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## Quality, Quantity and Type of Child Care: Effects on Child Development in the USA

Jay Belsky

**Liberales Institut**

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# Quality, Quantity and Type of Child Care: Effects on Child Development in the USA

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## Quality, Quantity and Type of Child Care: Effects on Child Development in the USA

This paper summarises major findings emerging from the largest and most systematic investigation of the developmental effects of nonmaternal child care on children's development ever conducted, the NICHD Study of Early Child Care (SECC). (NICHD stands for the U.S. government agency that funded the research project: The National Institute of Child Health and Human Development.) Thus, its virtual exclusive focus will be on this one investigation that has so far followed more than 1,000 children from 10 communities in the USA from birth through the final years of their primary schooling—around age 11–12 (i.e., 5<sup>th</sup>/6<sup>th</sup> grades) – in order to illuminate the conditions under which, and to the extent possible, the processes by which, early child care experiences enhance and/or undermine children's cognitive, linguistic and socioemotional development. A short history of the NICHD SECC is presented first in order to contextualize this research programme. A general overview of the project's design and methods follows next. With this foundation delineated, a summary of its major findings pertaining to the effects of child care on cognitive-linguistic and socioemotional development is provided. The primary focus will be on the distinctive effects of three different features of the child-care experience: (1) the quality of care (in terms of caregiver attentiveness, warmth and stimulation); (2) the quantity or amount of care (in terms of hours per week across the opening years of life); and the type of care, with special reference to experience in center/group arrangements. Some conclusions are drawn at the close of the chapter.

## A brief History of the NICHD Study of Early Child Care

Two sources of influence functioned to give birth to the NICHD SECC early in the last decade of the 20th century. The first source of influence was the changing context of maternal employment and the consequent usage of child care in the USA. In brief, because more and more children were experiencing more and more child care – of a variety of sorts – at younger and younger ages from the period of the early 1970s through the late 1980s, long-standing questions about the effects of day care and maternal employment on young children became ever more pressing. Ultimately, what changed so much in the USA in the last quarter of the last century was not just the growing proportion of mothers of young children needing to rely upon someone others than themselves to provide regular daily care for their three, four and five year olds, but the timing of mothers return to employment. By the late 1980s, maternal employment in the child's first year of life, indeed in the first six if not three months of the child's life, became a regular experience for millions of American children and families. The fact of the matter is that in the USA the overwhelming majority of mothers who return to employment after having a child do so before their child's first birthday (Bureau of Labor Statistics, 2000; Kamerman, 2000).

But it is difficult to imagine that the U.S. government would have proceeded to initiate the NICHD SECC and end up spending tens of millions of dollars on it were it just these changes in maternal employment and child care usage that were taking place. After all, major changes had occurred by 1980, but the NICHD SECC was not launched until a decade later. In retrospect, it appears that a spark was needed to ignite interest in – and inflame debate about – the effects of such dramatic social change. As it turned out, the author inadvertently and totally unintentionally lit the fuse of what became known, quite rightly, as "the day care wars" (Karen, 1994) in 1986 with the publication of an essay, followed by a series of subsequent papers that called attention to developmental "risks" associated with nonmaternal care, of the kind routinely available in American communities, when initiated in the first year of life, especially when experienced on a full - or near-full-time basis which continued to entry into school (i. e., early, extensive and continuous care) (Belsky, 1986, Belsky & Rovine, 1988; Belsky, 1988; Belsky, 1990). These risks were judged to manifest themselves in the quality of mother-child relations and specifically in higher rates of insecure infant-mother attachment relationships toward the end of the first year of life and in elevated levels of aggression and disobedience when children were 3–8 years old. Important to appreciate is that no claim was ever made that early child care was related to elevated rates of diagnosable conduct disorder or any other definable psychia-

tric or psychological malady, though critics have often cast the author's scholarly observations in just such terms (e.g., Bacharach & Baumeister, 2003).

In response to my initial "at-risk" conclusion about nonmaternal care in the first year of life (Belsky, 1986) and my subsequent refinement of this conclusion to care initiated in the first year for 20 or more hours per week (Belsky, 1988) and then to such high levels of care which continued throughout the toddler and preschool years (Belsky, 1994), my analysis was widely criticized (Clarke Stewart, 1989; Phillips et al., 1987; Thompson, 1988; McGurk, Caplan, Hennessy, & Moss, 1993; Scarr, 1998; see below) and I was even attacked by some for being ideologically opposed to day care and maternal employment. The latter was blatantly ridiculous given my prior work on child care, but was nevertheless widely embraced (and still is).

It was in the context of such dramatic change in maternal employment and child care usage and heated debate about how the on-going social change might affect children's development and, ultimately, the society at large that the idea of the NICHD SECC emerged. In the face of widespread scientific (and ideological) controversy, the government agency which was to fund the study - the NICHD - brought together 10 teams of investigators - The Early Child Care Research Network (ECCRN) - to plan and carry out a single investigation with a common scientific protocol in 10 different research sites. I served as the principal investigator at one such site and have been a collaborating investigator on the project ever since.

## **The NICHD Study of Early Child Care**

Once one looked beyond the emotional and ad hominen character of all-too-much of the response to the empirically-derived observation that care initiated on a full- or near-full-time basis in the first year of life carried developmental risks (Belsky, 1986, 1988, 1990), there were several important observations regarding limitations in the available research evidence that clearly needed addressing. Three figured centrally in designing the NICHD Study and each is discussed in turn before outlining the general design of this unique and massive collaborative enterprise.

## **Problems in Measuring the Parent-Child Relationship**

Critics of Belsky's (1986, 1988, 1990) risk-factor conclusion argued that when it came to examining the effects of early child care on children's socioemotional development - and particularly the child-parent relationship - the standard methodology for doing so was problematic. That some studies linked infant day care

with insecure attachment, Clarke-Stewart (1989) most prominently claimed, may well be an artefact of the Strange Situation (Ainsworth & Wittig, 1969): Because day-care children routinely experience separation from a parent, it should not be presumed that this methodology which relies upon parent-child separation to evoke attachment behavior stresses children with and without day care experience to the same degree. As a result, children who keep a distance from mother in the Strange Situation may do so not because they are insecure-avoidant in their attachment but because they are simply less stressed and more independent than other children. It was because of this possibility that the NICHD SECC sought to determine not just whether early child care proved related to infant-mother attachment security as traditionally measured in the Strange Situation, but whether it also related to patterns of mother-infant interaction considered to reflect the quality of the developing parent-child relationship.

## **Controlling for Selection Effects**

A second concern about available research was its failure to take into account the fact that families which used early child care probably differed in many ways from those which did not, with the same being true of families which used child care for varying amounts of time or which began using child care earlier and later in the child's life. As a result, differences in children's development that might seem attributable to early child care could be an artefact of these pre-existing background differences between families. It was on the basis of this most reasonable proposition that control for background factors or "selection effects" figured so centrally in the design of NICHD SECC. Thus, in all the results pertaining to the effects of child care to be reported, a host of statistical controls have been incorporated, including for differences between families in socioeconomic status, maternal psychological well being, and even the quality of parenting provided by the mother.

## **It's the Quality of Care, Stupid!**

The third and perhaps most important criticism of the existing research was that much of it failed to take into consideration the quality of child care. This lacuna was of critical importance because the mantra of most developmentalists and child care advocates in response to Belsky's (1986, 1988, 1990) observations was – and remains – "it is not the quantity (or timing) of child care/maternal employment that is developmentally significant, but the quality of care" (McGurk et al, 1993; Phillips et al., 1987; Scarr, et al., 1989). That is, the only reason that



lots of time spent in nonmaternal child care beginning in the first year appears at all associated with lower quality parent-child interaction, increased rates of insecure attachment, and/or higher levels of aggression and disobedience was because children experienced low quality child care which went unmeasured in all too much research. In consequence, when it came to designing the NICHD SECC, literally millions of dollars were spent developing and implementing measurements of child care quality. And, just as importantly, measurements of the amount of child care which children experienced and the age at which they began care were obtained so that the quantity and quality of care could be examined separately, additively, and interactively. Also chronicled, of course, was the type of care that children used (see below).

## Research Design Overview

The NICHD SECC is a prospective, longitudinal investigation that began following some 1364 children and their families from the time the child was one month of age. As of this writing, children are 15 years of age, though only data collected through approximately age 11–12 (i.e. 5<sup>th</sup>/6<sup>th</sup> grade) have been analyzed and are thus considered herein. Families were recruited through local hospitals at the 10 research sites; and while efforts were made to insure a diverse sample, it must be acknowledged that the sample, especially after attrition, proved less diverse than would have been ideal and is by no means, nor was it ever designed to be, nationally representative. More than 1,000 children have been followed into their primary school years, though a sample that did not have large numbers of truly poor and/or minority children has even fewer as time goes on.

The major features of the overall study design, which led to it being so expensive, involved the *repeated* measurement of (a) the quality of the child's family rearing environment, (b) the quality of whatever nonmaternal care was provided to the child, and (c) the child's cognitive-linguistic and socioemotional development (see NICHD ECCRN, 2005a, 2006). Multiple measurements of (a) and (b) were obtained when children were 6, 15, 24, 36 and 54 months of age, with child assessments made, typically during laboratory visits, when children were 15, 24, 36, and 54 months, as well as in kindergarten (parent and teacher reports only) and in 1st, 3rd and 5<sup>th</sup> and 6<sup>th</sup> grade.

When it came to measuring the quality of the child's family rearing environment, basic demographic information on the family was obtained (e.g., family composition, marital status), as was that on socioeconomic status (e.g., income, benefits), family functioning (e.g., marital quality, stress), maternal well being (e.g.,

depression), and the quality of mothering (e.g., cognitive stimulation, warmth, discipline), the latter using observational and maternal report methodologies. When it came to measuring the quality of child care, a special observational system was developed that focused on both the broad setting in which the child was being cared (e.g., classroom level) and the individual experience of the child in that setting (e.g., verbally responded to). Children were observed in whatever their primary child care setting was at each of the above-listed ages on two separate occasions for four hours on each occasion. On the basis of complex analyses of behaviour codings and global ratings, an overall index of quality of child care was generated at each age of measurement reflecting the extent to which the child was attended to, warmly and sensitively interacted with, and stimulated cognitively. Other information on the total amount of time children spent in child care and on the type of child care arrangement(s) the child experienced was obtained from maternal reports secured during the course of regular phone calls, if not during face-to-face contacts. Finally, children's cognitive-linguistic and socioemotional development was assessed using age-appropriate methods, sometimes involving standardised cognitive and/or achievement tests and sometimes involving caregiver and teacher reports of child social functioning.

## Summary of major Findings

Given the very large number of publications that the NICHD SECC has produced, to say nothing of the complex nature of child care and child development, there is no simple or singular way to summarize major findings of the study. But rather than organizing them in terms of developmental outcomes (e.g., attachment security, cognitive development, problem behaviour), the reporting to follow is framed primarily in terms of three distinctive and distinguishable, but not unrelated, features of child care: the quality, quantity and type of care which the child experienced. In all cases, effects of child care which are summarized emerge after controlling for an extensive set of family background factors (see above), as well as each of the other parameters of child care under consideration. Thus, when reporting effects of time spent in child care (i.e., quantity), effects of quality and type of care have already been discounted.

By organizing the summary to follow in terms of particular features of child care, a very important take-home message is underscored – and that is that it no longer makes sense, if it ever did, to think in terms of the effects of child care per se. As already noted, child care is a multifaceted phenomenon and, indeed, one of the major goals of the NICHD SECC has always been to move debate and

hopefully discussion beyond the all-too-simplistic question of whether child care is good or bad for children's development.

## The Effects of Child Care Quality

For the most part, the notion that quality of child care would matter to children's development has never really been contested – though there has been discussion about the size of the effects. To this writer's mind, some of the least surprising results emerging from the NICHD SECC would seem to be those which highlight the beneficial effects of more attentive, responsive and stimulating care, at virtually whatever age measured and, conversely, the developmental costs of poorer quality care.

Consider first findings related to the parent-child relationship. Infants were more likely to develop insecure attachment to their mothers when low quality child care coincided with low levels of maternal sensitivity (both measured at 6 and 15 months of age) (NICHD ECCRN, 1997), though this contribution of quality of care to infant-mother attachment security did not replicate when children's attachment security was re-evaluated at 36 months of age (NICHD ECCRN, 2001). When mother-child interaction was repeatedly observed between the period 6–36 months, however, more harmonious patterns of interaction were evident when children experienced higher quality of child care during the period leading up to the time when mother-child interaction was measured (NICHD ECCRN, 1999).

When it came to predicting cognitive-linguistic functioning at ages 15, 24, and 36 months, results were just as anticipated on the basis of a wealth of prior evidence: The more attentive, responsive, and stimulating was the care provided to the child, the better the child's cognitive-linguistic performance at the first two measurement occasions and a measure of school readiness at the third (NICHD ECCRN, 2000). The same general – and anticipated – effect of good quality of care emerged when quality of care experienced through 54 months of age was used to forecast cognitive-linguistic functioning as measured at age 4.5 years (NICHD ECCRN, 2002a, 2003a, 2006). Higher quality child care continued to be linked with higher scores on standardized tests of math and reading achievement and of memory through third grade (NICHD ECCRN, 2005b), though these effects dissipated and even disappeared by the time children were in 5<sup>th</sup> grade. By this point in time, around age 11, the only detectable effect of quality of child care was on vocabulary scores (Belsky, Vandell, Burchinal, Clarke-Stewart, McCartney, Owen and the ECCRN, 2007).

When it came to predicting mother- and caregiver-reported problem behaviour and social competence at ages 24 and 36 months, there was clear and consistent evidence of the benefits of better quality child care (NICHD ECCRN, 1998). Comparable findings were much less in evidence, however, when the quality of child care experienced through the first 4.5 years of life was used to predict the same outcomes at 54 months of age and in the first year of school (i.e., kindergarten) (NICHD ECCRN, 2002a, 2003b); and by 3<sup>rd</sup> grade beneficial effects of quality of care on social and emotional development were no longer detectable (Belsky et al., 2007; NICHD ECCRN, 2005b).

Consideration of the findings just summarised calls attention to several notable surprises in the data. First, effect sizes in the case of child care quality, as with virtually all child care effects summarized herein, were rather modest, if not small in magnitude (Belsky et al., 2007; NICHD ECCRN, 2002a, 2003b, 2005a, b). Second, virtually no evidence has emerged to support the proposition that the benefits of good quality child care, or the developmental costs of poor quality child care, would be greater for children growing up in the most risky contextual circumstance (i.e., poor, depressed mother) (Belsky et al., 2007; NICHD ECCRN, 2000, 2002a, b, 2003a, b, 2005b). It should not be forgotten, however, that the sample did not include a large number of extremely poor families and suggestive evidence indicated that observers were disproportionately denied access to the poorest quality child care settings. Thus, it is possible – but by no means certain – that the NICHD SECC did not afford a good test of “the compensatory hypothesis” (i.e., that good quality child care could compensate for risky home environments).

A third surprising finding – or better yet, nonfinding – was that no evidence has emerged showing that more time spent in high quality care carries greater developmental benefit than less time spent in high quality care; or, conversely, that more time spent in low-quality care is related to poorer child functioning than less time spent in low-quality care (NICHD ECCRN, 2003a). In other words, the NICHD SECC has virtually never detected evidence that quantity of care moderated the detected effects of quality of care (or vice versa). Why this should be remains completely unclear, though it raises the prospect that limited doses of good quality care may carry the same developmental benefits of far greater doses. Evidence such as this has even raised questions among the collaborating NICD SECC investigators as to whether child care quality is actually exerting a truly causal influence on children’s development, as is so routinely supposed (NICHD ECCRN, 2003a).

## The Effects of Quantity of Child Care

Some children start routine, nonmaternal care virtually from the beginning of their life and others not until they are three or four, if at all. Moreover, some are in care on a full-time basis, whereas others experience care on only a part-time basis. What this means is that by the time they are one, three or even five years of age, children vary immensely in the total amount of time that they have spent in nonmaternal care arrangements. Initially, Belsky (1986) drew attention to risks associated with beginning care in the first year of life; subsequently, he highlighted risks associated with spending more than 20 hours per week in care beginning in the first year (Belsky, 1988); and somewhat later, as more evidence became available, developmental risk was hypothesized to be associated with care initiated in the first year, for 20 or more hours per week, which continued at such high levels until the child entered school (i. e., early, extensive, and continuous care) (Belsky, 1994, 2001). However risk was defined, Belsky (1986, 1988, 1990, 2001) made clear that it always had to do with the parent-child relationship early in life and with levels of aggression and disobedience somewhat later (but not diagnosable psychopathology). What seems noteworthy, then, is that after overcoming the core limitations of past work, the NICHD SECC finds quantity of time spent in child care to be systematically related to indices of the parent-child relationship and socioemotional adjustment in ways that are more consistent with what Belsky (1986, 1988, 1990) propositioned than what his critics asserted (i. e., "it's quality, stupid").

Consider first evidence pertaining to the parent-child relationship. Although more time in care in the first year did not in and of itself predict increased risk of insecure infant-mother attachment, amount of time in care did operate in ways not inconsistent with Belsky's (1986) original "risk-factor" conclusion; that is, it was in interaction with other sources of risk – and specifically low levels of maternal sensitivity – that time spent in care proved predictive of attachment security: When mothers evinced low levels of sensitivity in interacting with their infants (at 6 and 15 months) *and* averaged more than just 10 hours per week of care during the period 3–15 months (i. e., even less than 20 hours), infants were more likely to develop insecure attachments to their mothers than would otherwise have been expected (NICHD ECCRN, 1997). Notably, this finding re-emerged when the Strange Situation was readministered at 36 months of age (NICHD ECCRN, 2001).

When the focus of investigation turned to observed patterns of mother-child interaction, more time in care across the period 6–36 months predicted less

harmonious behaviour (NICHD ECCRN, 1999), with the same being true when dyads were followed up at age 54 months and in first grade (even if to a lesser extent) in the case of Caucasian children (NICHD ECCRN, 2003c). These results pertaining to mother-child interaction are particularly important because some collaborating investigators worried about the validity of using the Strange Situation with children with extensive child care experience insisted that the most revealing way to investigate child care effects on parent-child relationships would be to just observe how mothers interacted with their children.

In addition to predicting less harmonious patterns of mother-child interaction in the NICHD SECC, more time spent in nonmaternal care also proved predictive of (somewhat) elevated levels of problem behaviour involving aggression and disobedience. When this possibility was first examined at ages 2 and 3, the results were decidedly mixed (NICHD ECCRN, 1998). Even though 2-year-olds who spent more time in nonmaternal care (of any kind) across their first 24 months were reported by their mothers to be less cooperative and by their caregivers to exhibit more behaviour problems, by the time children were 3 years of age, no significant effects of amount of child care experience could be detected. Results changed, though, at age of 4.5 years (NICHD ECCRN, 2003b): More time in care across the first 4.5 years of life forecast higher levels of problem behaviour reported by caregivers. And, by the time children were in kindergarten, more time in care predicted higher levels of externalising problems as reported by mothers and teachers alike. Just as important was the fact that across all raters, more time in care predicted high externalising scores, that is, scores one or more standard deviations above the mean (NICHD ECCRN, 2003b).

Two other features of the NICHD SECC results are notable. First, no quantity threshold could be detected at which more vs. less care had a noticeably greater or lesser impact on problem behaviour. Thus, the relation between dosage of nonmaternal care and externalising problems reflected a constant dose-response relationship: As quantity of care increased, so did problem behaviour. Second, subscale-level analyses revealed that it was not just the case, as Clarke-Stewart (1989) propositioned, that children with extensive child care histories were simply more independent and assertive than other children (and thus mistakenly judged to be aggressive and disobedient). Rather, more time in nonmaternal care across the first 4.5 years of life predicted higher levels of assertiveness (e.g., talks too much, bragging/boasting, argues a lot), disobedience/defiance (e.g., talks out of turn, disobedient at school, defiant-talks back to staff, disrupts school discipline), and aggression (e.g., gets into many fights, cruelty-bullying-meanness, physically attacks others, destroys own things) (NICHD ECCRN, 2003b).

At the very least, then, the findings from the NICHD SECC (and others) pertaining to lots of time spent in nonmaternal care through entry into school proved not inconsistent with Belsky's (1986, 1988, 1990) original risk-factor conclusion. Worth noting, too, is that all the results just summarized held across the sample, as factors like family economic status, marital status, and maternal education did not moderate the effect of quantity of child care through kindergarten age on caregiver-reported behaviour problems. Neither, as could be inferred from the preceding discussion, did quality of care moderate this effect.

Continued follow up of the NICHD-SECC sample revealed that the seemingly adverse effects of lots of time spent in any kind of child care on externalizing problem behaviour – evident at ages 2 (but not 3), 54 months and in kindergarten and 1st grade – were no longer evident by the time children were in 3rd grade, around eight years of age (Belsky et al., 2007, NICHD ECCRN, 2005b). It did, however, predict poorer academic work habits and less social competence, each evaluated by teachers, though these effects also disappeared by the time children were in 6<sup>th</sup> grade (Belsky et al., 2007).

Two factors seem to account for the disappearance by age 8-9 (i.e., 3<sup>rd</sup> grade) of the effect of quantity of care on externalizing problems. The first is that it appears, as will be made clear below, that the effect of lots of time spent in any kind of nonmaternal care across the first 4.5 years of life on problem behaviour was primarily a function of exposure to center- or group-based care (Belsky et al., 2007). Second, evidence shows that, over time, children with limited child care histories (of any kind) tended to "track" the problem behaviour levels of those with extensive child care histories, suggesting that a process of behavioural contagion might be operative, one which would attenuate differences between groups of children with more and less child care experience as the effect on the former spread. Just such spreading of child care effects involving problem behaviour to those with limited or no child care experience has just been documented in another child care study (Dmitrieva, Steinberg & Belsky, in press), confirming speculation first advanced by Belsky (2001) and subsequently entertained by the NICHD ECCRN (2006).

## The Effect of Type of Care

One of the complications of tracking children's child care experience across their entire pre-school life, that is, from birth to school entry, is that many changes take place in the arrangements made to care for children. In terms of operationalizing the measurement of this complexity with respect to type of child care,

the NICHD SECC explored a variety of strategies. In this report, the focus is upon the number (or proportion) of measurement occasions that a child's primary child care arrangement was a center, a child care home (defined as care provided by a non-relative in a home other than the study child's home, with at least one other child present), and a home-based arrangement provided by a relative (father, grandparent, or other adult relative) in the child's or someone else's home. A measurement occasion was defined as a series of contiguous 3 or 4 month intervals between the ages of 1 and 54 months. As it turned out, these simple measurements proved predictive of cognitive-linguistic and socioemotional development (after taking into account observed quality of care, amount of time spent in all child care arrangements, and family background factors).

When children were in child care homes on more occasions through two years of age, they manifest somewhat enhanced cognitive-linguistic performance during testing at 24 months; and when they were in such arrangements on more occasions through 36 months, they evinced greater verbal comprehension (NICHD ECCRN, 2000). Thereafter, however, significant effects of exposure to child care homes were no longer evident. That is, time spent in home-based care failed to predict children's development beyond age three; at no age did exposure to relative care prove predictive (NICHD ECCRN, 2004).

Center-experience, in contrast, had seemingly farther reaching developmental consequences – of both a positive and negative nature. Evidence of the benefits of exposure to center-based care emerged as early as 15 months of age, with more experience in centers predicting greater (mother-reported) language development (NICHD ECCRN, 2000), and remained evident just prior to school entry (NICHD ECCRN, 2002a). That is, more exposure to center-based care continued to predict – in a positive manner – language-specific outcomes and general cognitive development and achievement on a variety of measures at 24 months, 36 months, and 54 months (NICHD ECCRN, 2000, 2002a, 2004). By 3<sup>rd</sup> grade, center-care exposure only predicted enhanced memory, however, no longer enhanced academic achievement (Belsky et al., 2007; NICHD ECCRN, 2005b).

As already noted, the effects of center-based experience did not seem entirely beneficial or even benign. The more ages of measurement that children were in centers, the more externalizing problems and conflict with adults they had in child care at 54 months and in kindergarten according to caregivers and teachers, respectively (NICHD Early Child Care Research Network, 2003b, 2004) and this remained true through the end of the primary grades, around age 12 (Belsky et al., 2007; NICHD ECCRN, 2005b). In other words, the more time children spent in centers from 3–54 months of age, net of effects of other child care factors and



family background factors, the more cognitively and linguistically advanced they were through 3<sup>rd</sup> grade on some measure *and* the more they manifest aggressive and disobedient behaviour through 6<sup>th</sup> grade.

## Conclusion

In one report by the NICHD ECCRN (2002a, p. 1621), it was concluded that early child care across the period from birth to 4.5 years is "associated with both developmental risks and developmental benefits for children's functioning prior to school entry, even after controlling for a host of factors including gender, ethnicity, family socioeconomic status, maternal psychological adjustment, and parenting quality." As we have seen, the risks are that more hours in (any kind of) child care across the first 4½ years of life and, independently, the more time in child care centers, the higher the levels of problem behaviour. The benefit is that higher quality child care and more experience in centers predicts better cognitive and linguistic functioning. Furthermore, these effects emerge when other aspects of child care are themselves taken into account (i. e., statistically controlled).

It is rather important, given the fact that all these results derive from an investigation of child care in the USA, that a large scale study of more than 3,000 children in England, known as the EPPE Study (Effective Provision of Preschool Education), has yielded remarkably similar results (Melhuish and associates, 2001a; Sammons & associates, 2002, 2003). In this work, children were recruited not from hospitals during the newborn period, but from various family and community-based child care arrangements when three years of age. Detailed child care histories were obtained and careful observational assessments of child care quality were conducted repeatedly over time. As in the NICHD SECC, higher quality child care proved predictive of enhanced cognitive-linguistic functioning. In addition, moderate to high levels of center-based care in the first two years were associated with increased anti-social behaviour. Similar results also emerged in a parallel study of over 800 children in Northern Ireland (Melhuish and associates, 2001b; Melhuish and associates, 2002a, b). As in the case of the NICHD SECC, these British findings emerged after stringent statistical control for a wide range of child, family and demographic factors. All this is not to say that similar results would emerge if similar large-scale studies were carried out in other Western nations, only that it would be a mistake to conclude that the NICHD-SECC findings summarized herein are narrowly restricted to the American scene.

Whether one considers the results of the large-scale American or British investigations, it should be clear that focusing upon just a single feature of child care

or drawing sweeping conclusions about child care in general, be they highlighting benefits or risks, is unwarranted. In the same way, then, that it is misleading to focus upon a single aspect of the elephant, according to the Indian folk tale, if one wants to understand the elephant, a focus on a single aspect of child care fails to fully represent child care effects on young children.

It would seem, further, that the NICHD SECC and the EPPE Study have produced a variety of interesting findings about child care effects. What will be most noteworthy to many given pre-existing points of view, is that as so long asserted – and repeatedly found – the quality of child care does seem to matter for children's development, especially their cognitive-linguistic development. Also noteworthy, even if less welcomed, is evidence showing that children who spend more time in nonmaternal care through their infancy, toddler and preschool years, at least of the kind routinely available in American communities, experience somewhat less harmonious mother-child relationships through their first three years (and beyond if Caucasian) and start school being somewhat more aggressive and disobedient than children with less nonmaternal care experience; and that these disconcerting effects are simply not attributable to poor quality child care and seem more likely and long lasting when children experience center-based care early in life. Particularly provocative, perhaps, is the evidence suggesting that extended exposure to centers fosters both cognitive-linguistic development, in view of its documented and seemingly negative effects on social behavior.

Beyond these child care effects, it is easy to overlook perhaps even more important findings that emerged from the NICHD SECC. And those are the ones showing that family factors and processes were typically more predictive of child functioning than the features of child care around which this summary of study findings was organized. In other words, it appears that family matters more to children's developmental wellbeing than child care (see also Deater-Deckard et al., 1996), though this result may be as much (if not more) a function of shared genes as pure environmental effects.

These under-emphasized findings with respect to family influences should not be read to suggest that child care does not matter to children's psychological and behavioral development. Even though there remains healthy debate about the size and meaningfulness of virtually all child care effects, it must be remembered that more and more children seem to be spending more and more time at younger and younger ages in nonmaternal care arrangements in the English-speaking, if not Western, world. This means that even small effects, when experienced by many children, may have broad-scale consequences (Belsky, 2001; NICHD ECCRN, 2006). After all, many of the most important risk behaviors from a public health perspec-

tive have low or moderate relative risk but are multiplied in importance because of their wide prevalence and links to problematic outcomes (Jeffrey, 1989). This may be the especially so for early, extensive and continuous nonmaternal care and for low-quality childcare.

Ironically, this state of affairs leads to virtually the very same policy-related conclusions which were drawn more than a decade ago (Belsky, 1990), after first choosing not to draw any in order to keep separate scientific analysis and policy inference (Belsky, 1986, 1988). First, it seems that the data considered should encourage the expansion of parental leave, preferably paid, ideally as lengthy as it is in some Scandinavian countries, or other strategies for reducing the time children spend in non-maternal care across the infant, toddler, and preschool years (e.g., part-time employment), particularly center-based care. Relatedly, tax policies should support families rearing infants and young children in ways that afford parents the freedom to make child-rearing arrangements that they deem best for their child, thereby reducing the economic coercion that necessitates many, at least in the USA and in the UK, to leave the care of their children to others when they would rather not. Finally, given the clear benefits of high-quality child care, its expansion seems called for as well. Of significance is that all of these conclusions could be justified on humanitarian grounds alone.

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