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The socio-emotional effects of non-maternal childcare on children in the USA: a critical review of recent studies

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This paper provides a review of studies published between 1998 and 2006 that have evaluated the relationship between non-maternal childcare and children’s social-behavioral adjustment. Recent studies have focused on how the factors of non-maternal childcare quantity, quality, type and timing interact with factors of family background and child characteristics to affect various indicators of social-behavioral adjustment. Findings indicate that average weekly hours of non-maternal childcare is the strongest and most consistent childcare predictor of social-behavioral outcomes. Entry into childcare during the first year and extensive non-maternal childcare throughout early childhood predicts less social competence and cooperation, more problem behaviors, negative mood, aggression and conflict. When family background factors are also considered, maternal sensitivity is the most consistent predictor of social-behavioral adjustment. New theoretical frameworks and methodologies are needed to explore the mechanisms through which early, extensive non-maternal childcare negatively affects social outcomes.

Keywords: Childcare; Social-emotional development; Maternal employment; Childcare quantity; Maternal sensitivity; Childcare research methods

Dramatic changes in childrearing during recent decades have spurred interest in the effects of early non-maternal childcare on children’s socio-emotional development. Some have hypothesized that non-maternal childcare will negatively affect socio-emotional development, regardless of the quality of the care. Others have hypothesized that non-maternal childcare will have little or no effect, and may positively affect development if high in quality. This 30-year debate has resulted in a plethora of research studies evaluating how childcare interacts with factors of family background and child characteristics to impact socio-emotional development. These studies have

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focused on two dimensions of socio-emotional development: children’s relationship and attachment to their parents, and children’s social-behavioral adjustment, indicated in social competence, compliance, behavior problems, peer interaction and self-esteem.

The purpose of this paper is to review childcare studies of social-behavioral adjustment published between 1998 and 2006, in order to summarize and critique current understandings about the effects of non-maternal childcare in the United States. This period of childcare research, which includes the large-scale NICHD Study of Early Child Care (SECC) has been the most important and conclusive. All of the NICHD-SECC publications evaluating social-behavioral adjustment, as well as peer-reviewed, published studies with a similar focus from 1998 to 2006 listed in PsychInfo and the Family Studies Database were included in this review. The review did not include literature reviews, dissertations, meta-analyses, essays and book chapters. This resulted in a total of 15 studies, ten from the NICHD Study of Early Child Care, and five using other datasets.

All 15 studies directly or indirectly evaluated how the average hours of childcare experienced in infancy and the toddler years predicted social-behavioral adjustment in later ages. Three of the studies indirectly evaluated non-maternal childcare by analyzing data on early maternal employment and child development (Harvey, 1999; Han et al., 2001; Hill et al., 2005). All but one of the 15 studies evaluated whether the child’s age at entry into childcare uniquely predicted social-behavioral adjustment during the toddler, preschool and early school years. Stability of childcare, or the number of different childcare settings a child experienced during a period of time, was evaluated in three of the studies. Using a longitudinal framework, all 15 studies evaluated how the effects of childcare endure over time, how they affect or are affected by later experiences, whether the effects are latent and then appear at a future point and how changes in childcare may affect outcomes more strongly at particular ages.

A review of the findings and methodological approaches of these studies will facilitate development of a framework for conceptualizing the interrelated nature of family and childcare effects on social-behavioral adjustment for children, and illuminate what is needed to better understand the relationships among these factors. This can then be used to guide future research, pushing the field toward better understanding of how children’s development emerges within a complex interplay of family factors, child characteristics and the childcare. The first section in this review presents the findings from these 15 studies. This is followed by a critique of the methodological approaches including theoretical frameworks, research questions, measures, research designs and samples. The conclusion considers the implications of these findings and what is needed, theoretically and methodologically, to develop further understanding of the effects of non-maternal child care children’s development.

Overview of the findings

Findings from the 15 studies in this review provide the most complete picture of what is currently known about the effects of childcare on children’s social-behavioral
adjustment. Effects of the child care factors of quantity, quality and type will be discussed first, followed by a discussion of the effects of the interactions among these factors on social-behavioral adjustment.

**Quantity of childcare**

Considering all of the studies, quantity of non-maternal childcare, indicated by average hours per week, was the most significant and consistent childcare predictor of social-behavioral adjustment (negative) for outcomes across all ages. Most of these findings emerged from the NICHD-SECC studies. More hours of care in the first two years predicted less mother-reported social competence and cooperation, and more caregiver-reported problems. At 36 months, these negative effects seemed to disappear. But in the 54-month assessments, more hours per week in non-maternal childcare predicted lower caregiver- and mother-reported social competence, higher caregiver-reported externalizing problems, more adult–child conflict reported by caregivers and more negative dyadic play after controlling for maternal education, family income–needs ratio, child sex, infant temperament, ethnic group and maternal depressive symptoms (NICHD, 2003a). In the kindergarten assessments more hours per week in childcare predicted more externalizing behaviors in mother and teacher reports, and more adult–child conflict reported by teachers (NICHD, 2003a). Belsky’s (1999) evaluation of 5-year-old children showed that more hours in childcare predicted more mother- and father-reported externalizing problems, as well as inappropriate social problem-solving, preference for negative stories and more hostile attributions in hypothetical situations.

There was no indication of a noticeably greater effect on problem behaviors after a certain number of childcare hours; rather, the effect seemed to reflect continuous, extensive care (NICHD, 2003a). As quantity increased, problem behaviors such as neediness (demands a lot of attention, demands must be met immediately, easily jealous), assertiveness (bragging/boasting, argues a lot), disobedience/defiance (talks out of turn, disobedient at school, defiant, talks back to staff, disrupts school discipline) and aggression (gets into many fights, cruelty/bullying/meanness, physically attacks others, destroys things) proportionally increased (Belsky, 2001). Caregiver and teacher behavioral assessments indicated that these behaviors were not reflecting assertiveness; rather, the behaviors were more aggressive, disobedient and negative.

The significant associations of quantity and negative behaviors were much stronger for caregiver-reported behavioral problems (partial correlation = 0.37) than for mother-reported problems (partial correlation = 0.07). When behavior reports from the mothers, caregivers and observers were evaluated together, maternal sensitivity emerged as a stronger and more consistent predictor of behavioral outcomes than quantity (NICHD, 2003a). But quantity of childcare was a stronger predictor than maternal sensitivity in caregiver reports of behavior problems, with an effect size 152% as large ($d = 0.38$) as the effect of parental quality ($d = 0.25$) which included parental sensitivity and quality of home environment (NICHD, 2002a).
Effects of average hours of childcare \( (d = 0.43) \) were comparable to the effects of poverty \( (d = 0.47) \) on caregiver behavior reports (NICHD, 2002a). Where 5% of children who averaged under 10 hours/week of non-maternal care across the first 54 months had higher externalizing problem scores, 16% of children who averaged 30 or more hours per week across the first 54 months had higher problem scores, a difference three times as large. In kindergarten the comparative rates were 9% and 17% for these two groups (Belsky, 2001). Family economic status, maternal education, quality of non-maternal childcare or caregiver familiarity with the child did not moderate these effects (NICHD, 2003a).

**Age of entry**

The child’s age of entry into childcare is a factor that is closely associated with quantity of childcare, but the effect of non-maternal childcare during the first year of life was specifically isolated in four studies (Harvey, 1999; Han et al., 2001; Youngblade, 2003; Hill et al., 2005). Han et al. (2001) found that entry into non-maternal childcare in the first year, especially early in the first year, significantly predicted externalizing problems at age 4 and, again, at ages 7 and 8. Harvey (1999) also used data from the National Longitudinal Survey of Youth (NLSY) and did not find significant negative effects, but unlike Han et al. (2001), did not follow the same children over time. Harvey also pooled ethnic groups in her analysis, while Han et al. (2001), analyzed non-Hispanic white and African-American children separately. When Han et al. (2001) pooled the three racial groups, they also found much weaker links between maternal employment in the child’s first year and negative social-behavioral adjustment. Hill et al. (2005) addressed the issues of selection bias and missing data in the previous studies using the NLSY through more sophisticated analyses, including propensity score matching and multiple imputation. Their results continued to show significant negative associations between maternal employment in the first year and increased externalizing behavioral problems for children ages 5–6 and 7–8.

Youngblade (2003) found significantly more negative behaviors and peer ratings for 3rd- and 4th-grade children whose mothers had been employed for at least 10 hours/week during their first year. These children were more likely to act out and demonstrate less frustration tolerance according to teacher reports, and to be ‘nominated by peers for hitting and being mean’ in peer reports (Youngblade, 2003). For this sample, the effect size for first-year employment on negative social-behavioral adjustment \( (R^2 = 0.06) \) was comparable to or larger than the effect sizes of gender \( (R^2 = 0.03, 0.10) \) and social class \( (R^2 = 0.05) \).

The NICHD-SECC studies compared the effects of average hours per week in specific periods during the first 4.5 years of life and found that cumulative quantity of care beginning in the first six months best predicted lower levels of social and behavioral functioning across all assessments. And these effects remained even after controlling for multiple family background factors including maternal sensitivity and family socio-economic status, and the childcare factors of quality and stability.
Socio-emotional effects of non-maternal childcare (NICHD, 2003a). More time spent in non-maternal care during the earliest period, from 3 to 6 months, however, had the same predictive power as average quantity of care from 3 to 54 months for teacher-reported externalizing problems (NICHD, 2003a). Similarly, more time in childcare during the third year (also accounting for time in care before and after) predicted more caregiver-reported externalizing problems and less caregiver-reported social competence at 54 months (NICHD, 2003b).

**Quality of childcare**

Quality of childcare, which was only evaluated in the NICHD-SECC studies, was the most consistent predictor of compliance and problem behaviors in assessments for children at 24 and 36 months. But effects from the full set of childcare predictors at these ages never accounted for more than 3% of the variance in outcomes. Across all ages, quality was less predictive of social-behavioral adjustment than quantity of childcare (−), maternal sensitivity (+) or home quality (+). Unlike the cumulative effects of quantity of non-maternal child care, there was no evidence that more time in higher-quality childcare through the first 15, 24, 36 or 54 months resulted in better social-behavioral adjustment than less time in high-quality childcare (Belsky, 2001).

Quality of care, especially as indicated by child–staff ratio, did predict fewer behavior problems and more positive social behaviors for children at 54 months (NICHD, 2003c). Children from socio-economically at-risk families showed slightly fewer behavioral problems at 24 and 36 months when they were in higher-quality childcare (NICHD, 2000). And children from minority families and non-partnered mothers in high-quality care were also more prosocial than children in low-quality care (NICHD, 2000). But the effects of high-quality care were not sufficiently strong to demonstrate consistent, significant benefits. Indeed, ‘contrary to expectations, limited evidence was found to suggest childcare experiences moderate the negative associations between family risk and child outcomes’ (NICHD, 2000, p. 153). After controlling for family income, child gender and ethnicity and parenting quality, maternal education, depression and partner status, the effect sizes for quality of non-maternal childcare were at the low end of the moderate range, from 0.19 to 0.31.

**Type of childcare**

In the NICHD evaluation comparing the effects of types of childcare on social-behavioral adjustment, cumulative group care, defined as a childcare setting with three or more non-siblings, predicted less negativity in mother–child interactions at 24 and 36 months, but more negative behavior problems at 54 months, even after controlling for previous quantity of quality of childcare (NICHD, 2004). Being in group day-care before 12 months of age was also associated with more mother-reported behavior problems at age 3 (NICHD, 2003a).
Instability in childcare

Changes in childcare settings also predicted negative social-behavioral adjustment. In the NICHD-SECC multiple changes across the first three years predicted more mother-reported problem behaviors and observer-reported non-compliance at 36 months (NICHD, 1998a, 1998b). Similarly, Youngblade (2003) found that the negative effects associated with early maternal employment were partially attributable to the number of different childcare settings experienced in the first year.

Child characteristics: race, gender and temperament

Race emerged as a significant predictor of social-behavioral adjustment in the Han et al. (2001) study, using the NLSY sample. Compared to non-Hispanic white children, early maternal employment did not significantly predict negative behavior outcomes for African-American children. Gender predicted social-behavioral outcomes in Youngblade’s (2003) study of 3rd- and 4th-grade students. Boys whose mothers had been employed in the first year of their lives were more likely to be rated by teachers as acting out. The NICHD study of 1st-grade behaviors also found that teachers reported more conflict and less closeness with boys (NICHD, 2003). The NLSY studies, however, did not find significant effects related to gender (Harvey, 1999; Han et al., 2001).

Interactions among home, child and childcare factors

In the NICHD-SECC and Belsky (1999) studies, which evaluated parental sensitivity, maternal sensitivity was the strongest and most consistent predictor of social-behavioral adjustment from infancy through 1st-grade assessments. Sensitive mothering, throughout early childhood, significantly predicted fewer mother-reported behavior problems, more positive peer relationships, more positive mother-child interactions in laboratory assessments, less negative mood, more ability to resist temptation at age 3, and fewer caregiver-reported problems and peer aggression (NICHD, 1998a, 1998b, 2001, 2002a, 2002b, 2003c). Belsky (1999) found that paternal and maternal sensitivity mediated the effects of quantity on behavior problems, although sensitivity did not mediate the negative effects of quantity on other measures of social-behavioral adjustment.

Belsky (1999) also found that more hours in childcare predicted decreased paternal and maternal sensitivity. This finding confirmed a previous NICHD study demonstrating that when children spent more hours in childcare, their mothers were less sensitive in interactions at 6, 15, 24 and 36 months. These same children showed less positive engagement with their mothers at 15, 24 and 36 months (NICHD, 2003b). These studies confirm the importance and continued need to look at the effects of childcare on the family system as well as the child.

Maternal psychosocial well-being, a factor related to maternal sensitivity, also significantly predicted socio-emotional adjustment throughout infancy and early
childhood (NICHD, 1998a). Across all ages, higher levels of maternal depression, lower maternal personality scores of extraversion and positive attitude and higher neuroticism predicted poorer cognitive and social functioning. This relationship was somewhat stronger for children who were cared for primarily by their mothers (NICHD, 1998b). Less family social support increased parenting stress, and decreased marital quality had the same effects (NICHD, 2000). Higher socio-economic risk specifically predicted higher caregiver reports of behavioral problems, and lower maternal reports of social competence (NICHD, 2000; NICHD, 1998a).

Closely related to these factors is maternal marital status, which also predicted children’s social-behavioral outcomes. Children from married and cohabiting mothers had higher (although non-significant) prosocial behavior and language outcomes in the NICHD sample than children of single mothers. But the relationship between marital status and child functioning was larger for the children in the full-time care of their mothers. Having a single mother was a stronger predictor of poorer social-behavioral adjustment for children cared for by their mothers, and having a married mother was a stronger predictor of better adjustment for children primarily cared for by their mothers (NICHD, 1998b).

Maternal attitudes toward maternal employment and childrearing also predicted social-behavioral adjustment. Working mothers who perceived more costs associated with maternal employment reported higher levels of negative peer behavior in their children at 36 months (NICHD, 2001). In contrast, children in the full-time care of their mothers who expressed stronger beliefs in the benefits of maternal employment showed more problem behaviors and less social competence (NICHD, 1998b). Non-authoritarian childrearing attitudes, suggesting less coercion and more nurturing practices, predicted more positive social-behavioral adjustment but only for the children in exclusive maternal care (NICHD, 1998b).

Summary

In summary, these findings indicate that more hours per week in non-maternal childcare and entry into non-maternal care in the first year of life are the most consistent and significant childcare predictors of negative social-behavioral adjustment. Group non-maternal childcare and multiple changes in childcare setting are also associated with more negative social-behavioral adjustment, particularly if they occur at younger ages. In contrast, being in higher-quality non-maternal childcare predicts more positive social-behavioral adjustment but with smaller effect sizes than quantity.

When factors of home background, including maternal sensitivity, are considered together with factors of non-maternal childcare, maternal sensitivity is the strongest and most consistent predictor of social-behavioral adjustment in maternal, caregiver, observer and teacher reports. But extensive non-maternal childcare is also associated with decreased parental sensitivity. Mothers’ psychological health, marriage and having positive or negative attitudes about the effects of maternal employment were consistent with using, or not using, non-maternal childcare and also predict children’s social-behavioral adjustment. As expected, socio-economic status,
maternal education and race interact with factors of childcare in their effect on social-behavioral adjustment.

**Review and critique of methodological approaches**

The 15 studies included in this review follow a 20-year history of non-maternal childcare research critiqued for methodological flaws. Many previous studies did not evaluate or control for factors of family background, including maternal sensitivity, or childcare factors such as quality of caregiving or childcare environment. As a result, some researchers hypothesized that the differences in social-behavioral adjustment associated with non-maternal childcare were actually the result of differences in maternal competence or sensitivity, or quality of childcare (Clarke-Stewart, 1989).

The NICHD study addressed many previous flaws through a large, longitudinal design that evaluated and controlled for numerous childcare and background factors. Although not as complete as the NICHD-SECC studies, the five non-NICHD-SECC studies in this review also included more measures and controls. Yet the complexity of interactions among multiple contexts that results in social-behavioral adjustment requires continual refinement and adjustment of methodological approaches. This section provides a critique of the theoretical frameworks, research questions, research designs, sampling issues, measurements and statistical analyses in these studies and their methodological limitations.

**Critique of theoretical frameworks**

A review of the theoretical frameworks reveals a vacuum of theoretical hypotheses for exploring the mechanisms through which separation from the mother and non-maternal childcare affect social development. Belsky (2001) acknowledged this in his call for ‘hard-headed work’ to gain insight into ‘the developmental mechanisms that give rise’ to the behaviors associated with non-maternal childcare. Such hypotheses may be difficult to operationalize in research studies. Recent neuropsychological research on the effects of mother–infant attachment on developing brain structures (Schore, 1994) indicates the importance of collaboration among various developmental perspectives, including biological perspectives to study these processes.

Family theory perspectives are also generally absent although findings indicate that family interaction processes have a profound effect on social-behavioral adjustment (Mistry et al., 2004). Family systems theory provides a framework for evaluating the ways in which children’s social adjustment is affected by the interconnected, relational processes within the family. It also allows a bidirectional evaluation of the mechanisms through which non-maternal childcare both affects and is affected by family processes. The addition of theoretical frameworks for evaluating the mechanisms through which non-maternal childcare affects social-behavioral adjustment and the role of family processes would contribute substantially to understanding the effects of non-maternal childcare.
Critique of research questions

The research questions driving the analyses in these studies lay an important foundation by evaluating the unique and interactive effects of the multiple contexts of development. But none of these questions addresses the mechanisms or processes through which these effects emerge. Further, only one research question evaluated how childcare might affect family processes such as parenting, or family members besides the child. This is important considering that these effects may, in turn, affect social-behavioral adjustment. Fathers seem to be particularly absent, and only Belsky (1999) evaluated how a father’s parenting might both affect and be affected by non-maternal childcare.

Critique of measures

A review of the range and number of measures in these studies illuminates the challenges in comparing findings when different measures are used across studies. Both independent and dependent variables are defined and measured differently. For example, the NICHD-SECC studies used mean hours per week of non-maternal childcare and linear rate of change across time, to evaluate quantity, while four of the five non-NICHD-SECC studies used maternal employment in the first year as the indicator for amount of non-maternal care (Harvey, 1999; Han et al., 2001; Youngblade, 2003; Hill et al., 2005). Further, the five non-NICHD-SECC studies did not evaluate quality of childcare, and were thus unable to consider and control for those effects (Belsky, 1999; Harvey, 1999; Han et al., 2001; Youngblade, 2003).

The same issue arises with regard to family background measures, as several studies did not include a measure of maternal sensitivity (Harvey, 1999; Han et al., 2001; Youngblade, 2003), quality of home environment (Belsky, 1999; Harvey, 1999; Han et al., 2001; Youngblade, 2003) or measures of maternal depression, maternal personality, family social support, life stress, financial stress, marital quality and attitudes towards employment and childrearing (Belsky, 1999; Harvey, 1999; Han et al., 2001; Youngblade, 2003). Further, only Belsky’s (1999) study evaluated how childcare affects parenting for both fathers and mothers. His significant findings demonstrate the need for more consistent, thorough evaluations of family background, including measures of family processes such as parenting and marital interactions.

The evaluation of social-behavioral adjustment is another concern. Although a combination and self-report and observational measures from multiple respondents increases reliability and validity, it is difficult to capture the construct of social-behavioral adjustment. Many of the studies focused on one particular dimension, such as problem behaviors or peer interaction, while other studies looked at many dimensions together, labeling the umbrella term ‘socio-emotional adjustment’, ‘problem behavior/adjustment’ or ‘social outcomes’. Without a clear definition of the construct, or dependent variable, it is difficult to establish if, in fact, the measures have construct validity.
Belsky (1999), for example, used measures to evaluate dimensions not considered in any of the other studies. Some of these measures required children to verbally respond to an assessment tool, and demonstrate social competence in solving hypothetical problems, much like they would do with a cognitive assessment tool. How this captures social-behavioral adjustment differently than merely observing behavior is difficult to determine without a clearer definition of the construct. As non-maternal childcare research includes older children, the issue of what constitutes social-behavioral adjustment and how it may best be measured will take on greater importance.

**Review and critique of research designs**

Longitudinal designs were used in 12 of these 15 studies. Ten used data from the well-funded, collaborative NICHD-SECC studies, which contribute significantly to understanding the effects of non-maternal childcare over time. Longitudinal data is essential in childcare research to identify how multiple childcare contexts interact to affect children in unique ways at varying stages of development. Because developmental effects may not manifest themselves immediately, it is necessary to track development over many years.

The importance of longitudinal designs is demonstrated by comparing findings from the two NLSY studies in this review. Harvey’s (1999) study used a larger sample, but did not follow the same children over time, while Han et al.’s (2001) study analyzed the same group of children over time. Unlike Harvey’s cross-sectional study, Han et al.’s (2001) longitudinal study found significant negative effects for early non-maternal childcare.

More longitudinal research is needed to track the effects of early non-maternal childcare on social development throughout later childhood and into adolescence. The NICHD-SECC studies’ continued evaluation of the original cohort of infants will contribute significantly to understanding how the effects of childcare are experienced from infancy throughout adolescence. Qualitative research could also illuminate how children, parents and caregivers experience non-maternal childcare and the mechanisms through which socio-emotional effects are realized.

**Review and critique of sample size and diversity**

Sample issues have been an important concern throughout the previous three decades of non-maternal childcare research. The multiple and varied assessments needed to track the effects of many contextual factors in social development often meant a smaller sample size. But the 15 studies in this review used larger datasets including the NICHD-SECC and National Longitudinal Survey of Youth (NLSY). Twelve studies had samples of 450 children or more. These relatively large sample sizes were essential to analyze relationships between a wide range of factors and a wide range of outcomes. The studies with smaller samples \((n = 120–170)\) controlled for some extraneous variables by including only middle-class, two-parent families (Belsky, 1999; Youngblade, 2003).
Socio-emotional effects of non-maternal childcare

Use of the large, nationally representative datasets such as the NLSY, however, is limiting because of lack of information about childcare quality, quantity and type. And although the NICHD-SECC studies thoroughly evaluated the childcare context of a large, diverse sample of children, the sample is not nationally representative and, in fact, excluded higher-risk populations. Participants were recruited from hospitals in 10 different sites with a sampling plan to ensure economic, educational and ethnic diversity, but mothers were excluded from participation for the following reasons: under 18 years old; did not speak English; were too ill, were placing their infant for adoption; lived more than an hour’s drive from the lab site; refused to do a phone call with the researchers two weeks later; or lived in a neighborhood deemed unsafe. The sample also disproportionately lost to attrition poor and single-parent families, populations that are known to be at higher risk. Thus, although the sample was large and diverse (1364 families with 24% ethnic minorities, 11% mothers without high school education, 15% single mothers), white non-Hispanic children were overrepresented and mean household income and maternal education were both higher than the US average (NICHD, 2001). The numbers of Hispanic, Asian and Native American children were also too small to allow separate analyses of these subgroups.

Further, the childcare settings that refused to be evaluated for quality disproportionately represented more informal care settings. This prevents obtaining a full evaluation of the quality of childcare in the United States today, particularly the childcare settings common to higher-risk populations. More extensive research is needed on more diverse populations of children, including both higher-risk and minority populations, as well as lower-quality childcare settings.

Implications and conclusion

As presented in this review, these 15 studies provide a great deal of understanding about the effects of childcare on children’s socio-emotional adjustment. The longitudinal and comprehensive assessments used to obtain these findings have set an important standard for future research. But more research is needed to explore other dimensions of the relationship between childcare and social-behavioral adjustment. Theoretical frameworks and methodologies are needed to explore the mechanisms resulting in the negative behaviors associated with extensive non-maternal childcare. Further research is also needed to explore why the effects of childcare quality are so much less significant than the effects of child care quantity and parental sensitivity. Why is it, for example, that the emotional dimensions of mothering are so much more powerful than the emotional dimensions of the child care setting? This would also illuminate important developmental differences between the child’s experience of parent relationships and the caregiver relationships.

The importance of maternal sensitivity in social-behavioral adjustment merits further exploration of how it is developed and why it is impacted by attitudes, education, socio-economic status, marriage and race. Exploring the differences between maternal and paternal sensitivity might also reveal the unique contributions of each relationship on children in non-maternal childcare. As discussed earlier, fathers are
largely absent in childcare research, as are other members of the family besides the child, as well as family processes beyond maternal sensitivity.

Most importantly, an acknowledged limitation of current research is the lack of representation of populations of greatest risk. The most negative outcomes were observed in children with multiple risk factors. The fact that these populations were underrepresented in these samples suggests the need to further explore how their childcare needs differ from other children and how those needs might be addressed.

**Policy implications**

The negative social-behavioral adjustment effects associated with early and extensive non-maternal childcare, and the critical role of family background, particularly maternal sensitivity, also has important implications for policies affecting families in the United States. Although the negative effects found in these studies were not large, like many public health concerns, even low or moderate risks are significantly multiplied by their widespread prevalence. This may merit the development of strategies to reduce the amount of time children spend in non-maternal childcare throughout the earliest years. Such strategies include expanding parental leave and changing benefit packages for part-time employees, enabling more parents to spend more time with their infants and toddlers without risking their employment. Tax policies could also be used to support families rearing infants and young children in ways that might relieve some of the financial burden requiring some to leave their children to the care of others.

These findings also suggest the need to carefully consider the effects of welfare reform policies with work requirements for mothers with infants and young children in the United States. For such families, access to quality childcare becomes a critical concern, as well. Issues of welfare reform are complicated because of the negative developmental effects associated with poverty and welfare, and the possibility that non-maternal childcare may affect children from impoverished families differently than children from higher socio-economic backgrounds (Hill et al., 2005). Income and benefits from paid employment may be a more significant benefit to children than negative outcomes associated with non-maternal childcare. Yet the negative effects associated with early, extensive non-maternal childcare identified in these studies must be an important consideration in determining solutions for such families. This seems especially true considering that the effect size for negative effects due to extensive childcare was comparable to the effect of poverty on caregiver reports of social-behavioral adjustment.

The policies guided by non-maternal childcare research have profound implications for both the population of children today and the future their development will create. Future child care research that is built on what is currently known, and the effective ways through which those findings were obtained, will continue to expand understanding of the social-behavioral development of diverse children in a wide range of childcare settings used. This is essential in order to address appropriately the childcare issues of children and families today.
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