

# Chapter 8

## The Consequences of Separation for Mothers' Perception of Their Parenting Capacity



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### Introduction

Separation and divorce have become a feature of many adult biographies in the western world. In England and Wales, 10.8 people per thousand of the married population divorced in 2012 (ONS 2014); and just under a third of all UK families with dependent children (32 percent) are post-separation families, with lone parent families making up 25 percent and stepfamilies accounting for seven percent of these families (ONS 2015). In the context of increasing normalisation of parental separation and blended families, how do mothers evaluate themselves as parents following a separation? Does separation knock their confidence as parents? And, if so, does this confidence recover as mothers adjust to their new circumstances? Given that separated parents are being encouraged to, and increasingly express an interest in, entering into shared care arrangements, does it help the mother if the father stays involved? These are the questions that drive this chapter.

There is a substantial body of literature on the impact of separation on children. There is also a smaller body of work on the financial and mental health effects of separation on parents, including the extent to which poor maternal mental health affects parent-child relationships, and, in turn, the outcomes of children. We argue that the topic of perceived parenting competence has been neglected in this literature, despite being worthy of attention in its own right. Whether single mothers perceive themselves as good parents is indicative not only of their parenting capacity, but of the degree to which sole parenthood is endorsed or devalued in society. Since the vast majority of parents with primary custody of their children following

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a separation are mothers, the context in which parents evaluate their parenting remains tied to gendered societal norms of the role of mothers, the problematisation of the absence of fathers, and the emphasis placed on the importance of male role models for children's development. Understanding how far mothers' evaluation of their competence as parents is impacted by separation can provide us with information about the wider context in which families are raising children, and about the ways in which persistent social norms are or are not internalised by parents. We use the terms "perceived parenting competence" and "parenting confidence" interchangeably throughout this chapter, as they reflect the fact that we are studying mothers' self-evaluation rather than their specific parenting practices.

We explore the relationship between separation and perceived parenting competence among a nationally representative UK longitudinal sample of families with children, some of whom are observed to experience parental separation. We focus on parents of young children, since that is the age when children are more likely to be considered the sole responsibility of their parents, and thus parenting confidence may be most susceptible to shocks, such as those associated with the breakdown in a relationship. We argue that mothers may draw on the unremarkable nature of parental separation to maintain confidence in their parenting, with no observed consequences. Alternatively, they may experience the fact of separation as an indictment of their competence, and lose confidence accordingly. Which of these outcomes is the case is an empirical question to which we currently do not know the answer.

The current evidence on the effects of separation on the mental health and life satisfaction of former partners indicates an initial shock, followed by a relatively rapid recovery. Thus, we also investigate whether any initial reduction in perceived parenting competence persists over time. On the one hand, parenting confidence might be expected to track mental health, with an initial drop followed by adaptation to pre-separation levels. On the other hand, to the extent that any loss of parenting confidence reflects the internalisation of societal judgements of sole parenthood, rather than the psychological impacts of relationship breakdown, it is possible that no such process of recovery occurs. Again, this is a question that is open to direct investigation.

The development of "new fathering" (Dermott 2014), and the increasing emphasis internationally on shared care arrangements and the involvement of fathers in their children's lives post-separation (Kitterød and Wiik 2017; Meyer et al. 2017; Nielsen 2018; Smyth 2017), might lead us to expect that where fathers remain involved and children therefore continue to experience parenting by both parents, mothers may evaluate their parenting more positively. We therefore explore the extent to which post-separation paternal involvement is associated with higher perceived parenting competence among separated mothers.

It is also important to consider the question of whether any observed impact on parenting confidence might be driven by selection. The literature on maternal mental health has indicated that those mothers who separate are more likely to be already suffering from mental distress, even if they experience further deteriorations following divorce (Wade and Pevalin 2004). Among mothers who separated, Tavares and

Aassve (2013) found post-separation mental distress to be negatively associated with pre-separation mental distress; that is, the impact of separation was less for already more distressed mothers. If parenting confidence differs between mothers who do and do not separate, this could potentially bias our results, even after controlling for prior perceived competence, given potential ceiling and floor effects. In addition, if parenting confidence is associated with other unmeasured characteristics of individuals who separate rather than the fact of separation, it would tell us less about the impact of internalised social norms relating to lone parenthood. It is therefore important to establish whether or not mothers who go on to separate already differ in their perceived competence from other mothers.

We address these questions using the Millennium Cohort Study, a nationally representative UK cohort study of around 19,000 children born at the beginning of the current millennium. We analyse a sample of nearly 12,000 mothers who were living in an intact family when their child was nine months old, of whom around 2000 had separated by the time their child was around seven years old. We first show that the perceived parenting competence of the mothers who subsequently separated did not differ from that of the mothers who remained in intact relationships. This finding suggests that separated mothers do not inherently struggle more than partnered mothers with their childrearing, or with how they feel their childrearing is perceived.

Estimating growth curve models, we then investigate whether those mothers who had separated by the time their child reached age seven experienced a reduction in parenting confidence after separating relative to the mothers who remained partnered. After re-estimating the growth curve models only for those mothers who experienced a separation, we then look at whether loss of confidence persisted or diminished with time since the separation, and whether it was reduced in cases in which the father remained more involved with his non-resident child. We frame our results in relation to theories regarding the stigmatisation of lone parents, personal efficacy, and the challenges a mother faces in maintaining post-separation contact with her child's father.

## Background and Research Questions

Academics and policy-makers have long been interested in understanding whether – and, if so, to what extent and why – the children of separated parents have worse outcomes in adulthood than children who grow up in intact families (see among others Amato 2000, 2010; Mooney et al. 2009). Although the evidence that paternal involvement has positive consequences for children in post-separation families is somewhat equivocal (Amato 2010; Bernardi et al. 2013), the perception remains that growing up in an intact, couple parent family is the best situation for children. A smaller number of studies have examined the effects of separation on parents. Several studies have, for example, investigated the effects of separation on the mental health and well-being of mothers in the UK (see also Maslauskaitė and Steinbach

as well as Köppen, Kreyenfeld, and Trappe in this volume). This research has examined the impact of separation and divorce, the duration of this impact, and the speed at which the partners recover. Overall, the findings of these studies suggest that separation has a negative effect on former partners' mental health and life satisfaction, but that the separated partners tend to recover relatively swiftly; i.e. by the following year or so (Blekesaune 2008; Brewer and Nandi 2014; Gardner and Oswald 2006; Pevalin and Ermisch 2004; Tavares and Aassve 2013; Wade and Pevalin 2004). The theme of recovery is also evident in the literature for the US. Hetherington (2003) has argued that divorce affects the "psychological, social and physical well-being of adults" for a short period of time after the divorce. Most adults then adapt to their new life after separation, and only a minority experience long-term negative effects (*ibid.*, p. 659, see also Amato 2010; Kalmijn and Monden 2006). Research on the impact of separation on the financial situation of the separated partners has suggested that the family incomes of women and of mothers in particular often decline immediately after a separation, but then later recover (Brewer and Nandi 2014; Jenkins 2009, 2011; but see also Harkness and Skipp 2013).

The question of what impact separation or divorce has on parenting is less well researched, particularly outside the US. The concept of "diminished capacity to parent" (see Wallerstein and Kelly 1980) refers to mothers being less able and less likely to engage with their children or to display positive parenting behaviour in the early stages of separation and divorce (Lovejoy et al. 2000). However, as in the case of mental health, it has been shown that parenting capacity tends to recover relatively soon after the transition (Hetherington 2003 in Amato 2010); although it can remain reduced in a minority of cases it can last for ten years and more (Strohschein 2007). The impact of separation on parenting capacity is likely to be attributable to the psychological effects of separation, which limit a mother's engagement in positive parenting (Kiernan and Huerta 2008; Lovejoy et al. 2000; Smith 2004).

While the relationship between parenting confidence, mental well-being, and parenting practices is clearly complex, we are concerned in this chapter specifically with the former issue, which has not been well researched. That is, we do not yet know whether the experience of separation and having sole responsibility for children affects the confidence of separated parents in their ability to parent; nor whether, if this is indeed the case, there is a subsequent reversion to earlier levels of perceived confidence or self-evaluated confidence over time. This gap in our knowledge is surprising given the prominence of the long-established, negative discourses around lone parent families (Klett-Davies 2016; Silva 1996) and the more recent focus on "good" parenting before and after separation (Fabricius et al. 2010; Fehlberg et al. 2011; Lamb 2012; Mahrer et al. 2016; Steinbach 2019). We argue that societal norms and discourses, and the specific stigmatisation (Link and Phelan 2001) of lone parenthood (Salter 2018), are likely to influence parents' self-conceptions or expressed confidence in their parenting. We cannot therefore assume that separated mothers' confidence tracks the patterns of impact and recovery found for psychological or behavioural consequences of separation. We draw on Rogers' (1959) definition of self-concept; i.e., the perception an individual has of him/herself, and of how others perceive him/her. An important contribution to our

understanding of self-concept was made by Bandura (2006: 165), who, in his social cognition theory argued that self-concept is based on the “reciprocal interplay of intrapersonal, behavioural and environmental determinants”; i.e., that it is learned, organised, and dynamic. We apply this understanding of self-concept to account for how mothers respond to the circumstances that surround separation at the personal and the social level, and how that feeds into their own understanding of their status and their parenting.

Despite the striking rise in divorce and separation among families with children in the UK and internationally (Bernardi and Mortelmans 2018), sole parent and separated families continue to be frequently stigmatised as incomplete and less desirable family forms compared to married and cohabiting couples with children. Public opinion still endorses couple parent families as the optimum context for raising children (Park and Rhead 2013). Meanwhile, negative perceptions of lone parents remain common, with these parents often being accused of engaging in irresponsible behaviour, having poor parenting skills, or transmitting intergenerational patterns of “deviant” family forms (Klett-Davies 2016; Silva 1996). For example, a previous Secretary of State for Work and Pensions described lone parent families as “broken families” who are responsible for a “broken” society (CSJ 2006). More generally, the strong association between sole parenting and economic insecurity reinforces doubts about their efficacy as parents, given the assumed link between poor parents and “poor” parenting (Cooper 2017; McLanahan 2004; McLanahan and Jacobsen 2015; Stewart 2016). Many mothers find that their income drops and their risk of poverty increases following a separation, even if they had been comfortable before the breakup (Brewer and Nandi 2014; Jenkins 2009, 2011). Even if their income recovers subsequently, they may find themselves at least for a period in need of state support and directly encountering negative responses to their newfound status, real or perceived, as a result of their own internalisation of the dominant discourse.

The effect of such negative attitudes on lone parents' confidence is likely to be exacerbated by the current increased focus on parenting more generally. Parents' involvement, particularly in the early years of a child's life, is seen as increasingly instrumental in the social and cognitive outcomes of children (Lausten et al. 2013). Parenting “confidence” has emerged as a prominent concept, which can be defined as a set of skills and beliefs that parents do not necessarily have naturally, but need to acquire with the help of parenting experts (Daly 2015; Gauthier 2015). This may lead to anxiety as to how well mothers are performing as parents (Wall 2010). The combination of these social environmental influences may negatively affect a mother's confidence in her own parenting skills, especially after a separation. Given that separation will shift mothers from the validated couple category to the critiqued lone parent category, it is not clear that we would expect the impact of separation to lessen over time. Perceived self-competence therefore may act as a marker of the extent to which the home environment is more challenging all round, and can also be revealing about those factors that may ease (or perpetuate) such challenges over time.

Specifically, where fathers remain actively involved, mothers' parenting may be boosted both by the ongoing reinforcement they receive through co-parenting, through any financial support that may tend to accompany it (Ermisch and Pronzato 2008), and through retaining some element of their position as couple rather than sole parents. The contribution of fathers may therefore be highly relevant for how confidence is experienced after a split. Fathers today often aspire to spend more time and to be more involved with their children than fathers of previous generations (e.g., Bianchi et al. 2006; Brandth and Kvande 2018; Gauthier et al. 2004; Lamb 2010; Marsiglio et al. 2000). A number of qualitative studies (Lacroix 2006; Philip 2013, 2014) have compared fathers' experiences of parenting post-separation and parenting within a couple. These findings suggest that fathers felt more confident and took a more pro-active role in the parenting of their children and found the experience emotionally rewarding. Yet, despite the endorsement through policy emphasis on shared parenting, these fathers are likely to be highly selected, given the stubbornly high rates of contact breakdown in the UK (Lader 2008; Poole et al. 2016). Nevertheless, with current emphasis on "new fathering" (Dermott 2003, 2014; Ives 2015), and particularly on the positive consequences of fathering (Brandth and Kvande 2018; Craig 2006; Craig et al. 2014; Kalmijn 2015, 2016; Solomon 2014; Wilson and Prior 2010), where fathers have higher levels of contact, we might expect such involved fathers to improve mothers' confidence in their sole parenting.

At the same time, shared care arrangements are becoming increasingly common among both the most co-operative and the most conflicted couples (Smyth 2017). This could mean that any improvements in self-concept that arise from greater paternal involvement are undermined. On balance, we would expect to observe that greater paternal involvement has positive knock-on effects on the parenting confidence of separated mothers. However, this positive association cannot be assumed.

In sum, this chapter, which represents the first large-scale study of parenting confidence in the UK, addresses the following questions: Does parental separation in the early years of a child's life negatively affect the mother's perceived parenting competence? If so, does their parenting confidence recover over time? And, does the greater involvement of the father in the child's life increase the parenting confidence of separated mothers?

## **Data and Analytical Approach**

### *Data and Analytical Sample*

The data for this analysis come from the Millennium Cohort Study (MCS). The MCS is a UK-wide representative cohort study of around 19,000 children born to families resident in the UK between September 2000 and January 2002. The MCS employed a stratified clustered sampling design to ensure an adequate

representation of all four UK countries, disadvantaged areas, and ethnic minority groups (Plewis 2007). The original cohort (MCS1) comprised 18,818 children whose parents were first interviewed at home when their child was around nine months old. Further surveys were completed when the cohort children were around three, five, seven, 11, and 14 years old. In this chapter, we draw on information from the first four surveys (University of London. Institute of Education. Centre for Longitudinal Studies 2012a, b, c, d), and on information provided in the interview and the self-completion questionnaire that was carried out with the main carer at each sweep.

Since we are interested in investigating the effects of separation on mothers, as these constitute the vast majority of parents with care (PWC) following a separation involving (young) children, we restrict our sample to those mothers who were both living with their child's father when the child was an infant (around nine months old) and who were the main respondent at the first and subsequent surveys (14,600 mothers). This approach ensures continuity in the information provided. The MCS includes a small number of twins and triplets whom we exclude from the analysis, as the factors linked to parenting and partnership dissolution are likely to differ for these cases (217 cases). We also exclude the small number of cases in which the father was known to have subsequently died (a further 91 cases). We use information on the remaining mothers collected up to the fourth survey when the child was aged around seven years old, as this enables us to capture the critical early years of parenting.<sup>1</sup> We restrict our sample to those respondents who completed the self-completion questionnaire (which contains the questions on parenting confidence) for at least one survey subsequent to the first survey (when the child was aged around three, five, or seven), and for whom we have non-missing information on the perceived parenting measure and all covariates employed in our analysis. For the perceived parenting measure, we treated as missing the small number of respondents who indicated that they could not evaluate their parenting (responding "can't say"). This results in a sample of 11,764 mothers nested in 29,646 person waves, of whom 2005 (3498 person waves) reported experiencing a separation by the time their child reached age seven. A comparison of key wave one characteristics of the full sample of 14,329 mothers and the 11,764 cases retained in our analytical sample did not suggest any systematic bias arising from our sample selection.

## *Variables*

Our key dependent variable is the measurement of parental perceived self-confidence collected in the surveys conducted when the child was age three, age five, and age seven. The question wording is as follows: "*The next question is about how you feel*

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<sup>1</sup>Note also that the question on perceived parenting competence was not asked after the child reached age seven.

*about being a parent. For the next statement, choose your response from the choice 1 to 5: 1 I feel that I am: 1 Not very good at being a parent; 2 A person who has some trouble being a parent; 3 An average parent; 4 A better than average parent; 5 A very good parent; 6 Can't say*". We treat this as a continuous measure, excluding the final category ("can't say"), as noted above.

Our key independent variable is whether or not the mother has separated at the time that parenting confidence is measured. For separated mothers, we also include the time since separation in months, which was constructed using the retrospective information on partnership history collected at each survey. Furthermore, we included a measure of the frequency with which the child has contact with the non-resident parent (father) on a scale ranging from one (never) to seven (every day).

To capture other factors that might be correlated with both separation and parenting confidence, and which preceded the separation (see the discussion in Brewer and Nandi 2014), we include controls for mother's age at the birth of the child, her ethnic group (in six categories), her educational level (grouped into tertiary, higher secondary (advanced level exams taken at age 18), good lower secondary (end of compulsory schooling exams taken at age 16), lower or other qualifications, and no qualifications), housing tenure, and employment status at the time of the first (age nine months) survey. We include mothers who were both married and cohabiting at the first wave, since we have no reason to anticipate that their parenting confidence will be impacted differently by former marital status. Nevertheless, given the ongoing discussion in the literature (see e.g. Tavares and Aassve 2013), we include a dummy for married versus cohabiting. We additionally control for the sex of the child.

We also control for initial parenting confidence. At nine months, this was measured using a slightly different question, namely, '*When I am caring for [child], I feel...1 ...very incompetent and lacking in confidence; 2 fairly incompetent and lacking in confidence; 3 fairly competent and confident; 4 very competent and confident; 5 Can't say*'. Again, we treat the measure as a continuous variable, omitting the small numbers who selected "can't say".

### ***Analytical Approach***

We first address the question of whether the mothers who separated are a select group. To do so, we examine whether mothers who did or did not separate before the child reached age seven differed in terms of their parenting competence in wave one (when the child was nine months old). We analyse the raw means, but also adjust for relevant covariates. We then estimate linear growth mixed models of maternal parenting confidence (Rabe-Hesketh and Skrondal 2012; Singer and Willett 2003). These models take advantage of the repeated measures of the mothers' confidence at three points in time, when their children were approximately three, five and seven years old. As noted above, we control for parenting confidence



when the child was nine months old, as well as other potentially confounding characteristics. We estimate the effect of maternal separation as a time-varying covariate on mothers' confidence, and its development.

Level 1 represents the within-mother change in confidence from the child's third to seventh year of life. Level 2 represents the between-mother variation in confidence when the child was three years old (random intercept), and the linear change from the child's third to seventh year of life (random slope). We included a fixed quadratic on age to account for the curved shape of average parenting confidence trajectories. The composite model can be written as follows:

$$\text{Confidence}_{ij} = (\beta_{00} + \beta_{10}\text{AGE}_{ij} + \beta_{20}\text{AGE}_{ij}^2 + \beta_{30}\text{time varying intact / separation status}_{ij} + \beta_{40-x}\text{time invariant controls}) + (u_{0i} + u_{1i}\text{AGE}_{ij} + e_{ij})$$

The components in the first set of parentheses represent the fixed effects, and the components in the second set represent the random intercept and slope for each mother, and thus reflect the between-mother variation in confidence, and its development over time. The coefficient that is of particular interest for our analysis is  $\beta_3$ .

We also estimate models only for the mothers who experienced separation. First, to determine whether there was evidence of recovery, we examine the impact of the time since separation on the mother's parenting confidence. Second, we look at the extent to which the child's contact with the non-resident parent affected the mother's parenting confidence, given our hypothesised expectation that the mother's confidence would be higher if the child had closer contact with the other parent; i.e., if the socially endorsed two-parent family structure was being partially maintained. Both of these measures are evaluated for the point in time at which the parenting confidence measure was assessed. These models again include a random intercept and a random slope for time since separation. Given the collinearity between the child's age and the time since separation, we centred the child's age and included it and its square as controls.

The models are estimated using the mixed procedure in Stata 13.1 (Rabe-Hesketh and Skrondal 2012). To adjust for the complex survey design of the MCS, we cluster the standard errors on the sample cluster variable, and include the strata variables as additional control variables. Table 8.1 shows the descriptive of all of the variables used in our pooled (person-wave) analytic sample by separation status.

## Results

The means for parenting confidence (measured in wave 1) are found to be 3.68 (CI: 3.66–3.69) for the mothers who did not separate and 3.70 (CI: 3.67–3.73) for the mothers who subsequently separated. The distribution of responses is also very similar. After controlling for a full suite of relevant characteristics, we still observe

**Table 8.1** Sample descriptive statistics, pooled sample, by separation status, means (standard error), and column percent

	Not separated	Ever Separated
Parenting competence	3.93 (0.01)	3.84 (0.02)
Child's age	5.09 (0.01)	5.73 (0.83)
Perceived competence when child was nine months old	3.67 (0.003)	3.70 (0.01)
Mother's age at birth (centred)	0.86 (0.03)	-2.51 (0.10)
Education		
Degree or above	0.23	0.09
A levels/diploma	0.23	0.17
O levels/GCSE	0.34	0.43
Less/other	0.11	0.14
None	0.09	0.17
Marital status		
Married	0.75	0.45
Cohabiting	0.25	0.55
Sex of child		
Boy	0.51	0.52
Girl	0.49	0.48
Older siblings	0.09 (0.01)	0.90 (0.02)
Mother has long-term limiting illness	0.21	0.25
Mother was in work and on leave when child was nine months old	0.59	0.46
Mother was not in work when child was nine months old	0.41	0.54
Housing tenure		
Owned/buying	0.77	0.49
Social rented	0.14	0.36
Private rented	0.06	0.11
Other	0.03	0.04
Time since separation (years)	-	2.72 (1.69)
Contact with non-resident parent (1 - None to 7 - Every day)	-	3.54 (0.03)
Person years	6074	3572

Source: MCS, sweeps 1-4: age nine months, three years, five years, and seven years (University of London 2012a, b, c, d)

Notes: The descriptives for the ever-separated are from all the observations they supply, including those before the separation

no statistically significant difference, and the coefficient on separation remains very small (see Appendix, Table 8.4). These findings indicate that prior to their separation, mothers who later separated did not differ in their understanding of their parenting from mothers who did not separate. Thus, this result is consistent with our expectation that parenting confidence is not a psychological trait or behaviour, but is instead a reflection of perceived self-efficacy in a specific context.

We next turn to the impact of separation on parenting confidence, reporting the key results from the growth curve model in Table 8.2 and Fig. 8.1. Table 8.2 shows

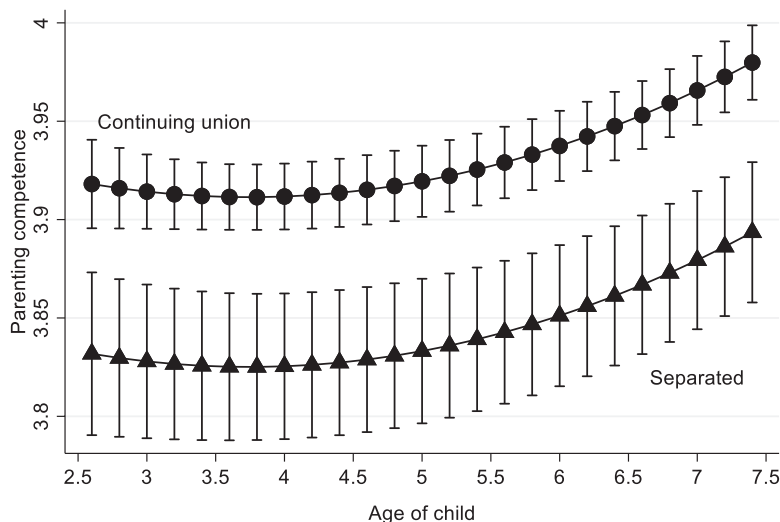
**Table 8.2** Fixed and random effects estimates from a multi-level mixed effects linear regression of perceived parenting competence among mothers, beta coefficients from a growth curve model

Fixed effects parameters	
Child's age	-0.038* (0.017)
Age squared	0.005** (0.002)
Separated	-0.054** (0.019)
Confidence at first survey	0.277** (0.018)
Random effects parameters	
Level 2 (mother)	
Intercept variance	.584** (.037)
Slope (child's age) variance	.007** (.001)
Covariance	-.036 ** (.006)
Level 1 (survey)	
Residual variance	0.345** (.008)
Person years	29, 646

Source: MCS, sweeps 1–4: age nine months, three years, five years, and seven years (University of London 2012a, b, c, d). 11,764 mothers nested in 29,646 observations

Notes: Analyses additionally control for maternal education, whether the mother was married or cohabiting at the first observation, family size, whether the mother was working, and the mother's health status at first observation, as well as MCS sample strata. Observations are clustered on the study clusters indicator. Standard errors in parentheses. \*  $p < 0.05$ , \*\*  $p < 0.01$

that, net of the control variables, there is a strong and statistically significant relationship between separation and mothers' negative evaluation of their parenting confidence. This result is net of (prior) perceived parenting confidence measured when the child was aged nine months, which is, as we might expect, also strongly associated with later confidence. The control variables (not shown) indicate that parenting confidence was also related to mother's employment status when the child was nine months old, as well as her socio-economic status (education and maternal employment at first sweep) and her marital status; but not with maternal age at birth or her overall health or the sex of the child (full table available on request).



**Fig. 8.1** Mothers' perceived parenting competence by separation status, predicted values from a growth curve model

Source: MCS, sweeps 1–4: age nine months, three years, five years, and seven years (University of London 2012a, b, c, d)

Notes: Results from a mixed model with a random intercept and a random slope for the age of the child, at mean values of the other covariates

Figure 8.1 illustrates graphically the results from this model. Looking at the figure, we can see that mothers who separated had lower self-evaluated parenting confidence across the range of the child's ages at which the mother's confidence was reported, even though perceived parenting confidence itself varied with age in a non-linear fashion.

We now consider to what extent the time since separation makes a difference for a mother who has separated; and to what extent contact with the non-resident parent influences the mother's parenting confidence. Given that the time since separation is correlated with the child's increasing age (a correlation coefficient of around 0.5), and that the child's age is also associated with different levels of perceived parenting confidence, we included the child's age centred at the mean age within the observation window in years (around 5.2 years) when estimating the impact of time since separation.

Looking at Table 8.3, which displays our findings on mental health and life satisfaction, we can see that there was no improvement in perceived parenting confidence among the separated mothers over time. This was the case whether or not we controlled for the child's age. That is, mothers who had been separated for longer periods of time did not tend to have higher parenting confidence than mothers who had separated more recently. This result may be partly a consequence of the relatively short time spans since separation in our sample: i.e., across the mothers, the average time since separation was only 2.7 years. However, research that examined

**Table 8.3** Fixed and random effects estimates from a multi-level mixed effects linear regression of perceived parenting competence among separated mothers

	Model 1: Main effects plus time since separation	Model 2: plus child's contact with non-resident parent
Time since separation (months)	-0.0002 (0.001)	-0.0000 (0.001)
Confidence at first survey	0.210** (0.042)	0.209** (0.047)
Child's contact with non-resident parent		0.007 (0.010)
Constant	2.990** (0.160)	2.959** (0.164)
Level 2 (mother)		
Intercept variance	0.484** (0.052)	0.482** (0.0521)
Slope variance	0.00007** (0.00003)	0.00007** (0.00003)
Covariance	-0.002** (0.001)	-0.002** (0.001)
Level 1 (survey)		
Residual variance	0.415** (0.024)	0.415** (0.024)
Person years	3498	

Source: MCS, sweeps 1–4: age nine months, three years, five years, and seven years (University of London 2012a, b, c, d). 1893 individuals in 3498 observations

Notes: The numbers differ from those in Table 8.2 due to some missing values on paternal contact. The model includes a random slope on the time since separation. Analyses additionally control for the child's age (centred) and age squared, the child's sex, maternal education, whether the mother was married or cohabiting at the first observation, family size, whether the mother was working at the first observation, and the mother's health status at the first observation, as well as MCS sample strata. The model is also clustered on sample clusters. Standard errors in parentheses. \*  $p < 0.05$ , \*\*  $p < 0.01$

psychological impacts of separation has shown that recovery typically occurs within a short period of a few months to a year (Brewer and Nandi 2014; Tavares and Aassve 2013).<sup>2</sup> Other factors that remain associated with perceived parenting competence are perceived confidence and employment status at nine months and mothers' ethnicity.

Model 2 in Table 8.3 tests for whether the level of contact of the non-resident parent with the cohort child affected mothers' evaluation of their parenting

<sup>2</sup>To explore this point further we replicated the analysis with maternal depression as the dependent variable, and found that among separated mothers the level of depression did decrease over time since separation, other things being equal. Hence, the pattern for depression is consistent with other research, supporting the robustness of our null finding for duration effects for parenting confidence.

competence. Again, no relationship is found. Thus, there seems to be no indication that the mothers' parenting confidence recovered after declining in response to separation. This may be because of other factors that continued to render parenting itself more challenging without the presence of the child's father. At the same time, it appears that mothers' parenting confidence is not linked to how well contact between father and child is maintained. This may be because there were counter-vailing influences, as a higher level of contact may have eased the mother's parenting challenges in some cases, while complicating or exacerbating them in others. We return to these points in our discussion and conclusions.

## Discussion and Conclusions

The aim of this chapter was to investigate changes in the perceived parenting competence of mothers who separated from their partner. In particular, our focus was on whether mothers who subsequently separate are likely to have lower confidence than mothers who remain in intact relationships. We set out to establish answers to three main questions: Does separation affect perceived parenting competence? If so, does it recover over time? Is greater paternal involvement associated with higher confidence among separated mothers?

We started by establishing that there was no selection on our dependent variable. Specifically, we found that in both the unadjusted and the adjusted analyses, mothers who subsequently separated and mothers who did not experience union dissolution had comparable levels of perceived parenting competence when they were living with the child's father and the child was around nine months old. This finding reassured us that any subsequent patterns were not driven by differential selection, rendering our claims about the impact of separation more robust. This result is also consistent with our argument that parenting confidence largely reflects an internalisation of social expectations that feed into self-efficacy, rather than a trait or a psychological state.

Following separation, the perceived parenting competence of mothers declined relative to that of their counterparts who did not separate, and we ascertained that this effect did not diminish with time since separation. That is, there was no evidence that parenting capacity recovered as mothers adjusted to their new status. This result suggests that the impact of separation on mothers' parenting confidence is not so much a psychological shock, but is instead linked to mothers having to re-conceive of their parenting role as sole parents, deprived of the social endorsement of couples and subject to the widespread negative social perceptions of lone parents. This further suggests that the short term effects of separation found in other domains, such as mental health, life satisfaction, and even income, could be further contextualised by considering how status changes may constitute a more permanent adjustment, with potentially long-term consequences for self-esteem and sense of

self-worth and self-efficacy. While we were not able to investigate in this chapter how mothers' parenting confidence might play out in actual parent-child interactions, or wider economic and social outcomes, our findings suggest that this could be a relevant topic for future study.

We also found no support for our hypothesis that the ongoing involvement of the non-resident father would have a positive impact on the parenting confidence of mothers. We had anticipated that the greater involvement of fathers would boost mothers' self-confidence, both directly, through the father's engagement in co-parenting, and indirectly, as the mother would have the satisfaction of knowing that her child was continuing to receive attention from both parents. We thus expected to find that greater paternal involvement would compensate for some of the stigma and negative social responses associated with lone parenthood, as well as providing the mother with someone to share the burden of parenting. There was, however, no evidence in our study that this was the case. As we discussed above, shared care arrangements can occur in the most conflicted as well as in the most co-operative relationships. If a mother has to manage ongoing contact between her ex-partner and her child in a context of conflict, the involvement of the father could undermine rather than enhance her perceived competence. Our findings might therefore be capturing both positive and negative effects that cancel each other out. Alternatively, the positive effects of the non-resident parent's involvement might simply be drowned out by the negative effects of the stigma of lone parenthood.

In conclusion, we argue for an understanding of lone parenthood that is embedded in Bandura's (2006) concept of the self. In particular, we highlight some implications of society's largely negative views of lone parents. When a mother separates from the father of her children, her self-concept is disrupted, an impact which stems not only from the psychological shock but also through her interactions with significant others such as her children and ex-partner, and her experience of social perceptions of her status. It is then clear how this could translate into a drop in parenting confidence, and, as long as the lower status of lone parents is maintained, confidence is unlikely to recover, as lone parents continue to be regarded as less good environments for raising children in the UK.

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## Appendix

**Table 8.4** OLS model of parenting confidence at the first MCS survey by subsequent separation status and control variables

	Beta-coefficient	Standard error
Mothers who subsequently separated (ref = remain intact)	0.009	(0.017)
Mother's age at birth (centred)	-0.006***	(0.001)
Qualifications (ref = degree)		
Higher degree	-0.000	(0.028)
Diploma	0.091***	(0.022)
A/AS level	0.063**	(0.021)
O levels/GCSE grades A-C	0.096***	(0.016)
O levels/GCSE grades D-G	0.071**	(0.025)
Other	-0.043	(0.051)
None	-0.003	(0.025)
Cohabiting (ref = married)	0.018	(0.014)
Child sex = girl	0.013	(0.011)
Number of siblings of cohort child	0.067***	(0.005)
Mother has longstanding illness	0.075***	(0.015)
Mother not in work (ref = in work)	-0.051***	(0.011)
Housing tenure (ref = owns/buying)		
Renting from LA HA	-0.071***	(0.019)
Private renter	0.006	(0.023)
Other	-0.054	(0.033)
Ethnic group (ref = white)		
Mixed ethnic groups	-0.035	(0.072)
Indian	-0.049	(0.048)
Pakistani and Bangladeshi	-0.205***	(0.033)
Black groups	0.173***	(0.030)
Other ethnic groups	-0.086	(0.057)
Constant	3.539***	(0.019)
R square	0.029	
Person-years	12,187	

Source: MCS, sweeps 1–4: age nine months, three years, five years, and seven years (University of London 2012a, b, c, d)

Notes: Analysis adjusted for the complex survey design of the MCS and non-response weights. Standard errors in parentheses. \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$



## References

- Amato, P. R. (2000). The consequences of divorce for adults and children. *Journal of Marriage and Family*, 62(4), 1269–1287. <https://doi.org/10.1111/j.1741-3737.2000.01269.x>.
- Amato, P. R. (2010). Research on divorce: Continuing trends and recent developments. *Journal of Marriage and Family*, 72(3), 650–666. <https://doi.org/10.1111/j.1741-3737.2010.00723.x>.
- Bandura, A. (2006). Toward a psychology of human agency. *Perspectives on Psychological Science*, 1(2), 164–180. <https://doi.org/10.1111%2Fj.1745-6916.2006.00011>.
- Bernardi, L., & Mortelmans, D. (2018). Changing lone parents, changing life courses. In L. Bernardi & D. Mortelmans (Eds.), *Lone parenthood in the life course* (pp. 1–26). Cham: Springer.
- Bernardi, F., Härkönen, J., Boertien, D., Andersson Rydell, L., Bastaits, K., & Mortelmans, D. (2013). State-of-the-art report. Effects of family forms and dynamics on children's well-being and life chances: Literature review. *Families and Societies*, 4.
- Bianchi, S. M., Robinson, J. P., & Milke, M. A. (2006). *The changing rhythms of American family life*. New York: Russell Sage Foundation.
- Blekesaune, M. (2008). Partnership transitions and mental distress: Investigating temporal order. *Journal of Marriage and Family*, 70(4), 879–890. <https://doi.org/10.1111/j.1741-3737.2008.00533.x>.
- Brandth, B., & Kvande, E. (2018). Masculinity and fathering alone during parental leave. *Men and Masculinities*, 21(1), 72–90. <https://doi.org/10.1177%2F1097184X16652659>.
- Brewer, M., & Nandi, A. (2014). *Partnership dissolution: How does it affect income, employment and well-being?* (ISER working paper series 2014–30). Colchester: University of Essex.
- Cooper, K. (2017). *Poverty and parenting in the UK*. Doctoral dissertation. The London School of Economics and Political Science (LSE).
- Craig, L. (2006). Does father care mean fathers share? A comparison of how mothers and fathers in intact families spend time with children. *Gender & Society*, 20(2), 259–281. <https://doi.org/10.1177/0891243205285212>.
- Craig, L., Powell, A., & Smyth, C. (2014). Towards intensive parenting? Changes in the composition and determinants of mothers' and fathers' time with children 1992–2006. *The British Journal of Sociology*, 65(3), 555–579. <https://doi.org/10.1111/1468-4446.12035>.
- CSJ. (2006). *Breakdown Britain: Interim report on the state of the nation*. London: Centre for Social Justice.
- Daly, M. (2015). Parenting support as policy field: An analytic framework. *Social Policy and Society*, 14(4), 597–608. <https://doi.org/10.1017/S1474746415000226>.
- Dermott, E. (2003). The 'intimate father': Defining paternal involvement. *Sociological Research Online*, 8(4). <https://doi.org/10.5153%2Fsr0.859>.
- Dermott, E. (2014). *Intimate fatherhood: A sociological analysis*. Basingstoke: Palgrave Macmillan.
- Ermisch, J., & Pronzato, C. (2008). Intra-household allocation of resources: Inferences from non-resident fathers' child support payments. *The Economic Journal*, 118(527), 347–362. <https://doi.org/10.1111/j.1468-0297.2007.02124.x>.
- Fabricius, W. V., Braver, S. L., Diaz, P., & Velez, C. E. (2010). Custody and parenting time: Links to family relationships and wellbeing after divorce. In M. E. Lamb (Ed.), *The role of the father in child development* (pp. 201–240). Hoboken: Wiley.
- Fehlberg, B., Smyth, B., Maclean, M., & Roberts, C. (2011). Legislating for shared time parenting after separation: A research review. *International Journal of Law, Policy and the Family*, 25(3), 318–337. <https://doi.org/10.1093/lawfam/ebp015>.
- Gardner, J., & Oswald, A. J. (2006). Do divorcing couples become happier by breaking up? *Journal of the Royal Statistical Society*, 169(2), 319–336. <https://doi.org/10.1111/j.1467-985X.2006.00403.x>.
- Gauthier, A. H. (2015). Social class and parental investment in children. In R. Scott & S. Kosslyn (Eds.), *Emerging trends in the social and behavioral sciences* (pp. 1–14). Hoboken: Wiley Press.

- Gauthier, A. H., Smeeding, T. M., & Furstenberg, F. F. (2004). Are parents investing less time in children? Trends in selected industrialized countries. *Population and Development Review*, 30(4), 647–672. <https://doi.org/10.1111/j.1728-4457.2004.00036.x>.
- Harkness, S., & Skipp, A. (2013). *Lone mothers, work, and depression*. London: Nuffield Foundation.
- Hetherington, E. M. (2003). Intimate pathways: Changing patterns in close personal relationships across time. *Family Relations*, 52(4), 318–331. <https://doi.org/10.1111/j.1741-3729.2003.00318.x>.
- Ives, J. (2015). Theorising the ‘deliberative father’: Compromise, progress, and striving to do fatherhood well. *Families, Relationships and Societies*, 4(2), 281–294. <https://doi.org/10.1332/204674314X14184029517584>.
- Jenkins, S. P. (2009). Marital splits and income changes over the longer term. In J. F. Ermisch & M. Brynin (Eds.), *Changing relationships* (pp. 214–237). London: Routledge.
- Jenkins, S. P. (2011). *Changing fortunes*. Oxford: Oxford University Press.
- Kalmijn, M. (2015). How childhood circumstances moderate the long-term impact of divorce on father-child relationships. *Journal of Marriage and Family*, 77(4), 921–938. <https://doi.org/10.1111/jomf.12202>.
- Kalmijn, M. (2016). Father-child contact, interparental conflict, and depressive symptoms among children of divorced parents. *European Sociological Review*, 32(1), 68–80. <https://doi.org/10.1093/esr/jcv095>.
- Kalmijn, M., & Monden, C. (2006). Are the negative effects of divorce on well-being dependent on marital quality? *Journal of Marriage and Family*, 68(5), 1197–1213. <https://doi.org/10.1111/j.1741-3737.2006.00323.x>.
- Kiernan, K. E., & Huerta, M. C. (2008). Economic deprivation, maternal depression, parenting and children’s cognitive and emotional development in early childhood. *British Journal of Sociology*, 59(4), 783–806. <https://doi.org/10.1111/j.1468-4446.2008.00219.x>.
- Kitterød, R. H., & Wiik, K. A. (2017). Shared residence among parents living apart in Norway. *Family Court Review*, 55(4), 556–571. <https://doi.org/10.1111/fcre.12304>.
- Klett-Davies, M. (2016). *Going it alone? Lone motherhood in late modernity*. London: Routledge.
- Lacroix, C. (2006). Freedom, desire, and power: Gender processes and presumptions of shared care and responsibility after parental separation. *Women’s Studies International Forum*, 29(2), 184–196. <https://doi.org/10.1016/j.wsif.2006.03.004>.
- Lader, D. (2008). *Non-resident parental contact, 2007/8* (Omnibus survey report, 38). London: ONS.
- Lamb, M. E. (Ed.). (2010). *The role of the father in child development*. (5th ed.). Hoboken: Wiley.
- Lamb, M. E. (2012). Critical analysis of research on parenting plans and children’s well-being. In L. Drozd, M. Saini, & N. Olese (Eds.), *Parenting plan evaluations: Applied research for the family court* (pp. 214–243). Oxford: Oxford University Press.
- Lausten, M., Lee, R. H., & Waldfogel, J. (2013). Fathers’ involvement and child development: Are they related? Evidence from four OECD countries. In *OECD social, employment and migration working papers*, 140. Paris: OECD.
- Link, B. G., & Phelan, J. C. (2001). Conceptualizing stigma. *Annual Review of Sociology*, 27(1), 363–385. <https://doi.org/10.1146/annurev.soc.27.1.363>.
- Lovejoy, C. M., Graczyk, P. A., O’Hare, E., & Neuman, G. (2000). Maternal depression and parenting behaviour: A meta analytical review. *Clinical Psychology Review*, 20(5), 561–592. [https://doi.org/10.1016/S0272-7358\(98\)00100-7](https://doi.org/10.1016/S0272-7358(98)00100-7).
- Mahrer, N., Sandler, I., Wolchik, S., Winslow, E., Moran, J., & Weinstock, D. (2016). How do parenting time and interparental conflict affect the relations of quality of parenting and child well-being following divorce. In L. Drozd, M. Saini, & N. Olesen (Eds.), *Parenting plan evaluations: Applied research for the family court* (pp. 63–73). Oxford: Oxford University Press.
- Marsiglio, W., Amato, P., Day, R., & Lamb, M. (2000). Scholarship on fatherhood in the 1990s and beyond. *Journal of Marriage and the Family*, 62(4), 1173–1191. <https://doi.org/10.1111/j.1741-3737.2000.01173.x>.

- McLanahan, S. (2004). Diverging destinies: How children are faring under the second demographic transition. *Demography*, 41(4), 607–627. <https://doi.org/10.1353/dem.2004.0033>.
- McLanahan, S., & Jacobsen, W. (2015). Diverging destinies revisited. In P. R. Amato, A. Booth, S. M. McHale, & J. Van Hook (Eds.), *Families in an era of increasing inequality* (pp. 3–23). Cham: Springer.
- Meyer, D. R., Cancian, M., & Cook, S. T. (2017). The growth in shared custody in the United States: Patterns and implications. *Family Court Review*, 55(4), 500–512. <https://doi.org/10.1111/fcre.12300>.
- Mooney, A., Oliver, C., & Smith, M. (2009). *Impact of family breakdown on children's well-being: Evidence review* (Research report DCSF-RR113). London: Department for Children, Schools and Families.
- Nielsen, L. (2018). Preface to the special issue: Shared physical custody: Recent research, advances, and applications. *Journal of Divorce & Remarriage*, 59(4), 237–246. <https://doi.org/10.1080/10502556.2018.1455303>.
- ONS (2014) *Divorces in England and Wales, 2012*. Statistical Bulletin. London: Office for National Statistics.
- ONS (2015) *Families and Households, 2014*. Statistical Bulletin. London: Office for National Statistics.
- Park, A., & Rhead, R. (2013). Personal relationships: Changing attitudes towards sex, marriage and parenthood. In A. Park, C. Bryson, E. Clery, J. Curtice, & M. Phillips (Eds.), *British social attitudes, the 30th report* (pp. 1–33). London: NatCen Social Research.
- Pevalin, D. J., & Ermisch, J. (2004). Cohabiting unions, repartnering and mental health. *Psychological Medicine*, 34(8), 1553–1559. <https://doi.org/10.1017/S0033291704002570>.
- Philip, G. (2013). Relationality and moral reasoning in accounts of fathering after separation or divorce: Care, gender and working at 'fairness'. *Families, Relationships and Societies*, 2(3), 409–424. <https://doi.org/10.1332/204674313X667407>.
- Philip, G. (2014). Fathering after separation or divorce: Navigating domestic, public and moral spaces. *Families, Relationships and Societies*, 3(2), 219–233. <https://doi.org/10.1332/204674314X14017856302453>.
- Plewis, I. (2007). *Millennium cohort study first survey: Technical report on sampling* (4th ed.). London: Centre for Longitudinal Studies, Institute of Education.
- Poole, E., Speight, S., O'Brien, M., Connolly, S., & Aldrich, M. (2016). Who are non-resident fathers? A British socio-demographic profile. *Journal of Social Policy*, 45(2), 223–250. <https://doi.org/10.1017/S0047279415000653>.
- Rabe-Hesketh, S., & Skrondal, A. (2012). *Multilevel and longitudinal modeling using Stata*. College Station: Stata Press.
- Rogers, C. R. (1959). A theory of therapy, personality, and interpersonal relationships: As developed in the client-centered framework. In S. Koch (Ed.), *Psychology: A study of a science. Formulations of the person and the social context* (pp. 184–256). New York: McGraw-Hill.
- Salter, E. (2018). A media discourse analysis of lone parents in the UK: Investigating the stereotype. In L. Bernardi & D. Mortelmans (Eds.), *Lone parenthood in the life course* (pp. 55–74). Cham: Springer.
- Silva, E. B. (1996). *Good enough mothering? Feminist perspectives on lone motherhood*. London: Routledge.
- Singer, J. D., & Willett, J. B. (2003). *Applied longitudinal data analysis: Modeling change and event occurrence*. New York: Oxford University Press.
- Smith, M. (2004). Parental mental health: Disruptions to parenting and outcomes for children. *Child and Family Social Work*, 9(1), 3–11. <https://doi.org/10.1111/j.1365-2206.2004.00312.x>.
- Smyth, B. M. (2017). Special issue on shared-time parenting after separation. *Family Court Review*, 55(4), 494–499. <https://doi.org/10.1111/fcre.12299>.
- Solomon, C. R. (2014). 'I feel like a rock star': Fatherhood for stay-at-home fathers. *Fathering*, 12(1), 52–70.

- Steinbach, A. (2019). Children's and parents' well-being in joint physical custody: A literature review. *Family Process*, 58(2), 353–369. <https://doi.org/10.1111/famp.12372>.
- Stewart, K. (2016). The family and disadvantage. In H. Dean & L. Platt (Eds.), *Social advantage and disadvantage* (pp. 85–111). Oxford: Oxford University Press.
- Strohschein, L. (2007). Challenging the presumption of diminished capacity to parent: Does divorce really change parenting practices? *Family Relations*, 56(4), 358–368. <https://doi.org/10.1111/j.1741-3729.2007.00465.x>.
- Tavares, L. P., & Aassve, A. (2013). Psychological distress of marital and cohabitation breakups. *Social Science Research*, 42(6), 1599–1611. <https://doi.org/10.1016/j.ssresearch.2013.07.008>.
- University of London Institute of Education Centre for Longitudinal Studies. (2012a). *Millennium Cohort study: First survey, 2001–2003 [computer file]* (10th ed.). Colchester: UK Data Archive [distributor], August 2012. SN: 4683.
- University of London Institute of Education Centre for Longitudinal Studies. (2012b). *Millennium Cohort study: Fourth survey, 2008 [computer file]* (3rd ed.). Colchester: UK Data Archive [distributor], August 2012. SN: 6411.
- University of London Institute of Education Centre for Longitudinal Studies. (2012c). *Millennium Cohort study: Second survey, 2003–2005 [computer file]* (7th ed.). Colchester: UK Data Archive [distributor], August 2012. SN: 5350.
- University of London Institute of Education Centre for Longitudinal Studies. (2012d). *Millennium Cohort study: Third survey, 2006 [computer file]* (5th ed.). Colchester: UK Data Archive [distributor], August 2012. SN: 5795.
- Wade, T. J., & Pevalin, D. J. (2004). Marital transitions and mental health. *Journal of Health and Social Behavior*, 45(2), 155–170. <https://doi.org/10.1177/002214650404500203>.
- Wall, G. (2010). Mothers' experience with intensive parenting and brain development discourse. *Women's Studies International Forum*, 33(3), 253–263. <https://doi.org/10.1016/j.wsif.2010.02.019>.
- Wallerstein, J. S., & Kelly, J. B. (1980). *Surviving the breakup: How children and parents cope with divorce*. New York: Basic books.
- Wilson, K. R., & Prior, M. R. (2010). Father involvement: The importance of paternal solo care. *Early Child Development and Care*, 180(10), 1391–1405. <https://doi.org/10.1080/03004430903172335>.

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