

Exposure to Parental Separation in Childhood and Later Parenting Quality as an Adult: Evidence from  
a 30-Year Longitudinal Study

Myron D. Friesen, Ph.D.

School of Educational Studies and Leadership

University of Canterbury

L. John Horwood, M.Sc.

Department of Psychological Medicine

University of Otago, Christchurch

David M. Fergusson, Ph.D.

Department of Psychological Medicine

University of Otago, Christchurch

Lianne J. Woodward, Ph.D.

Intellectual and Developmental Disabilities Research Center

Brigham & Women's Hospital, Harvard Medical School

Dr. Myron Friesen email: [myron.friesen@canterbury.ac.nz](mailto:myron.friesen@canterbury.ac.nz)

Associate Professor L. John Horwood email: [john.horwood@otago.ac.nz](mailto:john.horwood@otago.ac.nz)

Professor David Fergusson email: [dm.fergusson@otago.ac.nz](mailto:dm.fergusson@otago.ac.nz)

Professor Lianne Woodward email: [ljwoodward@partners.org](mailto:ljwoodward@partners.org)

Conflict of Interest Statement: The authors have no conflicts of interest to declare. The authors alone are responsible for the content and writing of this paper.

Access to data: The authors had full access to all the data in the study, and take responsibility for the integrity and accuracy of the data and analyses.

Word Count: 5989

## Abstract

**Background:** Previous research has documented that exposure to parental separation/divorce during childhood can be associated with long-term consequences into adulthood. The current study sought to extend this literature by examining associations between childhood exposure to parental separation/divorce and later parenting behaviour as an adult in a New Zealand birth cohort.

**Methods:** Data were drawn from the Christchurch Health and Development Study (CHDS), a longitudinal study of a birth cohort of 1265 children born in 1977 in Christchurch, New Zealand. Information about exposure to parental separation and divorce was gathered annually from birth to 15 years. At the 30-year follow-up all cohort members who had become parents (biological or non-biological) were assessed on several parenting dimensions (sensitivity, warmth, over-reactivity, inconsistency, quality of child management, and physical punishment).

**Results:** The analyses showed that exposure to more frequent parental separation in childhood and adolescence was associated with lower levels of parental sensitivity and warmth, greater over-reactivity, and an increased use of physical punishment as a parent, after controlling for a wide range of family socioeconomic and psychosocial factors, and individual child characteristics.

**Conclusions:** The findings suggest that as exposure to parental separation increases, so does the likelihood of experiencing multiple developmental challenges in childhood and adolescence. As an adult, these life course experiences can have small but significant associations with the quality of parenting behaviour.

**Keywords:** parental separation, divorce, parenting, longitudinal study, family relationships.

An extensive body of research has documented how parental separation and divorce may influence children's development over the life course. Beginning in infancy and extending through adolescence, exposure to parental separation/divorce is associated with increased risks of disruption to positive developmental outcomes across a number of domains (for reviews see Amato & Keith, 1991a; Hartman, Magalhães, & Mandich, 2011; Rogers, 2004). Evidence is also mounting that exposure to parental separation/divorce in childhood is associated with adverse adult outcomes (Amato, 2010; Amato & Keith, 1991b), particularly in the realm of intimate relationships. For example, compared to individuals from families with stable parental relationships, young people exposed to parental separation/divorce are more likely to hold more negative attitudes toward marriage (Riggio & Weiser, 2008), and cohabit rather than marry (Valle & Tillman, 2014). When they do marry, young adults exposed to parental separation/divorce are more likely to find a partner who is also from an unstable family (Wolfinger, 2003), and their relationships can be characterized by lower commitment (Amato & DeBoer, 2001), poorer relationship quality (particularly for women; Mustonen, Huurre, Kiviruusu, Haukkala, & Aro, 2011), and an increased likelihood of repeating the pattern of separation and divorce witnessed in childhood (Amato & Cheadle, 2005). In light of this accumulating evidence concerning the broad reach and long-term impact of exposure to separation and divorce on developmental outcomes, it seems possible that this association could be extended to the quality of parenting behaviours. Somewhat surprisingly, while there are many longitudinal studies examining long-term associations between exposure to parental separation/divorce and various characteristics of adult functioning, this question has largely been neglected.

Hetherington, Bridges, and Insabella (1998), and others have identified a number of challenges to adequately investigating the life course experiences associated with changes in family structure and how these shape children's development. First, many families experience a number of difficulties (relational, social, socioeconomic) prior to separation/divorce that make family instability more likely and are also associated with challenges to healthy child development

(Amato & Booth, 1996; Cherlin, Furstenberg, Chase-Lansdale, Kiernan, et al., 1991). Second, throughout the parental separation process, families can be subjected to a number of disruptions and stressful events that increase the likelihood of adjustment problems (Wallerstein, Lewis, & Rosenthal, 2013; Fomby & Sennott, 2013). Third, the majority of parents that separate/divorce establish new partner relationships, and many of these relationships also end in separation (Wu & Schimmele, 2005). Thus, both the timing of these separations and the frequency of parental change over the course of childhood are important considerations (Cavanagh, 2008; Donahue, D'Onofrio, Bates, Lansford, Dodge & Pettit, 2010).

In the present study, we examine long-term associations between exposure to parental separation/divorce and subsequent positive and negative parenting practices 15-25 years later in a birth cohort that has been extensively studied into adulthood. Exposure to parental separation/divorce was measured throughout childhood and adolescence, rather than a single event. We also examined the timing of parental separation and the roles of gender, ethnicity, socio-economic and psychosocial developmental history, individual child characteristics and family level factors as potential explanations for the links between exposure to parental separation/divorce and the cohort's later parenting behaviours. Some studies have found that after extensive control of covariates, the direct link between exposure to parental separation and later outcomes is reduced altogether (e.g., Fergusson, McLeod, & Horwood, 2014). Due to the overlap in the timing of these life course events with the timing of exposure to parental separation, it was not possible to test specific mediational pathways. For example, the timing and frequency of cohort members' parental separation experience/s varied widely. In tandem with experiences of parental separation, a number of other life course experiences were also co-occurring in the lives of cohort members. Thus attempting to highlight specific patterns of associations between exposure to parental separation, individual intervening variables, and later parenting outcomes as developmental pathways, would overlook the complexity and inter-relatedness of a wide range of life course experiences. In light of this, the current study addressed

the following aims:

- (1) To describe the associations between the frequency of exposure to parental separation/divorce throughout childhood and later parenting outcomes at age 30 years, including; parental sensitivity, warmth, over-reactivity, child behaviour management, and use of physical punishment.
- (2) To examine whether associations between parental instability and later parenting outcomes remained after controlling for other childhood/life course experiences across socioeconomic background, family life, and individual psychosocial characteristics.
- (3) To examine the roles of child gender and age at parental separation in moderating the associations between exposure to parental relationship instability and later parenting outcomes.

## METHOD

### ***Participants***

Participants were members of a birth cohort that has been extensively studied as part of the Christchurch Health and Development Study (CHDS). The CHDS is a prospective study of 1,265 children (630 females) born in Christchurch New Zealand in 1977. The sample has been extensively assessed from birth to 30 years (Fergusson & Horwood, 2001). At the 30-year assessment, all cohort members who had become a biological parent or were parenting non-biological children were invited to participate in a follow-up interview. 397 (40.2%) of the 30-year sample were eligible and 360 (90.7%) agreed to participate. Data for the present study were confined to the 337 (204 female) parents who were regularly residing with and actively parenting at least one of their children (biological and/or nonbiological). Further details of this parenting subsample and comparisons with the non-parenting sample are provided in the online supplement Data S1. Ethical approval for this study was granted from both university and regional health review boards, and participants provided informed consent for both the main

interview and the parenting study interview.

### ***Childhood parental separations/divorces (0-15 years)***

At each annual assessment until the age of 15 years, caregivers of cohort members were questioned about family relationships and changes in family structure. Any parental separations of 6 months or more were counted, including separations between both biological parents and/or between a biological parent and stepparent. Through this method, 121 participants (35.3%) were recorded as experiencing parental separation in childhood. Eighty of these participants (66.1%) experienced a single parental separation, 29 (24%) experienced two parental separations and 12 (9.9%) experienced three or more parental separations. Fifty-eight (47.9%) experienced parental separation prior to 5 years of age.

### ***Parenting outcomes at age 30***

Cohort members were questioned extensively about their parenting attitudes and behaviours. All items were scored on Likert scales with higher scores reflecting increased frequency of behaviour, or endorsement of that approach to parenting. For further details regarding the construction of the parenting measures below, please see Raudino, Woodward, Fergusson, and Horwood (2012).

(a) Parental *warmth* was assessed with 13 items and reflected the extent to which parents enjoyed spending time with their children, joking and playing together, expressing affectionate care by hugging, kissing or holding their children ( $\alpha=.84$ ). (b) Parental *sensitivity* comprised 6 items reflecting the extent to which parents were able to recognize their children's verbal and non-verbal signals and respond in an appropriate way ( $\alpha=.70$ ). (c) *Over-reactive* child management comprised 10 items reflecting the extent to which parents reported engaging in negative and reactive parenting. It reflects parents' negative regard for the child, disapproval, anger, irritation, negative tone of voice, harsh language, and impatience ( $\alpha=.82$ ). (d) *Inconsistent child management* was assessed with 7 items and reflected lax and permissive parenting and inconsistency in behaviour management, guidance, and engagement ( $\alpha=.76$ ). (e) The Parent-

Child Conflict Tactics Scale (CTS-PC; Straus, Hamby, Finkelhor, Moore, & Runyan, 1998) was used to assess parental physical disciplinary behaviour. For this measure, items from the physical assault subscale were used to create a diversity score of the number of different physical punishment and abusive behaviours used by each parent with any of their children over the previous year.

When the cohort member's children were awake and present during the parenting interview ( $n=143$ ; see Data S1 and Table S2), the interviewers observed and noted family interactions prior to, during, and after the interview. Immediately after the home visit and interview, the interviewers completed a series of observational ratings of their interaction with the parent and the parent's interactions with his or her family members. (a) Parental *warmth* assessed the extent to which parents displayed affection and enjoyment of their children. (b) Parental *sensitivity* assessed the extent to which a parent recognized and responded to child's worries and concerns, modified their behaviour in response to a child's needs, and helped the child anticipate and confront problematic situations. (c) *Child management* assessed the extent to which a parent monitored their child's behaviour and made use of effective child management strategies. These ratings were made for each dependent child on a scale from 1-5 with lower scores representing a lack of warmth, sensitivity, and poor child management, and higher numbers representing frequent instances of warmth and affection, highly sensitive caregiving, and appropriate child management. For presentation purposes and to facilitate comparisons across the parenting outcomes, all of the parenting measures (self-report and observed) were rescaled to have a common mean of 100 and standard deviation of 10.

### ***Early family and childhood covariates***

To assess the extent to which associations between exposure to parental separation and later parenting behaviours could be explained by the effects of confounding factors, a range of measures based on previous research and theory were chosen from the CHDS database. These included the following: family socioeconomic characteristics at the time of birth of the cohort



member; parental adjustment problems, including illicit substance use and criminal offending; exposure throughout childhood to interparental conflict and violence; history of child maltreatment, including physical and sexual abuse; quality of the parent-child relationship in adolescence; and individual childhood characteristics including gender, ethnicity (New Zealand Māori), intelligence, and measures of conduct problems, attention problems, and anxiety and withdrawal symptoms. These covariates are described in detail in the online supplement Data S2.

### ***Statistical analysis***

For descriptive purposes, the measure of exposure to parental separation was classified into three levels; no exposure to parental separation, a single occurrence of parental separation, and two or more occurrences of parental separation. Bivariate associations between exposure to parental separation and parenting outcomes (Table 1) and between exposure to parental separation and early family and childhood covariates (Table 2) were examined for statistically significant linear trends with one-way analysis of variance (ANOVA) and chi-square tests for dichotomous measures. Multiple regression analyses were employed to examine the associations between exposure to parental separation and parenting outcomes after adjusting for the influence of the early family and childhood covariates (Table 3). Due to the number of potential covariates in the analysis, a backwards and forwards method of variable inclusion was used to identify a parsimonious model of variables significantly associated with each parenting outcome.

Finally, planned supplementary analyses examined the role of sample selection bias and moderation effects. A Heckman correction (Heckman, 1979) was employed in the regression models to examine the role of selection factors predicting parenthood status and parents with observational data (Data S1, Table S1, and Table S2, respectively). Next, we examined the possible role of the timing of parental separation by including a dichotomous dummy variable that distinguished parental separation experiences up to or after the age of 5 years (Data S3 and Table S3). Lastly, we included interaction terms in the regression models to examine if significant associations between exposure to parental separation and later parenting outcomes were

moderated by gender (Data S3)

## RESULTS

### ***Bivariate associations with parenting outcomes***

Table 1 displays the results of the bivariate associations between the frequency of exposure to parental separation and cohort members later self-reported and interviewer observed parenting attitudes and behaviours at age 30 years. The zero-order correlation coefficient provided an estimate of effect size. For self-reported parenting characteristics, apart from parental warmth, there were significant linear associations in each of the analyses. Increased exposure to parental separation was associated with significantly lower parental sensitivity, and increased over-reactivity, inconsistent child management, and greater use of multiple forms of physical punishment. All observed parenting outcomes showed significant linear associations with childhood parental separation, with effect sizes being larger than those for self-reported measures, which were quite small.

### ***Bivariate associations with covariates***

Table 2 shows the results of bivariate associations between exposure to parental separation and the early social background, family functioning, and individual childhood characteristics of this parenting subsample. Over three-quarters of the parents who experienced 2 or more parental separations in childhood were female, and participants exposed to parental separation were over twice as likely to be New Zealand Māori compared to those whose parents remained together. Participants exposed to one or more parental separations were significantly more likely to come from social backgrounds where fathers lacked educational qualifications, and mothers were younger and more likely to be a single parent. In addition, the socioeconomic conditions were likely to be more challenging in families who experienced parental separation as they tended to have significantly poorer living standards and fathers were more likely to be working in semiskilled or unskilled occupations or unemployed.

Family functioning for those who experienced parental separation was characterized by significantly higher parental adjustment problems, increased rates of interparental conflict and violence, and greater exposure to frequent or severe physical punishment compared to those whose parents remained together throughout their childhood. While the linear association between exposure to parental separation and childhood sexual abuse was not significant, it should be noted that over 25% of children from families who experienced two or more parental separations were exposed to sexual abuse compared with 16% of children from families with no parental separation. Parent-child relationships in adolescence were significantly stronger for participants from stable families with significantly higher perceptions of parent-child relationship quality, parental care, and decreased parental over-protection and control. Regarding individual child characteristics, cohort members exposed to parental separation had lower IQ scores and a greater number of conduct problems, attention problems, and slightly more symptoms of anxiety and withdrawal in middle childhood compared to cohort members whose parents had stable relationships.

***Adjusted associations between childhood parental separations and parenting outcomes***

Table 3 shows the results of the multiple regression analyses. For comparison purposes, the left-hand column of Table 3 shows the results of the unadjusted simple linear regression, in which each parenting outcome was regressed onto exposure to parental separation, while the middle column of Table 3 shows the adjusted associations after including the significant covariates from Table 2. The covariate factors from early family life and childhood that continued to be significantly associated with the parenting outcomes in the multivariate analyses are also included in the right-hand column.

For self-reported parenting outcomes, after including the covariate factors all of the associations with parental separation were reduced, yet three of the four measures continued to remain significant. Exposure to more frequent parental separation in childhood predicted lower self-reported parental sensitivity, increased over-reactive parenting, and increased use of physical

punishment (a marginally significant association). For the observed parenting outcomes, exposure to parental separation continued to be significantly associated with two of the three measures (parental sensitivity and warmth) after adjusting for the covariates. The strength of these associations and the overall predictive utility of the regression models displayed in Table 3 were generally small. By itself, exposure to parental separation explained only 2% to 12% of the variance in the parenting outcomes. Together with the covariates, the parsimonious models explained roughly 10% of the variance in the self-reported parenting outcomes, and 25% of the variance in the observed parenting outcomes, with a significant change in the overall predictive utility of each model ( $R^2$  change ranged from .05 to .20 all  $p$  values  $< .001$ ).

The analyses described above were extended to estimate associations between the age of exposure to parental separation and the parenting outcomes and also to test for interactions with gender. When exposure to early parental separation (up to 5 years old) was included alongside the frequency of parental separation, it was not a significant predictor of any of the parenting outcomes (see supplementary Data S3 and Table S3). In only one of the analyses, for observed parental warmth, the cumulative measure of parental separation was substantially reduced below the level of statistical significance. In a similar fashion, the interaction term between gender and the parenting outcomes was not a significant predictor in any of the analyses.

## DISCUSSION

The results of the current investigation document long-term associations between exposure to parental separation/divorce during childhood and later positive and negative parenting behaviours. Exposure to more frequent parental separation in childhood was associated with poorer subsequent parenting behaviours assessed 15 to 25+ years after the initial parental separation. These statistically significant linear associations between the frequency of parental separation and later outcomes are similar to the findings by Cavanagh (2008) who examined adolescent outcomes, and Wolfinger (2000) who examined

intergenerational patterns of separation/divorce.

The pattern of associations between parental separation/divorce and the covariates in Table 2, illustrated in one sample what has previously been found across a number of studies (Amato, 2010) concerning the interrelatedness of family structure changes with a diverse array of child and adolescent risk factors. Since it is not possible to determine how the timing of these covariates overlapped with the timing or frequency of parental separation, it is undeterminable if these measures are all related to a process of family dissolution over time or represent more distinct but correlated individual and family challenges. In each multivariate analysis in Table 3, significant covariates were included from at least two domains (most frequently family of origin functioning and individual child characteristics) assessed at different times across the life course (before birth, childhood, or adolescence), and their combined influence in predicting parenting outcomes was significantly greater than exposure to parental separation on its own.

Of the covariates, there were two life course experiences along with exposure to parental separation that were most frequently associated with later parenting outcomes, reflecting what previous analyses have found with the present cohort (Friesen, Woodward, Horwood, & Fergusson, 2013; Raudino et al., 2012). Childhood conduct problems (measured in the present study when participants were 7-9 years old), was significantly associated with several of the parenting practices. Other studies have found that childhood conduct disorder is also associated with other long-term developmental challenges apart from externalizing and anti-social problems, including adult psychiatric disorder, difficult partner relationships, and poorer parenting practices (Capaldi, Pears, Patterson, & Owen, 2003; Jaffee, Belsky, Harrington, Caspi, & Moffitt, 2006). At the family level, parent-child relationship quality in adolescence (measured when participants were 15 years old) was also found to be a significant covariate in several analyses. The links between parental separation/divorce and poorer parent-child relationships in adolescence and young-adulthood have been examined in a number of studies (e.g., Amato & Sobolewski, 2001; Yu, Pettit, Dodge, & Bates, 2010). The present results suggest that a family of

origin environment characterized by unstable parental relationships and poor parent-child relationships in adolescence somehow interferes with the development of effective parenting practices, possibly through poor models of relational and caregiving skills and/or lower affective bonds (Amato & Booth, 1996).

The current study has a number of methodological strengths that support the internal validity of these findings, including its long term prospective design, a life history approach to measuring both the frequency and timing of parental separation rather than retrospective accounts, the inclusion of a wide range of covariates from multiple domains measured from birth to late adolescence, and both self-reported and observed measures of parenting. The limitations of this study concern both the nature of the sample and measurement issues. First, these results apply to a specific cohort of New Zealand born children, who had all become parents (biological or non-biological) by thirty years of age. While we controlled for two types of sample selection bias in the supplementary analyses (parents compared to nonparenting cohort members [Table S1] and parents with and without observational data [Table S2]), this does not rule out the potential for cohort effects, nor the possibility for the effect of exposure to parental instability to change over time. Thus, further replications will need to address the extent to which the present findings can be generalized to a broader representation of the CHDS cohort, as well as younger cohorts and other cultures. Second, while the present study statistically controlled for a large number of covariates typically not considered in previous studies, there are a couple of important variables that we were not able to include. The present study could not consider the role of genetic inheritance (D'Onofrio, Turkheimer, Emery, Maes, Silberg, & Eaves, 2007) nor genetic vulnerability (O'Connor, Caspi, DeFries, & Plomin, 2003) that previous studies have identified as important components of adjustment for children exposed to parental separation. Furthermore, while we attempted to control for some aspects of parenting and the parent-child relationship between cohort members and their parents, these were not the same parenting measures that were used as our outcome measures. Finally, there are additional

family changes that take place as a result of parental separation that were not considered in this analysis, such as the quality of post-separation parental relationships, timing of re-partnering, and changes in residence, schooling, and the wider family support network.

The present findings add to the growing body of research into the long-term consequences of exposure to parental separation/divorce, and breaks new ground documenting some of the life-course experiences that together with exposure to separation/divorce could influence later generations by shaping parenting behaviours. While the direct link between the frequency of exposure to parental separation and most of the later parenting behaviours was statistically significant after controlling for a wide range of early social, family, and individual characteristics, the overall magnitude of these associations was small and needs to be considered in combination with the other life course experiences from childhood and adolescence that also shape later parenting. This may illustrate what Elder and Shanahan (2006) describe as cumulative processes, whereby exposure to an early adverse experience increases the likelihood of subsequent challenges in the same domain and also across domains. This can create a chain of interrelated events that further channels developmental pathways. Part of this chain of interrelated events not addressed in the current study is how these distal life-course predictors of parenting quality are associated with more proximal life-course experiences of family formation and parent-child relationship qualities that are likely to account for much of the unexplained variance in these associations with parenting.

In light of increasing family instability and variability, how can the findings from the present study and similar investigations inform social policy and assist professionals working in the family court and social services? First, parental separation and divorce should be seen from a life-course developmental perspective that may include a parental history of multiple partnerships and multiple correlated family life experiences. Second, these correlated family life experiences act together (as opposed to working in isolation) to shape developmental outcomes within and across generations. Third, effective intervention strategies may need to work broadly,

or may need to integrate efforts across targeted services (i.e., those aimed specifically at child, parent-child, or separating parents), to address a diverse range of issues that families face as they work through the separation and divorce process (Pedro-Carroll, 2005).

### **Key Points**

- In a community-based birth cohort from New Zealand, a life history measure of parental separation/divorce from birth to age 15 years was associated with reduced parenting quality at age 30 years.
- Following statistical control for a number of social, family and individual child characteristics measured from birth through adolescence, associations between the number of parental separations/divorces and later parenting outcomes were reduced, but several remained statistically significant.
- In conjunction with other family and childhood risk factors, exposure to more frequent parental separation seems to have small but enduring effects on a variety of subsequent parenting behaviours.
- Intervention strategies may need to work broadly, or may need to integrate efforts across targeted services, to address a diverse range of issues that families face as they work through the separation and divorce process.

### **Acknowledgements**

This research was funded by grants from the Health Research Council of New Zealand, the National Child Health Research Foundation, the Canterbury Medical Research Foundation and the New Zealand Lottery Grants Board.

**Correspondence to:** Dr. Myron Friesen. School of Educational Studies and Leadership, University of Canterbury. Private Bag 4800, Christchurch 8140, New Zealand. Telephone +64 3 364 2987 ext.



8914; email: [myron.friesen@canterbury.ac.nz](mailto:myron.friesen@canterbury.ac.nz)

## REFERENCES

- Amato, P.R. (2010). Research on divorce: Continuing trends and new developments. *Journal of Marriage and Family, 72*(3), 650-666. doi:10.1111/j.1741-3737.2010.00723.x
- Amato, P.R., & Booth, A. (1996). A prospective study of divorce and parent-child relationships. *Journal of Marriage & the Family, 58*(2), 356-365. doi:10.2307/353501
- Amato, P.R., & Cheadle, J.E. (2005). The long reach of divorce: Divorce and child well-being across three generations. *Journal of Marriage and Family, 67*(1), 191-206. doi:10.1111/j.0022-2445.2005.00014.x
- Amato, P.R., & DeBoer, D.D. (2001). The transmission of marital instability across generations: Relationship skills or commitment to marriage? *Journal of Marriage and Family, 63*(4), 1038-1051. doi: 10.1111/j.1741-3737.2001.01038.x
- Amato, P.R., & Keith, B. (1991a). Parental divorce and adult well-being: A meta-analysis. *Journal of Marriage and the Family, 53*(1), 43-58. doi:10.2307/353132
- Amato, P.R., & Keith, B. (1991b). Parental divorce and the well-being of children: A meta-analysis. *Psychological Bulletin, 110*(1), 26-46. doi:10.1037/0033-2909.110.1.26
- Amato, P.R., & Sobolewski, J.M. (2001). The effects of divorce and marital discord on adult children's psychological well-being. *American Sociological Review, 66*(6), 900-921. doi: <http://dx.doi.org/10.2307/3088878>
- Cavanagh, S.E. (2008). Family structure history and adolescent adjustment. *Journal of Family Issues, 29*(7), 944-980. doi:10.1177/0192513x07311232
- Capaldi, D.M., Pears, K.C., Patterson, G.R., & Owen, L.D. (2003). Continuity of parenting practices across generations in an at-risk sample: A prospective comparison of direct and mediated associations. *Journal of Abnormal Child Psychology, 31*(2), 127-142. doi:10.1023/a:1022518123387
- Cherlin, A.J., Furstenberg, F.F., Chase-Lansdale, P.L., Kiernan, K.E., Robins, P.K., Ruane Morrison,

- D., & Teitler, J.O. (1991). Longitudinal studies of effects of divorce on children in Great Britain and the United States. *Science*, 252(5011), 1386-1389. doi:10.1126/science.2047851
- Donahue, K.L., D'Onofrio, B.M., Bates, J.E., Lansford, J.E., Dodge, K.A., & Pettit, G.S. (2010). Early Exposure to Parents' Relationship Instability: Implications for Sexual Behavior and Depression in Adolescence. *Journal of Adolescent Health*, 47(6), 547-554. doi:10.1016/j.jadohealth.2010.04.004
- D'Onofrio, B.M., Turkheimer, E., Emery, R.E., Maes, H.H., Silberg, J., & Eaves, L.J. (2007). A Children of Twins Study of parental divorce and offspring psychopathology. *Journal of Child Psychology and Psychiatry*, 48(7), 667-675. doi:10.1111/j.1469-7610.2007.01741.x
- Elder Jr, G.H., & Shanahan, M.J. (2006). The life course and human development. In R. M. Lerner & W. E. Damon (Eds.), *Handbook of Child Psychology* (Vol. 1: Theoretical models of human development, pp. 665-715). Hoboken, NJ: John Wiley & Sons.
- Fergusson, D.M., & Horwood, L.J. (2001). The Christchurch Health and Development Study: Review of findings on child and adolescent mental health. *Australian and New Zealand Journal of Psychiatry*, 35(3), 287-296. doi:10.1046/j.1440-1614.2001.00902.x
- Fergusson, D.M., McLeod, G.F.H., & Horwood, L.J. (2014). Parental separation/divorce in childhood and partnership outcomes at age 30. *Journal of Child Psychology and Psychiatry*, 55(4), 352-360. doi:10.1111/jcpp.12107
- Friesen, M.D., Woodward, L.J., Horwood, L.J., & Fergusson, D.M. (2013). Quality of parent-child relations in adolescence and later adult parenting outcomes. *Social Development*, 22(3), 539-554. doi:10.1111/j.1467-9507.2012.00657.x
- Fomby, P., & Sennott, C.A. (2013). Family structure instability and mobility: The consequences for adolescents' problem behavior. *Social Science Research*, 42(1), 186-201. doi:10.1016/j.ssresearch.2012.08.016
- Hartman, L.R., Magalhães, L., & Mandich, A. (2011). What does parental divorce or marital separation mean for adolescents? A scoping review of North American literature. *Journal of*

- Divorce & Remarriage*, 52(7), 490-518. doi:10.1080/10502556.2011.609432
- Heckman, J. (1979). Sample selection bias as a specification error. *Econometrica*, 45, 153-161. doi: 10.2307/1912352
- Hetherington, E.M., Bridges, M., & Insabella, G.M. (1998). What matters? What does not? Five perspectives on the association between marital transitions and children's adjustment. *American Psychologist*, 53(2), 167-184. doi:10.1037/0003-066x.53.2.167
- Jaffee, S.R., Belsky, J., Harrington, H., Caspi, A., & Moffitt, T.E. (2006). When parents have a history of conduct disorder: How is the caregiving environment affected? *Journal of Abnormal Psychology*, 115(2), 309-319. doi:10.1037/0021-843x.115.2.309
- Mustonen, U., Huurre, T., Kiviruusu, O., Haukkala, A., & Aro, H. (2011). Long-term impact of parental divorce on intimate relationship quality in adulthood and the mediating role of psychosocial resources. *Journal of Family Psychology*, 25(4), 615-619. doi:10.1037/a0023996
- O'Connor, T.G., Caspi, A., DeFries, J.C., & Plomin, R. (2003). Genotype-environment interaction in children's adjustment to parental separation. *Journal of Child Psychology and Psychiatry and Allied Disciplines*, 44(6), 849-856. doi:10.1111/1469-7610.00169
- Pedro-Carroll, J.L. (2005). Fostering resilience in the aftermath of divorce: The Role of evidence-based programs for children. *Family Court Review*, 43(1), 52-64. doi:10.1111/j.1744-1617.2005.00007.x
- Raudino, A., Woodward, L.J., Fergusson, D.M., & Horwood, L.J. (2012). Childhood conduct problems are associated with increased partnership and parenting difficulties in adulthood. *Journal of Abnormal Child Psychology*, 40(2), 251-263. doi:10.1007/s10802-011-9565-8
- Riggio, H. R., & Weiser, D. A. (2008). Attitudes toward marriage: Embeddedness and outcomes in personal relationships. *Personal Relationships*, 15(1), 123-140. doi: 10.1111/j.1475-6811.2007.00188.x
- Rogers, K.N. (2004). A theoretical review of risk and protective factors related to post-divorce adjustment in young children. *Journal of Divorce & Remarriage*, 40(3-4), 135-147.

doi:10.1300/J087v40n03\_09

Straus, M.A., Hamby, S.L., Finkelhor, D., Moore, D.W., & Runyan, D. (1998). Identification of child maltreatment with the parent-child conflict tactics scales: Development and psychometric data for a national sample of American parents. *Child Abuse and Neglect, 22*(4), 249-270.

Valle, G., & Tillman, K. H. (2014). Childhood Family Structure and Romantic Relationships During the Transition to Adulthood. *Journal of Family Issues, 35*(1), 97-124. doi:

10.1177/0192513x12463555

Wallerstein, J., Lewis, J., & Rosenthal, S.P. (2013). MOTHERS AND THEIR CHILDREN AFTER DIVORCE: Report From a 25-Year Longitudinal Study. *Psychoanalytic Psychology, 30*(2), 167-187.

doi:10.1037/a0032511

Wolfinger, N.H. (2000). Beyond the intergenerational transmission of divorce: Do people replicate the patterns of marital instability they grew up with? *Journal of Family Issues, 21*(8), 1061-

1086. doi:10.1177/019251300021008006

Wolfinger, N.H. (2003). Family structure homogamy: The effects of parental divorce on partner selection and marital stability. *Social Science Research, 32*(1), 80-97. doi:10.1016/s0049-

089x(02)00014-5

Wu, Z., & Schimmele, C.M. (2005). Repartnering after first union disruption. *Journal of Marriage and Family, 67*(1), 27-36. doi:10.1111/j.0022-2445.2005.00003.x

Yu, T., Pettit, G.S., Lansford, J.E., Dodge, K.A., & Bates, J.E. (2010). The interactive effects of marital conflict and divorce on parent-adult children's relationships. *Journal of Marriage and Family, 72*(2), 282-292. doi:10.1111/j.1741-3737.2010.00699.x

Table 1. Bivariate associations between exposure to parental separation and partnership and parenting outcomes at age 30.

Measures	Exposure to Parental Separation (Birth to 15 years)			<i>F;p</i>	<i>r</i>	
	0 ( <i>n</i> =184)	1 ( <i>n</i> =80)	2+ ( <i>n</i> =41)			
<b>Parenting outcomes: Self-report</b>						
Sensitivity	<i>M</i>	100.67	99.90	96.07	6.04; <i>p</i> =.01	-.18
	<i>SD</i>	(9.06)	(10.35)	(12.33)		
Warmth	<i>M</i>	99.90	100.14	98.06	0.63; <i>p</i> =.43	-.08
	<i>SD</i>	(10.35)	(9.13)	(11.95)		
Over-reactivity	<i>M</i>	98.38	100.72	103.83	19.70; <i>p</i> <.001	.26
	<i>SD</i>	(9.35)	(9.98)	(10.01)		
Inconsistent child management	<i>M</i>	98.93	100.73	103.83	8.36; <i>p</i> =.004	.15
	<i>SD</i>	(9.58)	(9.98)	(10.01)		
Physical punishment	<i>M</i>	99.23	98.88	103.79	4.68; <i>p</i> =.03	.14
	<i>SD</i>	(9.29)	(8.98)	(12.19)		
<b>Parenting outcomes: Observed</b>						
Sensitivity	<i>M</i>	101.77	99.32	93.48	13.97; <i>p</i> <.001	-.35
	<i>SD</i>	(10.02)	(8.88)	(10.09)		
Warmth	<i>M</i>	100.95	100.09	94.65	7.44; <i>p</i> =.007	-.31
	<i>SD</i>	(10.02)	(8.88)	(10.09)		

	<i>SD</i>	(9.68)	(9.53)	(9.92)		
Quality of child management	<i>M</i>	101.80	98.9	95.05	10.43;p=.002	-.32
	<i>SD</i>	(8.75)	(9.82)	(11.94)		

---

Table 2: Bivariate associations between exposure to parental separation and early social and family confounding factors.

Covariates		Exposure to Parental Separation (Birth to 15 years)			<i>F/X<sup>2</sup></i>	<i>p</i>
		0	1	2+		
Female gender	%	58.7	56.4	78.0	3.12	.08
Maori ethnicity	%	9.4	21.6	23.1	8.11	.004
<b><i>Early Socioeconomic Background</i></b>						
No paternal educational qualifications	%	51.6	65.4	73.2	8.48	.004
No maternal educational qualifications	%	59.8	65.4	73.2	2.79	.10
Maternal age at first birth	<i>M</i>	23.46	20.74	21.29	21.16	<.001
	<i>SD</i>	(4.18)	(3.24)	(4.47)		
Single mother at birth	%	4.9	17.9	12.9	6.41	.01
Standard of living (0-10yrs)	<i>M</i>	3.13	2.92	2.87	20.81	<.001
	<i>SD</i>	(0.42)	(0.39)	(0.36)		
Paternal semiskilled/unskilled occupational status	%	27.7	39.7	56.1	12.98	<.001
<b><i>Family Functioning and Parenting</i></b>						
Parental adjustment problems	<i>M</i>	0.54	1.22	1.65	71.18	<.001



	<i>SD</i>	(0.74)	(1.07)	(0.99)		
Exposure to interparental conflict/violence (0-16yrs)	%	20.0	39.2	36.6	9.04	.003
Exposure to frequent/severe physical punishment (0-16yrs)	%	19.0	32.5	26.8	3.26	.07
Exposure to childhood sexual abuse (0-16yrs)	%	16.1	11.7	26.8	1.00	.32
Parent-child relationship quality (15yrs)	<i>M</i>	73.83	70.54	69.71	8.65	.004
	<i>SD</i>	(9.04)	(10.52)	(12.54)		
Parental care (16yrs)	<i>M</i>	29.60	27.10	26.32	12.46	<.001
	<i>SD</i>	(6.25)	(7.10)	(6.78)		
Parental over protection/control (16yrs)	<i>M</i>	6.71	7.86	9.24	6.57	.009
	<i>SD</i>	(5.60)	(6.41)	(6.46)		
<b><i>Individual Childhood Characteristics</i></b>						
IQ (WISC; 8-9yrs)	<i>M</i>	103.08	99.81	96.88	8.48	.004
	<i>SD</i>	(13.73)	(13.85)	(11.80)		
Conduct problems (7-9yrs)	<i>M</i>	49.14	53.10	51.44	8.43	.004
	<i>SD</i>	(6.65)	(9.55)	(9.01)		
Attention problems (7-9yrs)	<i>M</i>	19.73	21.48	20.71	4.06	.05
	<i>SD</i>	(4.66)	(4.99)	(4.59)		
Anxiety symptoms (7-9yrs)	<i>M</i>	25.79	25.77	27.19	3.59	.06
	<i>SD</i>	(3.63)	(3.39)	(3.46)		

TABLE 3. Associations between exposure to parental separation in childhood and later parenting outcomes at age 30 adjusted for early family and childhood covariates.

Measure	Unadjusted B(SE), $\beta$ ;p	Adjusted for Early Family and Childhood Covariates		
		Adjusted B(SE), $\beta$ ;p	R <sup>2</sup>	Significant Covariates
<b>Parenting Outcomes: Self-Report</b>				
Sensitivity	-2.15(0.67),-.18;p=.002	-1.67 (0.67), -.14; p=.01	.12	6,9,10,11
Warmth	-.94(0.70),-.08;p=.18	-.45(0.69),-.04;p=.52	.11	4,9,11
Over-reactivity	3.00 (0.66), .26; p<.001	2.53 (0.66), .21; p<.001	.12	7,8
Inconsistent child management	1.74 (0.68), .15; p=.01	0.85 (0.69), .07; p=.21	.09	4,8
Physical punishment/abuse	1.65 (0.68), .14; p=.02	1.40 (0.69), .12; p=.04	.09	1,2,9
<b>Parenting Outcomes: Observational</b>				
Sensitivity	-3.80 (0.87), -.35; p<.001	-2.08(0.90), -.19; p=.02	.32	3,5,6,11
Warmth	-3.15 (0.83), -.31; p<.001	-1.98 (0.81), -.19; p=.02	.23	4,9
Quality of child management	-3.44 (0.86), -.32; p<.001	-1.41 (0.92), -.13 p=.13	.26	3,5,6,9

Covariates: 1 = Maternal age at first birth; 2 = Paternal occupational status; 3 = Parental adjustment

problems; 4 = Exposure to interparental conflict and violence; 5 = Exposure to childhood sexual abuse; 6 = Parent-child relationship quality in adolescence (15 years); 7 = Parental over protection/control (16 years); 8 = IQ (WISC, 8-9 years); 9 = Conduct problems (7-9 years); 10 = anxiety/withdrawal symptoms (7-9 years); 11 = Gender.