externalizing behaviors.

Analytic plan

Analyses of the current study only pertain to the families for which attachment data with mothers and fathers, and at both assessment points, are available ($N = 143$). In order to balance and minimize Type I and Type II error rates, the alpha level was lowered to $p < .025$, which is considered as a conservative approach given the sample size (Maier & Lakens, 2022).

First objective

Three chi-square analyses were performed to verify the T1-T2 stability of attachment to mothers, fathers, and both parents as a network. To assess the stability of attachment as a network, two variables (one per assessment time) were created by combining children's attachment to both parents at each time point across three groups: secure attachment to

both parents, insecure attachment to both parents, secure to one parent, while insecure to the other parent.

Second objective

First, to examine whether family and parent characteristics are predictors of attachment stability, two secure-insecure attachment stability variables were computed, one for attachment to mothers and one for attachment to fathers with the following categories: Stable secure, Stable insecure, Secure to insecure, Insecure to secure. A third attachment stability variable was computed to consider the child's attachment network: Stable secure to both parents, Stable secure to mother while unstable with father, Stable secure to father while unstable with mother, and Stable secure with one parent while stable insecure with the other parent, and Never stable secure to either parents (i.e. stable insecure to both parents or unstable with both parents). Then, preliminary analyses examined whether socio-demographic variables were associated with the stability of attachment variables (stability of attachment to mothers, to fathers, and to both parents). If significantly associated, they were included in the following analyses.

Because parental mental health symptoms were assessed at both T1 and T2, three series of eight repeated measures ANOVA (or ANCOVAs) were conducted with mothers' and fathers' mental health and life satisfaction scores at T1 and T2 as the Time effect, and attachment stability to mothers, fathers, or to both parents as the Group effect. In each of these analyses, planned simple contrasts, based on *a priori* hypotheses, were included to compare the stability of attachment groups. For analyses on the stability of attachment to a single parent, each simple planned contrasts series compared the Stable secure (SS) reference group to the other groups separately, and the Stable insecure (II) reference group to the other groups separately. For analyses on the stability of attachment to both parents, each simple planned contrasts series compared the Stable secure (SS) reference group to the other groups separately, and the Never stable secure (Never SS to either parents) reference group to the other groups separately. A series of three MANOVAs (or MANCOVAs) also verified whether the different components of marital relationship quality at T1 predicted attachment stability to mothers, fathers, and both parents.

Third objective

After assessing if behavior problems were associated with potential sociodemographic covariates, a last series of three MANOVAs (or MANCOVAs) examined whether levels of child behavior problems (internalizing and externalizing problems) at T2 varied as a function of attachment stability to mothers, fathers, and both parents.

Results

Stability of child attachment between the infancy and preschool age periods

Table 1 shows the proportion of attachment classifications to mothers and fathers in infancy and preschool age. The data indicates that most children have a secure attachment (B) to mothers at T1 (67.1%) and T2 (72%). In infancy, 10% have an avoidant attachment to mother, 10.5% an ambivalent-resistant, and 12.6% a disorganized attachment. In the preschool age period, 3.5% have an avoidant

Table 1. Stability/Instability of attachment to mothers and fathers from infancy to preschool age.

	Child Preschool Attachment to Mothers				Total
	A	B	C	D	
Infant Attachment to Mothers					
Avoidant (A)	0	12	1	1	14
Secure (B)	4	68	9	15	96
Ambivalent/resistant (C)	1	9	1	4	15
Disorganized (D)	0	14	2	2	18
Total	5	103	13	22	143
	Child Preschool Attachment to Fathers				
	A	B	C	D	Total
Infant Attachment to Fathers					
Avoidant (A)	3	17	4	5	29
Secure (B)	4	66	7	7	84
Ambivalent/resistant (C)	2	5	0	1	8
Disorganized (D)	0	19	0	3	22
Total	9	107	11	16	143

Stability of attachment using the two-way secure-insecure attachment scheme is 55.9% for child attachment to mothers ($\kappa = -.04$, $\chi^2 = 0.21$, $p = .65$) and 58.7% for child attachment to fathers ($\kappa = .10$, $\chi^2 = 1.52$, $p = .22$).

attachment to mother, 9.1% an ambivalent-resistant, and 15.4% a disorganized attachment. Similar data is found for attachment to fathers, with 58.7% of children showing a secure attachment at T1 and 74.8% at T2. In infancy, 20.3% have an avoidant attachment to fathers, 5.6% an ambivalent-resistant, and 15.4% a disorganized attachment. In the preschool age period, 6.3% have an avoidant attachment to fathers, 7.7% an ambivalent-resistant, and 11.2% a disorganized attachment. Because both the four-way attachment classifications to mothers and fathers generate a high number of small cell sizes, it is not possible to assess the stability of attachment using the four-way attachment scheme. At a descriptive level, observations of the correspondence between T1 and T2 insecure (A, C, and D) classifications show a lack of stability of attachment to mothers (between 0% and 11.1%) and fathers (between 0% and 13.6%). Using a two-way secure-insecure attachment scheme, chi-square analyses are not significant, showing that only 55.9% of children maintained the same attachment to mothers (47.6% stable secure and 8.4% stable insecure) and 58.7% maintained the same attachment to fathers (46.2% stable secure and 12.6% stable insecure). Comparing the percentage of stable attachments to mothers (55.9%) to that of stable attachments to fathers (58.7%) reveals no differences between the two distributions ($z = 0.48$, $p = .632$). In sum, there is no stability of attachment to mothers or fathers between the infancy and preschool age periods (for mothers: $\kappa = -.04$, $\chi^2 = 0.21$, $p = .649$, $r = .04$; fathers: $\kappa = .10$, $\chi^2 = 1.52$, $p = .218$, $r = .10$).

A chi-square on stability of attachment to both parents as a network reveals that 23.8% of children show a stable secure attachment to both parents, 15.4% show a stable secure attachment with one parent only, and only 1.4% show a stable insecure attachment to both parents (see Table 2). The results of a chi-square analysis reveal no significant correspondence between child attachment to both parents at T1 and T2, $\kappa = .02$, $p = .799$, $\chi^2 = 4.70$, $p = .319$.

Table 2. Comparison of infant and preschool attachment configuration to mother and father.

	Child Preschool Attachment to both Parents			Total
	SS	II	SI	
Infant Attachment to both Parents				
Secure with both parents (SS)	34	8	22	64
Insecure with both parents (II)	15	2	10	27
Secure with one parent only (SI)	29	1	22	52
Total	78	11	54	143

$\kappa = .02$, $p = .80$; $\chi^2 = 4.70$, $p = .32$.

Preliminary analyses

Preliminary analyses examine whether socio-demographic variables (child age and sex, both parents' age, income, and years of schooling) are associated with the stability of attachment variables (stability of attachment to mothers, to fathers, and to parents). None of the socio-demographic variables are significantly associated with the stability of attachment to mothers, fathers, or parents variables (F between 0.15 and 2.49; $\chi^2 = .84$). Correlation analyses reveal no significant associations between sociodemographic characteristics and child behavior problems. Therefore, the main analyses do not include any sociodemographic covariates.

Changes in parent well-being as a function of attachment stability groups

Attachment stability to mothers

Mean scores and standard deviations for mother and father well-being in infancy and preschool age as a function of stability of attachment to mother are presented in Table 3. Results of repeated measures ANOVAs (4 stability groups \times 2 time points) demonstrate a significant time effect for mothers' depression and hostility ($F(1,139) = 7.48$, $p = .007$ and $F(1,139) = 7.46$, $p = .007$, respectively) and for fathers' anxiety and hostility ($F(1,139) = 12.09$, $p < .001$ and $F(1,139) = 10.93$, $p = .001$, respectively). Mental health symptoms decreased between the infancy and preschool period. The repeated measures ANOVA reveal no significant change in mothers' anxiety, fathers' depression, and mothers' and fathers' life satisfaction over time.

No significant group effect is found for mothers' and fathers' mental health symptoms (F between .38 and .91) and planned contrasts reveal no significant group differences. However, a significant group effect is found for mothers' and fathers' life satisfaction ($F(1,139) = 4.26$, $p = .007$ and $F(1,139) = 3.87$, $p = .011$, respectively). Planned contrasts reveal that children in the Stable secure group (SS_M) have mothers with greater life satisfaction than those in the Insecure to secure (IS_M) and Stable insecure (II_M) groups ($t = -2.54$, $p = .006$ and $t = -2.77$, $p = .006$, respectively). Moreover, children in the Secure to insecure (SI_M) have mothers with greater life satisfaction than children in the Stable insecure group (II_M ; $t = -3.47$, $p = .015$). Children with a stable secure attachment to mothers (SS_M) have fathers with higher levels of life satisfaction than secure children who become insecurely attached to mothers (SI_M ; $t = -3.33$, $p = .001$).

No significant Group \times Time interaction effects are found for mothers' mental health symptoms (F between .03 and 2.05).

Table 3. Parental well-being during infancy and preschool as a function of stability of attachment to mothers.

Parental well-being	Stable Secure (SS _M) <i>n</i> = 68	Insecure to Secure (IS _M) <i>n</i> = 35	Secure to Insecure (SI _M) <i>n</i> = 28	Stable Insecure (II _M) <i>n</i> = 12	A priori Contrasts on Group effects (SS _M vs others; II _M vs others)
	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	
Mother depression					
Infancy	.66 (.51)	.80 (.50)	.72 (.42)	.92 (.79)	—
Preschool	.52 (.51)	.70 (.61)	.52 (.49)	.80 (.82)	
Mother anxiety					
Infancy	.40 (.47)	.35 (.52)	.46 (.42)	.41 (.55)	—
Preschool	.24 (.33)	.32 (.38)	.33 (.43)	.38 (.43)	
Mother hostility					
Infancy	.58 (.46)	.60 (.47)	.67 (.27)	.72 (.47)	—
Preschool	.48 (.42)	.50 (.39)	.45 (.33)	.65 (.47)	
Mother life satisfaction					
Infancy	30.51 (3.90)	27.60 (6.04)	30.43 (4.23)	27.60 (5.45)	SS _M > IS _M ; II _M II _M < SI _M
Preschool	30.12 (4.06)	28.49 (4.63)	30.07 (4.50)	25.58 (7.56)	
Father depression					
Infancy	.53 (.47)	.64 (.50)	.59 (.51)	.55 (.57)	—
Preschool	.40 (.51)	.56 (.69)	.60 (.53)	.46 (.46)	
Father anxiety					
Infancy	.33 (.37)	.43 (.42)	.36 (.44)	.45 (.53)	—
Preschool	.20 (.26)	.26 (.41)	.29 (.43)	.24 (.44)	
Father hostility					
Infancy	.59 (.45)	.61 (.44)	.61 (.46)	.71 (.48)	—
Preschool	.41 (.38)	.51 (.56)	.51 (.39)	.51 (.34)	
Father life satisfaction					
Infancy	29.03 (4.66)	27.54 (5.81)	25.79 (5.88)	28.17 (6.29)	SS _M > SI _M
Preschool	29.50 (3.70)	27.83 (5.26)	26.07 (4.99)	28.42 (4.52)	

Attachment stability to fathers

Mean scores and standard deviations for mother and father well-being in infancy and preschool age as a function of stability of attachment to father are presented in Table 4. Results of repeated measures ANOVAs reveal a significant time effect for mothers' depression, anxiety, and hostility ($F(1,139) = 8.07, p = .005, F[1,139] = 5.47, p = .02$, and $F(1,139) = 13.81, p < .001$, respectively) and for fathers' depression, anxiety, and hostility ($F(1,139) = 5.73, p = .018, F(1,139) = 16.14, p < .001$ and $F(1,139) = 17.19, p < .001$, respectively). All symptoms decreased between the infancy and preschool period (see Table 4). Parents' life satisfaction does not significantly vary over time (F of .01 and 3.63).

A significant group effect is found for mothers' depression ($F(3,139) = 3.52, p = .017$) and hostility ($F(3,139) = 13.81, p < .001$) but not for mothers' anxiety and fathers' depression, anxiety, and hostility (F between .48 and 2.57). Planned contrasts conducted on all well-being variables reveal that children with a stable secure attachment to fathers (SS_F) have mothers with lower levels of depression and hostility ($t = 2.79, p = .006$ and $t = 2.96, p = .004$) than children with a secure to insecure attachment to father (SI_F). Children with a stable secure attachment to fathers (SS_F) have mothers with higher levels of life satisfaction than children with stable insecure attachment to father ($t = -3.61, p < .001$). Mothers' and fathers' life satisfaction is also significantly higher in the Stable secure group (SS_F) in comparison with the Secure to insecure attachment group (SI_F; $t = -2.31, p = .022$

Table 4. Parental well-being during infancy and preschool as a function of stability of attachment to fathers.

Parental well-being	Stable Secure (SS _F) <i>n</i> = 66	Insecure to Secure (IS _F) <i>n</i> = 41	Secure to Insecure (SI _F) <i>n</i> = 18	Stable Insecure (II _F) <i>n</i> = 18	A priori Contrasts on Group effects (SS _F vs others; II _F vs others)
	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	
Mother depression					SS _F < SI _F
Infancy	.60 (.49)	.77 (.55)	.94 (.46)	.88 (.56)	
Preschool	.47 (.47)	.62 (.61)	.83 (.66)	.88 (.56)	
Mother anxiety					—
Infancy	.37 (.44)	.34 (.44)	.49 (.48)	.57 (.67)	
Preschool	.21 (.26)	.26 (.38)	.52 (.54)	.37 (.41)	
Mother hostility					SS _F < SI _F
Infancy	.56 (.40)	.53 (.38)	.88 (.43)	.75 (.56)	
Preschool	.45 (.35)	.48 (.37)	.67 (.59)	.46 (.39)	
Mother life satisfaction					SS _F > SI _F ; II _F
Infancy	30.91 (3.00)	29.35 (5.59)	28.28 (5.59)	26.17 (5.96)	
Preschool	30.53 (3.74)	28.98 (5.49)	27.94 (4.29)	27.11 (5.99)	
Father depression					—
Infancy	.51 (.47)	.58 (.48)	.76 (.59)	.59 (.51)	
Preschool	.48 (.62)	.48 (.44)	.53 (.69)	.47 (.46)	
Father anxiety					—
Infancy	.35 (.41)	.32 (.35)	.52 (.51)	.42 (.42)	
Preschool	.23 (.41)	.22 (.26)	.23 (.27)	.28 (.38)	
Father hostility					—
Infancy	.57 (.37)	.57 (.42)	.69 (.58)	.73 (.60)	
Preschool	.45 (.35)	.47 (.43)	.47 (.52)	.49 (.60)	
Father life satisfaction					SS _F > SI _F
Infancy	29.02 (5.35)	28.37 (.4.37)	25.28 (6.20)	25.83 (6.32)	
Preschool	29.18 (4.56)	27.98 (3.97)	26.06 (5.96)	28.28 (3.94)	

and $t = -2.87$, $p = .022$, respectively). Contrasts on fathers' mental health symptoms are not significant.

No significant Group \times Time interaction effects are found for fathers' mental health symptoms (F between .05 and 1.45).

Attachment stability to both parents

Mean scores and standard deviations for mother and father mental health symptoms in infancy and preschool age as a function of stability of attachment to both parents are presented in Table 5. The significant time effects shown in previous analyses are also found here with a decrease in mothers' depression, anxiety, and hostility ($F(1,138) = 8.21$, $p = .005$, $F(1,138) = 9.78$, $p = .002$, and $F(1,138) = 6.41$, $p = .012$, respectively) and in fathers' depression, anxiety, and hostility over time ($F(1,138) = 6.41$, $p = .012$, $F(1,138) = 17.34$, $p < .001$, and $F(1,138) = 18.93$, $p < .001$, respectively). No time effect is found for mothers' and fathers' life satisfaction (F of .14 and 1.91).

A significant group effect is found for mother depression ($F(3,138) = 2.91$, $p = .024$) and father anxiety ($F(3,138) = 3.06$, $p = .019$) but not for mother anxiety and hostility and father depression and hostility (F between .95 and 2.36). Planned comparisons conducted on all well-being variables reveal that children with stable secure attachment to both parents (SS_{MF}) have mothers with lower levels of depression and higher levels of life satisfaction than children with a stable secure attachment with one parent and a stable insecure attachment with the other parent (SS_{M or F} + II_{M or F}; $t = 2.38$,

Table 5. Parental well-being during infancy and preschool as a function of stability of attachment to both parents.

	SS_{MF} $n = 34$	$SS_M + IS_F$ or SI_F $n = 24$	$SS_F + IS_M$ or SI_M $n = 27$	$SS_{M \text{ or } F} + II_{M \text{ or } F}$ $n = 15$	Never SS_{MF} $n = 43$	A priori Contrasts on Group effects (SS_{MF} vs others; Never SS_{MF} vs others)
	$M (SD)$	$M (SD)$	$M (SD)$	$M (SD)$	$M (SD)$	
Mother depression						$SS_{MF} < \text{Never } SS_{MF}$ $SS_{MF} < SS_{M \text{ or } F} + II_{M \text{ or } F}$
Infancy	.52 (.50)	.76 (.49)	.68 (.39)	.82 (.63)	.87 (.55)	
Preschool	.40 (.39)	.56 (.49)	.53 (.47)	.79 (.77)	.72 (.65)	
Mother anxiety						—
Infancy	.37 (.51)	.40 (.49)	.36 (.32)	.47 (.40)	.43 (.57)	
Preschool	.19 (.22)	.24 (.42)	.22 (.27)	.36 (.44)	.40 (.45)	
Mother hostility						—
Infancy	.52 (.47)	.67 (.50)	.60 (.27)	.57 (.41)	.68 (.46)	
Preschool	.39 (.33)	.56 (.51)	.51 (.35)	.58 (.48)	.49 (.39)	
Mother life satisfaction						$SS_{MF} > \text{Never } SS_{MF}; SS_{M \text{ or } F} + II_{M \text{ or } F}$ Never $SS_{MF} < SS_M + IS_F$ or $SI_F; SS_F + IS_M$ or SI_M
Infancy	31.60 (2.70)	30.71 (3.28)	30.15 (3.30)	27.67 (5.31)	27.52 (6.45)	
Preschool	30.71 (4.15)	30.21 (2.47)	30.70 (3.05)	28.07 (5.44)	27.33 (6.11)	
Father depression						$SS_{MF} < SS_M + IS_F$ or SI_F $SS_{MF} < SS_F + IS_M$ or SI_M
Infancy	.40 (.37)	.71 (.58)	.61 (.55)	.61 (.41)	.59 (.50)	
Preschool	.30 (.40)	.59 (.67)	.71 (.81)	.36 (.24)	.48 (.44)	
Father anxiety						$SS_{MF} < SS_M + IS_F$ or SI_F $SS_{MF} < SS_F + IS_M$ or SI_M
Infancy	.22 (.25)	.48 (.46)	.44 (.50)	.49 (.47)	.35 (.38)	
Preschool	.11 (.20)	.33 (.33)	.38 (.57)	.18 (.21)	.21 (.28)	
Father hostility						—
Infancy	.53 (.37)	.60 (.46)	.52 (.32)	.87 (.57)	.64 (.50)	
Preschool	.34 (.30)	.54 (.48)	.52 (.38)	.47 (.34)	.48 (.53)	
Father life satisfaction						$SS_{MF} > \text{Never } SS_{MF}$ $SS_{MF} > SS_M + IS_F$ or SI_F $SS_{MF} > SS_F + IS_M$ or SI_M
Infancy	30.53 (3.49)	28.08 (5.23)	26.96 (6.93)	27.40 (4.63)	26.67 (5.52)	
Preschool	30.79 (2.76)	27.58 (4.54)	27.15 (5.64)	29.53 (2.90)	27.12 (4.84)	

SS_{MF} = Stable secure to both parents; $SS_M + IS_F$ or SI_F = Stable secure mother and unstable father; $SS_F + IS_M$ or SI_M = Stable secure father and unstable mother; $SS_{M \text{ or } F} + II_{M \text{ or } F}$ = Stable secure one parent and stable insecure the other parent; Never $SS_{MF} = II_{MF}$ or $IS_{F \text{ or } M} + SI_{F \text{ or } M}$.

$p = .019$ and $t = -2.52$, $p = .013$, respectively), as well as children who were never stable secure to either parents (Never SS_{MF} ; $t = 3.15$ $p = .002$ and $t = 3.87$, $p < .001$). Moreover, children who were never stable secure to either parents (Never SS_{MF}) have mothers with lower life satisfaction than children with a stable secure attachment with mothers and unstable attachment with fathers ($SS_M + IS_F$ or SI_F) and those with a stable secure attachment with fathers and unstable attachment with mothers ($SS_F + IS_M$ or SI_M ; $t = -2.84$, $p = .005$ and $t = -2.91$, $p = .004$, respectively). Children with stable secure attachment to both parents (SS_{MF}) have fathers with lower levels of depression and anxiety than children with a stable secure attachment to mother and unstable attachment to father ($SS_M + IS_F$ or SI_F ; $t = 2.46$, $p = .015$ and $t = 2.82$, $p = .006$, respectively) and children with a stable secure attachment to father and unstable attachment to mother

(SS_F+IS_M or SI_M ; $t = 2.66, p = .009$ and $t = 2.96, p = .003$, respectively). Finally, children with stable secure attachment to both parents (SS_{MF}) have fathers with higher life satisfaction than children with a stable secure attachment with mothers and unstable attachment with fathers (SS_M+IS_F or SI_F ; $t = -2.41, p = .017$), children with a stable secure attachment with fathers and unstable attachment with mothers (SS_F+IS_M or SI_M ; $t = -3.18, p = .002$), and children who were never stable secure to either parents (Never SS_{MF} ; $t = -3.73, p < .001$).

A significant interaction effect is found between time and stability of attachment to both parents on father hostility. *Post hoc* pairwise comparisons with Bonferroni correction show that father hostility is greater in infancy than in preschool age for children with stable secure attachment to both parents ($p = .011$), children with a stable secure attachment to one parent and a stable insecure attachment to the other parent ($p < .001$), and children who were never stable secure to either parents ($p = .014$).

Marital relationship quality at T1 as a function of attachment stability groups

Mean scores and standard deviations for mothers' and fathers' marital relationship quality in infancy as a function of stability of attachment to mothers, fathers, and both parents are presented in [Table 6](#).

Attachment stability to mothers

Results of a MANOVA, including the negative reciprocity and harmony scales, reveal no significant main effect (Wilk's $\Lambda = 1.68, p = .123$), with no significant ANOVA effect for negative reciprocity and harmony ($F(3,139) = 0.26, p = .857, F(3,139) = 2.65, p = 0.051$, respectively). Analyses of planned contrasts show that mothers of children with a stable secure attachment to mother (SS_M) report higher levels of marital harmony than mothers of children with an insecure to secure attachment to mother (IS_M ; $t = -2.72, p = .007$).

Attachment stability to fathers

Results of a MANOVA, including the negative reciprocity and harmony scales, reveal no significant main effect (Wilk's $\Lambda = 2.09, p = .054$), with no significant ANOVA effects for negative reciprocity ($F(3,139) = 1.16, p = .327$) and harmony ($F(3,139) = 2.23, p = 0.087$). Analyses of planned contrasts show that fathers of children with a stable secure attachment to father (SS_F) report higher levels of marital harmony than fathers of children with an insecure to secure attachment to father (IS_F ; $t = -2.34, p = .021$).

Attachment stability to both parents

Results of a MANOVA, including the negative reciprocity and harmony scales, reveal no significant main effect (Wilk's $\Lambda = 1.13, p = .321$), with no significant ANOVA for mothers' negative reciprocity ($F(4,138) = 0.48, p = .752$) and harmony ($F(4,138) = 1.38, p = 0.244$), and for fathers negative reciprocity ($F(4,138) = 0.71, p = .590$), and harmony ($F(4,138) = 2.18, p = .074$). Analyses of planned contrasts show that fathers of children with a stable secure attachment to both parents (SS_{MF}) report higher levels of marital harmony than fathers of

Table 6. MANOVAs on marital relationship quality in infancy and preschool behavior problems as a function of attachment stability to mothers, fathers, and both parents.

	Stability of Attachment to Mothers ^a				A priori contrasts (SS _M vs others; II _M vs others)	
	Stable secure (SS _M) n = 68 M (SD)	Insecure to secure (IS _M) n = 35 M (SD)	Secure to insecure (SI _M) n = 28 M (SD)	Stable insecure (II _M) n = 12 M (SD)		
Mothers' perception of MR						
Negative reciprocity	2.51 (0.86)	2.52 (0.84)	2.37 (0.84)	2.57 (0.70)	—	
Marital harmony	5.19 (0.44)	4.89 (0.64)	5.17 (0.60)	5.08 (0.54)	SS _M > IS _M	
Preschool behavior problems						
Internalizing	51.40 (7.99)	54.19 (8.95)	53.13 (9.91)	55.65 (8.94)	—	
Externalizing	50.39 (8.10)	54.51 (8.10)	51.82 (9.90)	54.06 (10.75)	SS _M < IS _M	
	Stability of Attachment to Fathers ^b					
	Stable secure (SS _F) n = 66 M (SD)	Insecure to secure (IS _F) n = 41 M (SD)	Secure to insecure (SI _F) n = 18 M (SD)	Stable insecure (II _F) n = 18 M (SD)	A priori contrasts (SS _F vs others; II _F vs others)	
Fathers' perception of MR						
Negative reciprocity	2.43 (0.73)	2.34 (0.78)	2.43 (0.71)	2.72 (0.63)	—	
Marital harmony	5.03 (0.47)	4.79 (0.54)	4.80 (0.62)	4.88 (0.61)	SS _F > IS _F	
Preschool behavior problems						
Internalizing	52.03 (8.81)	51.45 (7.75)	56.03 (9.62)	55.31 (9.07)	—	
Externalizing	50.28 (7.34)	51.43 (8.00)	56.86 (10.72)	54.61 (11.40)	SS _F < SI _F	
	Stability of Attachment to Parents ^c					
	SS _{MF} n = 34 M (SD)	SS _M + IS _F or SI _F n = 24 M (SD)	SS _F + IS _M or SI _M n = 27 M (SD)	SS _M or F + II _M or F n = 15 M (SD)	Never SS _{MF} n = 43 M (SD)	A priori Contrasts (SS _{MF} vs others; Never SS _{MF} vs others)
Mothers' perception of MR						
Negative Reciprocity	2.42 (0.96)	2.57 (0.76)	2.60 (0.64)	2.64 (0.78)	2.39 (0.90)	
Marital harmony	5.27 (0.46)	5.08 (0.35)	4.96 (0.45)	5.16 (0.51)	5.07 (0.71)	
Fathers' perception of MR						
Negative Reciprocity	2.29 (0.68)	2.44 (0.72)	2.51 (0.79)	2.64 (0.53)	2.43 (0.81)	
Marital harmony	5.10 (0.47)	4.72 (0.64)	4.97 (0.50)	4.94 (0.53)	4.83 (0.52)	SS _{MF} > SS _M + IS _F or SI _F
Preschool behavior problems						
Internalizing	50.21 (8.11)	52.71 (7.94)	53.80 (9.66)	53.13 (7.52)	54.07 (9.34)	—
Externalizing	48.30 (7.61)	53.00 (8.53)	52.09 (6.56)	52.13 (7.06)	54.21 (10.78)	SS _{MF} < Never SS _{MF}

MR = Marital relationship. Two separate MANOVAs were conducted for each trajectory of attachment stability: one with marital relationship quality in infancy and one with behavior problems in preschool age.

^aFor marital relationship quality: MANOVA Wilk's $\Lambda = 1.68$, $p = .123$, Negative Reciprocity: $F(3,139) = 0.26$, $p = .86$; Harmony: $F(3,139) = 2.65$, $p = 0.05$. For behavior problems: MANOVA Wilk's $\Lambda = 0.95$, $p = .340$, Internalizing problems: $F(3,139) = 1.32$, $p = .27$; Externalizing problems: $F(3,139) = 1.97$, $p = 0.12$.

children who show a stable secure attachment to mother but an unstable attachment to father (SS_M+IS_F or SI_F ; $t = -2.68, p = .008$).

Child behavior problems at T2 as a function of attachment stability groups

Mean scores and standard deviations for child behavior problems at preschool age as a function of the stability of attachment to mothers, fathers, and both parents are presented in [Table 6](#).

Attachment stability to mothers

Results of a MANOVA, including the internalizing and externalizing scales, reveal no significant main effect (Wilk's $\Lambda = 0.95, p = .340$), with no significant ANOVA effect for internalizing problems ($F(3,139) = 1.32, p = .269$) and externalizing problems ($F(3,139) = 1.97, p = 0.120$). Analyses of planned contrasts show that children with a stable secure attachment to mothers (SS_M) exhibit fewer externalizing problems than those with an insecure to secure attachment to mothers (IS_M ; $t = 2.28, p = .024$).

Attachment stability to fathers

Results of a MANOVA, including the internalizing and externalizing scales, reveal no significant main effect (Wilk's $\Lambda = 0.92, p = .082$), with no significant ANOVA effect for internalizing problems ($F(3,139) = 1.84, p = .142$). A significant ANOVA effect is found for externalizing problems ($F(3,139) = 3.42, p = .019$). Analyses of planned contrasts show that children with a stable secure attachment to fathers (SS_F) exhibit fewer externalizing problems than those with a secure to insecure attachment to fathers (SI_F ; $t = 2.88, p = .005$).

Attachment stability to both parents

Results of a MANOVA, including the internalizing and externalizing scales, reveal no significant main effect (Wilk's $\Lambda = 0.93, p = .267$), with no significant ANOVA effect for internalizing problems ($F(4,138) = 1.07, p = .373$) and externalizing problems ($F(4,138) = 2.35, p = 0.058$). Analyses of planned contrasts show that children with a stable secure attachment to both parents (SS_{MF}) exhibit fewer externalizing problems than children with a stable insecure attachment to both parents (Never SS_{MF} ; $t = 2.98, p = .003$).

Discussion

The conceptual framework of Dagan and Sagi-Schwartz (2018) on the potential additive or buffering role of attachment to both parents as a network on child developmental outcomes was tested empirically by Dagan et al. (2022), but it remains to be evaluated

^bFor marital relationship quality: MANOVA Wilk's $\Lambda = 2.09, p = .054$, Negative Reciprocity: $F(3,139) = 1.16, p = .33$; Harmony: $F(3,139) = 2.23, p = 0.09$. For behavior problems: MANOVA Wilk's $\Lambda = 0.92, p = .082$, Internalizing problems: $F(3,139) = 1.84, p = .14$; Externalizing problems: $F(3,139) = 3.42, p = 0.02$.

^cFor marital relationship quality: MANOVA Wilk's $\Lambda = 1.13, p = .321$; Mothers: Negative Reciprocity: $F(4,138) = 0.48, p = .75$; Harmony: $F(4,138) = 1.38, p = 0.24$; Fathers: Negative Reciprocity: $F(4,138) = 0.71, p = .59$; Harmony: $F(4,138) = 2.18, p = 0.74$. For behavior problems: MANOVA Wilk's $\Lambda = 0.93, p = .267$; Internalizing problems: $F(4,138) = 1.07, p = .37$; Externalizing problems: $F(4,138) = 2.35, p = 0.06$.

more exhaustively and across time. It is equally important to understand the parental and family factors that are related to stability and change in attachment to mothers, fathers, and both parents as a network, as these are expected to contribute to the development of attachment in early childhood. Hence, the current study attempted to address these important gaps in the literature. First, we examined child attachment stability to mothers and fathers separately, as well as to both parents as a network. We then examined whether these three trajectories of attachment stability were associated with parental well-being and child behavior problems.

First, findings revealed that for children of our sample, there is no stability of attachment to mothers or fathers between the infancy (15 months) and preschool (45 months) periods. Non-significant weak effect sizes were found for attachment to mothers ($r = .04$) and fathers ($r = .10$). These results do not support the meta-analytic conclusions of Fraley (2002) and Pinquart et al. (2013), who found moderate effect sizes of secure or insecure attachment stability to mother or fathers (r s between .32 and .67). Our results are more in line with those from the meta-analysis of Opie et al. (2021), who have examined only studies that used the SSP. They found relatively weaker effect sizes for the stability of attachment from the infancy to the toddlerhood and preschool periods (r s between .20 and .32). As an example of study, Bar-Haim et al. (2000) showed stability of attachment to mothers between 14 and 24 months of age, but there was no stability of attachment between 14 and 58 months or 24 and 58 months. These last two results, similar to ours, were obtained at developmental periods consistent with those examined in the current study. Hence, when attachment is assessed using similar procedures (SSP and PACS) in the first years of life, our results and those of others show weak to no attachment stability. These findings suggest that attachment in the early years is a relatively malleable relationship susceptible to change, either positively or negatively, even in a low-risk sample like the one in our study. Life events that impact parents' availability have been related to changes in child attachment across the preschool period (Moss et al., 2005). Early childhood is a developmental period subject to life changes (e.g. starting daycare, arrival of new siblings). Such changes could have contributed to the lack of attachment stability in the current study. Thus, life events should be considered in future studies assessing attachment stability in early childhood.

There are very few studies that have assessed the stability of attachment to fathers and mothers separately within the same study design. Among those who did, most have found no difference between the proportion of children who maintain the same attachment to mothers (between 55% and 78%) and to fathers (between 50% and 64%; Belsky et al., 1996; Easterbrooks, 1989; Edwards et al., 2004; Owen et al., 1984). This lack of difference is also observed in the current study, where stability of attachment to mothers (55.9%) was not significantly different from that to fathers (58.7%). These results suggest that attachment to mothers and fathers tends to evolve similarly, whether attachment (in) security remains stable or changes over time. When it comes to assessing the stability of attachment to both parents as a network, our results showed that children who are securely attached to both parents in infancy are not more likely to show this same pattern of attachment configuration in the preschool period. Hence, even when considering attachment to parents as a network, there is still no stability of attachment in the current sample. Given that this is the first study testing these attachment configurations over time, more research will be needed to confirm whether attachment networks are more

likely to be stable or unstable. The stability of the child's attachment network also needs to be tested across different developmental periods, as the parenting role evolves with changing attachment needs over time.

The overall lack of attachment stability in our sample may be related to the significant changes that were observed in parents' well-being, in particular, parental mental health symptoms. Indeed, mothers' depression and hostility and fathers' anxiety and hostility symptoms decreased over time. In a population-based study including nearly 2,000 mothers and fathers, authors showed significant decreases in maternal mental health symptoms and paternal physical health symptoms in the 5 years after child birth (Asselmann et al., 2022). Perhaps, this general decrease in parental mental health symptoms contributes to the development of a more secure attachment over time, a trend that was found in Opie et al. (2021) meta-analysis. Anecdotally, our study data showed more securely attached children in the preschool period than in infancy, especially to fathers (T1 = 84 and T2 = 107) than to mother (T1 = 96 and T2 = 103).

Furthermore, parental mental health symptoms (depression, anxiety, and hostility) were examined as a function of attachment stability groups. First, results indicated that attachment stability to mothers was not related to mothers' self-report of mental health nor was attachment stability to fathers related to their self-reports of mental health symptoms. Studies have found mixed results on whether attachment stability to mothers or fathers is significantly associated with self-reports of mental health (e.g. Edwards et al., 2004; Levendosky et al., 2011). Although weak effect sizes were found between parental mental health and child attachment (Atkinson et al., 2000), mental health symptoms may not systematically play a role in the stability or change in attachment over time, particularly in low-risk samples where the overall levels of parental distress are relatively low. In addition, our results showed that attachment stability to mothers was not related to fathers' self-reports of mental health. However, children who showed a stable secure attachment to fathers had mothers who reported lower levels of distress than mothers of children who became insecure (on the depression and hostility scales) with fathers at preschool age. Perhaps, the father-child relationship is more sensitive to maternal distress than the mother-child relationship is to paternal distress. This hypothesis is in line with studies comparing parental behaviors in dyadic (parent-child) and triadic (mother-father-child) contexts, which showed that paternal behaviors are more influenced by mothers' presence than maternal behaviors are by fathers' presence (de Mendonça et al., 2019; Kwon et al., 2012). Hence, mothers' distress could interfere in the child's attachment to father relationship. It is possible that fathers may be more preoccupied with their spouse's mental health than are mothers and, in turn, can lead to them adopting less sensitive behaviors that contribute to insecure attachments.

As for attachment to both parents as a network, results of this study showed that children with a stable secure attachment to both parents have parents (mothers and fathers) with lower levels of depression and fathers with lower levels of anxiety than those of children who never had a stable secure attachment to either parent (i.e. stable insecure to both parents or unstable with both parents) or who have an unstable attachment to at least one parent. Moreover, results show that father hostility is greater in infancy than in preschool age for children with stable secure attachment to both parents, children with a stable secure attachment to one parent and a stable insecure attachment to the other

parent and children who were never stable secure to either parent. Taken all together, it becomes evident that there are complex interactions at play, which would be difficult to observe if we did not take into account the attachment configurations to both parents as a network. This emphasizes the need of investigating the family unit as a whole, rather than studying the mother–child or father–child relationships in isolation (Dagan et al., 2022; Steele & Steele, 2005).

While parental life satisfaction has been associated with parental mental health (Fergusson et al., 2015) and child adaptation (Berger & Spiess, 2011), it has received limited attention from studies of the attachment field. Results of our study show that parental life satisfaction did not significantly change over time, which is consistent with findings from other studies (for a review, see Diener et al., 2006). However, it was significantly associated with stability of attachment to mothers, fathers, and both parents as a network. The highest levels of maternal life satisfaction were reported by mothers of children with a stable secure attachment to mothers or fathers. Conversely, the lowest levels of maternal life satisfaction were reported by mothers of children with a stable insecure attachment to mothers. Children with an unstable attachment have mothers with life satisfaction levels falling midway between the stable secure and stable insecure children. A similar pattern of results emerged when considering attachment to both parents. The highest levels of satisfaction, as reported by mothers, were found in parents of children with a stable secure attachment to both parents, while the lowest levels of life satisfaction were observed in parents of children who never had a stable secure attachment to either parent. Furthermore, mothers of children with an unstable attachment with one parent fall midway between the levels observed in the other two groups. As for paternal life satisfaction, higher satisfaction was reported by fathers of children with a stable secure attachment to mothers or fathers in comparison to fathers of children who developed an insecure attachment at preschool age. Similarly, when considering attachment to both parents, fathers of children with a stable secure attachment to both parents reported higher life satisfaction than those of children who experienced a change in attachment with one parent or never had a stable secure attachment to either parent. A meta-analysis suggested that individuals with high life satisfaction exhibit greater motivation and social engagement (Lyubomirsky et al., 2005). Thus, parents who are more satisfied with their lives may engage more with their children, provide adequate support and sensitive care, and adapt to the changing attachment needs of their children over time. This idea aligns with studies that have shown associations between higher parental life satisfaction and more positive parenting behaviors (Augustijn, 2022; Brock et al., 2015).

Group comparisons on marital harmony showed that children with a stable secure attachment to mothers or fathers have parents who reported higher marital harmony than parents of children who became secure to mothers or fathers. Similarly, results revealed that children with a stable secure attachment to both parents have fathers who reported higher marital harmony than those of children with a stable secure attachment to mothers, but an unstable attachment to fathers (either insecure to secure or secure to insecure). These results are in line with the vast majority of studies indicating higher quality of couple relationship in parents of children with a secure attachment (Fearon & Belsky, 2016). They also support results of Moss et al. (2005) who showed that children with stable secure attachment to mothers across preschool have mothers with

higher marital satisfaction than those of children with an unstable attachment during the same period. However, contrary to our expectations, the stability of attachment groups did not differ as a function of negative reciprocity. This may be due to the fact that parents of this study are from a low-risk sample. When families were assessed for their perceptions of marital relationship, they were all two-headed parents' households, and mothers and fathers showed a relatively high level of education. It is possible that, for low-risk parents, marital discord is more likely to result in a diminished general sense of marital unity or harmony rather than manifesting explicit conflicts and negative reciprocity.

Finally, results revealed no association between any of the three attachment stability trajectories and child internalizing problems. This is in line with previous meta-analyses, primarily conducted on child attachment to mothers, that have only found weak relations between insecure attachment (in particular avoidance) to fathers or mothers and internalizing problems (Deneault et al., 2021; Groh et al., 2012). Internalizing behavior is difficult to detect by external observers and may be underestimated (Youngstrom et al., 2000). Past research has indicated that children themselves are more accurate informants of their behaviors than are parents or teachers (e.g. Moss et al., 2006). As for externalizing problems, results of this study indicated that children with a stable secure attachment to mothers showed fewer externalizing problems than children who became secure to mothers. Children with a stable secure attachment to fathers showed fewer externalizing problems than those who became insecure to fathers. As for results on the stability of attachment to both parents, children with a stable secure attachment to both parents as a network exhibited fewer externalizing problems than those who never had a stable secure attachment to either parent. Taken together, these results suggest that having a stable secure attachment to two parents is associated with lower levels of behavior problems than other configurations. Overall, these results support meta-analytic studies showing that children with a secure attachment to mothers or fathers (as measured with the SSP) have fewer externalizing problems (Deneault et al., 2021; Fearon et al., 2010) than children with an insecure attachment. They are also consistent with the few other studies on attachment stability, which found that children with a stable secure attachment to mothers exhibit greater emotional openness than children with an unstable attachment (Bar-Haim et al., 2000), and have greater emotional regulation and fewer externalizing problems than children with a stable insecure attachment (Vondra et al., 2001). Results are also in line with those of Dagan et al. (2022) who showed that children who were insecurely attached to both parents had significantly more externalizing problems than children who had single or no insecure attachments to their parents. Expanding on Dagan et al.'s findings, results of the current study show that stability in attachment security to both parents may be associated with greater child adaptation than instability of attachment (secure to insecure or insecure to secure) to one or both parents. Hence, building on the conceptual framework of Dagan and Sagi-Schwartz (2018), this study shows the importance of applying this model to attachment stability in early childhood.

Limitations and future studies

Although the sample size for this study was larger than in previous studies of child attachment to mothers and to fathers, it was still too small to explore attachment stability of each insecure group. Moreover, our sample was not representative of the population. It

included only financially well-off, traditional two-parent families with a father and mother living under the same roof at intake. Future research could explore the stability of attachment within a sample characterized by a greater diversity of family structures and with more socio-economic or psychosocial risks. High-risk sample generally allow for a greater number of insecurely attached children. One possible limitation of this study is that the assessment of attachment to mothers and fathers was performed in a counterbalanced manner, at a one-month interval. It was found that a short amount of time between attachment SSP measurements (between 4 and 43 days) is associated with more child distress and disorganized behavior at the second assessment (Granqvist et al., 2016). Yet, given that we found no differences in the distribution of attachment groups between children observed at the first and those observed at second assessment, at each time point, we conclude that our procedure did not interfere with attachment of children in our sample. Also, the prevalence of disorganized attachments in our sample was found to be similar to that of community samples (Groh et al., 2012, 2014; van IJzendoorn et al., 1999). Another limitation of the study is related to the interrater reliability of the four-way attachment coding, with kappas of .67 (infancy) and .54 (pre-school). Although similar kappas were found in other studies (e.g. Behrens et al., 2016; Vondra et al., 2001), many researchers obtain higher interrater reliability. Because of insufficient data, a meta-analysis was unable to test if the interrater reliability of coders is related to the distribution of the attachment categories (Deneault et al., 2021). Hence, it is difficult to know if kappas can be related to the instability of attachment found in the current study. However, it should be noted that low interrater reliability can mask the magnitude of child attachment stability over time.

Conclusion

This study was the first to examine three trajectories of attachment stability, that is, attachment to mothers and fathers separately, and attachment to both parents as a network. The findings of this study revealed that children who maintained stable secure attachment relationships with both parents as a network, in comparison to children with a single stable secure relationship or who never had a stable secure relationship, were more likely to have grown up in families characterized by higher overall well-being. In general, their parents were involved in more harmonious marital relationships, experienced fewer symptoms of depression, anxiety, and hostility, and reported higher life satisfaction. Additionally, children with a stable secure attachment to both parents demonstrated fewer externalizing behavior problems than those who never had a stable secure relationship. Thus, having two stable secure attachment seems to be more protective against adverse outcomes compared to those who never experienced such a stable secure attachment relationship. These findings were generally consistent throughout the different analyses, regardless of whether children's attachment to the other parent transitioned from secure to insecure or insecure to secure and whether stable or unstable relationships were with fathers or mothers. Consequently, results of this study suggest that attachment to fathers and mothers is likely to contribute jointly and have a similar role in shaping child developmental outcomes. These results, combined with the absence in attachment stability across early childhood found in the current study, suggest that attachment patterns are sensitive to changes in family environment

and notably fluctuations in parents' well-being during that period. Hence, although not confirming Fraley's (2002) postulate of a prototype perspective of attachment, results show that there is room for change in attachment patterns, which may be more likely to occur during more sensitive developmental periods such as early childhood or adolescence. However, it is worth noting that findings related to the stable insecure attachment group to mothers or fathers and those in the never stable secure group to either parent, as being the most at-risk groups, were less consistent throughout the study. Thus, we suggest that the findings of this study partially supported the additive hypothesis described by Dagan and Sagi-Schwartz (2018). Overall, this study underscores the need of adopting an integrative view on children's attachment relationships and highlights the significance of investigating child attachment to both parents as a network. Given that this study is a first step in understanding attachment stability to both parents, future studies will be needed to confirm these results.

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