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Toddlers' and Preschoolers' Experience in Family Day Care: Age Differences and Behavioral Correlates

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Abstract

One hundred and twelve children, 56 toddlers and 56 preschoolers, were observed in their family child care settings to determine whether toddlers cared for in settings that also included preschoolers were, relative to the preschoolers, receiving more or less high-quality care and/or whether their functioning at child care appeared to be more or less dependent on aspects of the care providers' interactions with the children. Quality of care was analyzed along two dimensions: Sensitive/ Supportive Care and Structured Care. Four indices of child functioning at child care were examined: integration in social activities, attention, positive mood, and angry/aggressive behavior. Results indicate that toddlers received less sensitive, supportive care than preschoolers in these mixed-age settings and toddlers were less socially integrated and less engaged in activities in the child care setting. Preschoolers displayed increased levels of angry/aggressive behavior relative to toddlers. In addition, associations of care provider behaviors and child functioning were larger for toddlers than preschoolers, suggesting that toddlers were more dependent on caregiver support for more successful functioning in these family child care settings. For both toddlers and preschoolers, care provider behavior and child functioning was generally poorer in settings with more children.

For many young children in the United States, child care has become a normal occurrence of everyday life. Sixty-four percent of children ages 1–2 years and 67% of 3–4 year olds, including 89% of those with employed mothers, are cared for by someone other than their mother on a regular basis (U.S. Bureau of Labor Statistics, 2005). Family child care, the focus of this study, is defined as care by someone other than a relative in his or her home and is a common form of non-parental care for young children. More than 1 out of 10 children under five years of age are regularly cared for in a family child care setting (U.S. Bureau of the Census, 2005). As with other forms of child care in the U.S., the quality of family child care and the education of family child care providers vary widely (NICHD Early Child Care Research Network, 1996, 2000, 2004). One of the first studies to focus exclusively on family child care settings -- The Study of Children in Family Child Care and Relative Care – (Galinksy, Howes, Kontos, & Shinn,1994; Kontos, Howes, Shinn, & Galinsky, 1995) – reported that caregiver sensitivity in regulated family child care homes (the type of care examined in this study) was typically in the low-to- mid-range (an average score of 3.03 on a 7-point scale) on the Family Day Care Environment Rating Scale (Harms & Clifford, 1989). The average number of children per home was 5.39, the caregiver-child ratio averaged a little over 1:4, and most children were in

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mixed-age groups that included both toddlers and preschoolers. About half of the caregivers had some college or an associate degree and the remainder were about equally divided between those with a high school degree or less and those with a BA degree or higher.

The trade-offs that parents face when choosing family child care rather than center-based care are evident. In general, family child care settings offer smaller groups and ratios, and more one-on-one interaction with caregivers than do child care centers (Krauss, 1998; Leu & Osborne, 1990); however they also offer a less highly educated and trained teaching staff, a less stimulating physical environment and fewer educational activities (Clarke-Stewart, Gruber, & Fitzgerald, 1994; Howes & Hamilton, 1993; Kisker, Hofferth, Phillips, & Farquhar, 1991; NICHD ECCRN, 1996, 2000, 2004). The data suggest that parents view these trade-offs differently for younger and older children. Specifically, family child care is more often chosen for infants and toddlers than preschoolers, with enrollments in family child care settings decreasing as children enter the preschool years (Burchinal, Ramey, Reid, & Jaccard, 1995; Early & Burchinal, 2001; Erdwins & Buffardi, 1994; NICHD ECCRN, 2004). Among infants and toddlers of employed mothers, 17% are enrolled in family child care, while 14% of preschoolers use this form of child care (Cappizano, Adams, & Sonenstein, 2000). In contrast, use of center care climbs from 22% of infants and toddlers to 45% of preschoolers (Cappizano et al., 2000). However, it should be noted that center-based care has been reported to be less available for infants and toddlers than for preschoolers (Hofferth, 1992*)*.

When parents choose family child care over center-based care for their younger children, they seem to do so based on the desire for close supervision of their child's safety and ample individual attention and warmth from the child's caregiver (Galinsky et al., 1994). Notably, however, Howes (1983) reported that there were relatively few differences in the quality of care for toddlers in centers and family child care, the only one being that family child care providers ignored toddler requests more often than did center-based providers. Furthermore, while parents may expect that family child care providers will attend more to their younger than older children, results are equivocal on this point. Several studies have shown that toddlers and preschoolers receive care of equal quality (Howes & Stewart, 1987; Kontos, 1994), while only the NICHD Early Child Care Research Network (2004) found that the quality of care children received in family child care settings was better for infants and toddlers than for preschool-aged children.

The experiences of children in child care may depend on the age mix of the group and wide age ranges characterize many family child care homes. While some studies have shown that mixed-age groups foster positive social behavior and complex play in younger children (Bailey, McWilliams, Ware, & Burchinal, 1993; Howes & Farver, 1987), others have found no academic or social benefits for children in mixed- age groups (Blasco, Bailey, & Burchinal, 1993; Veenman, 1995). In contrast, Sundell (2000) found that in child care settings with larger age spans (e.g., 50 months between the oldest and youngest child) children's cognitive and verbal achievements were lower and negative peer-directed behaviors were more common than in settings with smaller age spans. Others have also found an increase in negative interactions among children in mixed-age settings (Bailey et al., 1993; Urberg & Kaplan, 1986). Wide age spans challenge children to adapt their behavior to the social demands of play that may vary considerably from those of their own age group. For toddlers in child care homes that include preschool-aged children, the age mix affords the opportunity to observe and model more sophisticated play, but it may also be difficult for toddlers to integrate themselves into the play themes and actions of older children. Perhaps especially in settings with a larger ratio of preschoolers to toddlers, toddlers might find themselves less integrated in social activities. We examined this possibility in the current study.

Not only can the quality of care provided to children in family child care settings vary based on children's ages, but the factors that contribute to quality can also differ with age (NICHD ECCRN, 1996, 2000). For example, to the extent to which younger children require more attention than older children, group size or the ratio of adults to children may be more critical for younger (in this study, toddler-age) versus older (in this study, preschool-aged) children. In contrast, caregiver training and education may be more important for older than younger children as educational activities become increasingly more important (NICHD ECCRN, 2000); although the available evidence suggests that child-related training and education for providers is equally predictive of positive caregiving for both younger and older children (Galinsky et al., 1994; Howes, 1983; NICHD ECCRN, 1996). This also appears to be the case for the care provider's general educational attainment (Galinsky et al., 1994; however see NICHD ECCRN, 1996).

This broad overview of the literature on family child care settings reveals inconsistencies in the evidence on whether toddlers or preschoolers have higher quality experiences in family child care settings. Some of these inconsistencies may be due to variations in subject selection across studies (i.e. statistically representative samples vs. selected samples). Factors that varied among the studies, including the number of children in the settings, the ratio of toddlers to preschoolers, and the education and training of the child care provider, may account for other inconsistencies. Differences in results may also depend on the aspect of the care provider's behavior that was examined. While both the provider's sensitivity to the individual child's needs and the structure she provides in the care setting are likely to be important for both toddlers and preschoolers, the needs of older children for stimulation that supports cognitive and language development may indicate that structured activities will be more important for them. Accordingly, the present study examined two aspects of care quality: sensitive, supportive care and structured care. In addition, we examined the relations of these quality dimensions to measures of child functioning in mixed-age family child care settings. First, based on the literature just reviewed we examined the hypothesis that preschoolers would receive less sensitive, supportive care than toddlers, but more structured care experiences than toddlers. Second, we explored the strength of associations between caregiver behavior and children's behavior in family child care. We hypothesized that the association between caregiver behavior, specifically the dimension of sensitive, supportive care, and child measures would be stronger among the toddlers than the preschoolers reflecting the preschooler's greater maturity and capacity to function with less caregiver support. If true, then the hypothesized decrease in quality with age might not be particularly consequential. In fact, preschool-age children are expected to benefit (within limits) from learning to share their caregiver's attention and to spend more time interacting with peers, which, in turn, may imply that the caregivers' behavior per se may be part of a broader mix of factors that affect preschoolers' behavior in child care. To assess children's functioning in child care, we examined their engagement in the activities in the setting, their degree of integration in social interactions, evidence of angry/aggressive behavior, and their mood. This focus on social-emotional functioning reflects a growing interest in the field on social and emotional outcomes for children in out of home care (Fabes, Hanish, & Martin, 2003; NICHD ECCRN, 2003; Watamura, Donzella, Alwin, & Gunnar, 2003).

Method

Participants

One hundred and twelve children participated in the study; 56 toddlers (28 female) and 56 preschoolers (28 female). Toddlers ranged in age from 16 to 36 months (*M* age = 25 months, *SD* = .48) and preschoolers ranged in age from 42 to 54 months (*M* age = 45 months, *SD* = .20). The toddlers and preschoolers did not differ in ethnicity, $\chi^2(3) = 3.15$, *ns*. Of the total

participants, 91% were Caucasian American, 4% were African American, 3% were Hispanic American, 1% were Asian American, and 1% were other/unknown. Hours per week in child care ranged from 24 to 50 (M = 42.13, SD = 6.39); toddlers and preschoolers did not differ on average time spent in child care. Forty six percent of the children's parent(s) had a bachelor's degree or higher, while less than 10% had not continued education beyond high school. Most (81%) had family incomes of $51,000 or more, while fewer than 6% had incomes under $25,000 per year. Only 14% of the children lived in single-parent households. None of these characteristics differed between the toddler and preschool groups. This profile indicates that the results from this study are most appropriately generalized to Caucasian children from relatively well-off and well-educated families in full- or close to full-time child care.

Recruitment Procedures

Children were recruited through licensed family child care providers who had responded to solicitations for participation in research mailed directly to them and also placed in the licensing agencies' newsletter. Providers were contacted to determine if they had a child in their care who was enrolled for 20 or more hours per week, at the current setting for at least two months, and between 16 and 36 months (toddler) or 42 to 54 months (preschooler) in age. Toddlers had been at their respective child care settings for an average of 16.89 months (range 2 to 36 months) and preschoolers had been at their child care settings for an average of 28.91 months (range 4–45 months). Eligible providers who agreed to participate approached the parent(s) of the child to request permission to release their contact information. Parents were then contacted to request consent for their child to participate in the study. Of the 467 parents contacted, 61.3% with toddlers and 59% with preschoolers agreed to participate; these rates were not statistically different.

Settings

One hundred-twelve licensed family child care settings, located in a large Midwestern city and its surrounding suburbs, participated in the study; only one child per setting was included. Nearly all (89%) of the sites included children in both the toddler and preschool range. The group size of the participating child care homes ranged from 2 to 14 children with an average of 6 children per site. No significant differences in group size were found based on whether a toddler or preschooler was the target child in the child care setting, $t(110) = -.84$, *ns.* The percentage of toddlers versus preschoolers in each setting also did not differ significantly with the age group of the target child. On average, across the family child care homes studied, 52.8% of the children were toddler-aged and 34.9% were preschool-aged, with a range extending from zero to 83% toddlers. The greater percentage of toddlers than preschoolers in these family child care settings reflects the decreased use of family child care by families of preschoolers described earlier.

Approximately 86% (N = 96) of the homes had only one caregiver. All caregivers were female, with an average age of 43.6 years (range 26 to 64 years) and 12.3 years of experience (range 1 to 32 years). The caregivers of toddler target subjects averaged 45.4 years of age (SD = 8.09) and this was significantly older than the caregivers of preschooler target subjects who averaged 41.8 years (SD = 9.54) years of age, $t(107) = 3.56$, $p < .05$. Of the total caregivers, 29.5% had at least one of their own children under the age of 5 in their child care home and 21.4% had a child of her own between the ages of 6 and 12 years in their child care home. The presence of their own children in the family child care home was not significantly different between the caregivers of our target toddlers and preschoolers.

With regard to education and training, 28% percent of child care providers had a high school diploma, 34% had some college including an associates degree and 38% had a bachelor's degree or higher. Child care providers were asked if they had received any formal training or

taken any coursework in early childhood education, child development, and/or child care. They were then asked to report where this coursework/training was received from a provided list of sources (e.g., high school, college, conference/workshop). Thirty four percent of caregivers reported receiving college-level training in early childhood education (ECE), child development or child care. Neither years of experience nor education differed among care providers as a function of whether the target child was a toddler or preschooler. Finally, 60% of caregivers belonged to a professional child care or early childhood organization and 73% met regularly with other family child care providers for training or as part of a support network. Again, this did not differ as a function of whether the target child was a toddler or preschooler.

Child Care Observation

Children were observed using a modified version of the "Observational Ratings of the Caregiving Environment" (ORCE, version for 24/36 months and 54 months), a standardized instrument developed for rating both home-based and center-based child care in the NICHD sponsored study of early child care (NICHD ECCRN, 1996). Items were selected from these two instruments to reflect caregiver and child behaviors that were appropriate for scoring across a wide age range. For example, the 24 and 36 month ORCE differentiates between caregiver sensitivity to distress and sensitivity to non-distress, while the 54-month ORCE does not. To be more inclusive across a wide age range, the M-ORCE uses the more general 54-month ORCE sensitivity ratings. In contrast, the 24/36-month ORCE has codes for the care provider speaking positively and negatively to the child, while this code is not available on the 54-month ORCE. The M-ORCE contains the more general positive versus negative talk items. In addition, several new codes and ratings were developed to reflect the quality of the child's functioning at child care. Definitions of these codes and ratings are described below, but they included the extent to which the child was integrated into positive social activities or was only on the fringe of social groups and the extent to which the child's attention was engaged in an activity. These codes and ratings were designed to capture more qualitative aspects of the child's actions at child care. Thus, while the 54-month ORCE has codes for boisterous play, cooperative play, neutral interactions and parallel play and the 24/36 month ORCE has codes for mutual pretend play and neutral interactions, none of these provide a measure of whether the child is being accepted into the social makeup of the child care setting or is operating more on the fringe of social groups, although this can be inferred to some extent from some of these codes. These modifications were undertaken in order to use this instrument in work on stress hormone activity and child care experiences. The stress hormone data are not yet available. Appendix A lists the items from the original ORCE that were retained on the modified or M-ORCE, as well as those that were created for the M-ORCE.

Similar to the ORCE instruments from which the M-ORCE was developed, both frequency counts, based on a record of the occurrence or quantity of specific acts, and ratings that capture the quality of caregiver and child behaviors regardless of their frequency were used. The qualitative ratings are based on 4-point scales that range from *not at all characteristic* to *highly characteristic*. New M-ORCE frequency counts include additional aspects of the child's activity context and of types of adult stimulation, assessments of the child's level of social integration (with peers and adults) and of attention/engagement, counts of whether positive and negative peer interactions were directed or received by the target child, and counts of the quality of the child's compliance with adult demands, based on Kochanska's (1997) notion of committed compliance (see Appendix A). New qualitative ratings were also added for differentiating negative mood into angry/irritable, anxious/vigilant, and sad/unhappy and for rating the child's overall sense of social integration in the child care setting.

A subset of the codes and ratings was used for the purpose of this paper. They focused on codes that allowed assessment of caregiver sensitivity and structuring of the environment as these

were dimensions needed for assessing our two hypotheses. Then for child functioning we selected codes that reflected how positively the child was integrated into the social setting, the child's capacity to sustain attention and focus in the setting, the child's engagement in aggressive interactions with peers, and finally positive and negative mood variables. The child codes and ratings were selected to index whether the child appeared to be happily and competently engaged in the child care environment.

The M-ORCE, as with the ORCE (see NICHD ECCRN, 1996, 2000, 2002), is based on a 44-minute observation, divided into four 10-minute observation periods. In the first three 10-min periods, observers alternate between 30-s observe and record frames for coding the frequency counts. At the end of the first two 10-minute period the observer makes brief notes and tentative qualitative ratings for 2 minutes. After the third 10-minute observation period, observers make observations exclusively for the qualitative ratings for the final 10 minutes. Observations were scheduled for a day that the child care providers deemed "typical" for the target child. All observations took place in the morning, starting between 8:30 and 9:30 a.m. and after the children had acclimated to the observers and resumed their normal activities. When observers arrived at the family child care home, caregivers provided the age of each child present. The child care provider was asked to carry on with normal daily activities.

Four observers and one master M-ORCE coder were used in collecting the data. All observers were majoring in child psychology and the master coder had been involved in the development of the coding scheme and the training of the observers. As part of their training on the M-ORCE observers were instructed in developmentally appropriate behaviors for each age group. Training was accomplished using both taped and live sessions until each observer reached reliability with the master M-ORCE coder (a kappa of .80 on the behavioral scales and 80% exact agreement for the qualitative ratings). Reliability was re-assessed periodically with each observer. Thirty-five percent of the observations were double coded by the master coder. These reliability observations were spread evenly amongst the five coders. The average kappa for all behavior codes and raters was .86, and the range for items was .70 to 1.0. Percent agreement for the qualitative items across all coders was 83% for exact agreement and 99.7% for agreement within 1 scale point. In addition, to prevent drift for the master coder, she regularly coded taped sessions that had been coded at the initiation of the project. For these taped sessions, the average kappa for all behavior codes was .94 and percent agreement for the qualitative items was 92% for exact agreement and 100% for agreement within 1 scale point.

Measures

Parent Education and Income—Parents completed a background questionnaire that included measures of income (in 25K increments) and education (less than high school, high school, some college or associates degree, 4-year college degree, education beyond 4-year college degree). When applicable, mother's and father's level of education were averaged to create on family education level. Parents also indicated if they were a single parent.

Family Child Care Setting Characteristics—Child care providers completed background questionnaires that included measures of the provider's general education and college-level training in early childhood education (ECE), age, years providing child care, and whether their own child was among the children receiving care. Observers noted the number and ages of the children present during each observation. Group size and the percentage of toddlers relative to preschoolers were derived from these measures.

Child Care Provider Behaviors—Two composite ratings were used to capture the caregiver's behavior: sensitive/supportive care and structured care. *Sensitive/Supportive Care* was a composite of five caregiver qualitative ratings of behaviors directed toward the

target child: sensitivity and responsiveness, positive regard, intrusive or over-controlling behavior, detachment, and negative regard. The last three ratings were reverse scored and all ratings were standardized before being included in the composite variable (Cronbach's α = .80). *Structured Care* was a composite based on the frequency counts of intervals in which the caregiver was observed to: teach an academic or other skill, teach a social rule, read, tell a story, sing, play game or supervise a project and the amount of time the target child spent in organized group activity (e.g., circle time) during the observation. All variables were individually standardized before being summed (Cronbach's α = .80). The correlation between Sensitive/Supportive and Structured Caregiving was $r = .08$, *ns*. Thus these variables captured unique aspects of the care provider's behavior.

Child variables—Four child variables were examined to describe both quantitative and qualitative aspects of the child's experience in the family child care setting: positive social integration, attention/engagement, positive mood, and angry/aggressive behavior. *Positive Social Integration* was assessed to capture the extent to which the target child was included and involved in social interactions with peers and adults in the family child care home. Three levels of integration were assessed during each 30-second interval and averaged over the 30 intervals of the observation: (1) not integrated or uninvolved in a positive social interaction, (2) mild or intermittent positive social interaction or being on the fringe of a social group, (3) target child fully involved in social interaction and important to the continuation of the interaction. Because of developmental differences in play styles between toddlers and preschoolers, when integration involved play, the scale was adapted such that parallel play, which was scored "1" for preschoolers, was scored "2" for toddlers. Otherwise the scoring of positive social integration was comparable for the two age groups. In addition to the quantitative scores, a qualitative rating for social integration was made at the end of the observation. The quantitative (frequency) and qualitative ratings of positive social integration were highly correlated, $r = .69$, $p < .01$; therefore they were standardized and averaged to yield one measure of *Positive Social Integration*.

Level of *Attention/Engagement* was also assessed during each 30-second observation interval and averaged over the 30 intervals of the observation and coded using a 3-point scale: (1) child not focused or engaged in any activity, (2) child paying minimal attention or mildly engaged in an activity, (3) child is completely engrossed in activity. Because it was anticipated that in multi-aged groups, toddlers would find the activity of older children highly interesting, when toddlers were avidly observing older children's behavior, we permitted this to be scored as a "2" or mildly engaged, while for an older child merely observing others play was scored as a "1" or the lowest level of attention. Note that this may have biased the code against preschool-aged children receiving high scores for attention/engagement. Children were also coded for times when they were watching, wandering or unoccupied (referred to as "Unoccupied"). Children were coded as unoccupied when they were not engaged in any observable activity or interaction with an object, adult or peer. If a child was exploring his/her environment or intently watching an interesting activity (i.e. the caregiver making cookies) then he/she was not coded as unoccupied (note, again, toddlers who were watching other children play were not coded as unoccupied, while the threshold for scoring preschool-aged children as unoccupied if they were merely watching others was lower). Attention/Engagement and Unoccupied were highly negatively correlated, $r = -.84$, $p < .01$, therefore they were standardized and combined to yield one measure of *Attention/Engagement* (unoccupied was reverse scored prior to standardization).

The child variable of *Angry/Aggressive Behavior* was also a composite formed by summing the qualitative rating of angry/irritable mood and the average frequency count of number of aggressive, negative interactions the target child was involved in (either directing or receiving) during the observation. Angry/irritable mood was defined as appearing crabby, whiny, easily

frustrated and/or acting out in such ways as crying or throwing a tantrum, arguing or fighting with adults or other children, and/or yelling at self or others. Aggression was defined so that it included physical, verbal, and relational aggression. Because relational aggression, defined as harming others through manipulation or damage of their peer relationships (Crick & Grotpeter, 1995), is more likely to be observed among preschoolers than toddlers, adding relational aggression to the aggression scoring may have also biased this scale towards higher values for preschool-aged than toddler-aged children. Variables were individually standardized prior to being summed (Cronbach's $\alpha = .74$).

The child variable of *Positive Mood* was derived from the 4-point qualitative ratings of child mood completed at the end of each observation cycle. This composite measure was based on the ratings of positive mood, defined as the child exhibiting positive affect and/or appearing content or satisfied; vigilant/anxious mood, characterized as being watchful, wary, cautious, or on guard; and sad/unhappy mood, defined as appearing gloomy and despondent. The average of the two negative mood ratings (vigilant/anxious and sad/unhappy) was subtracted from the positive mood rating. All variables were standardized prior to combining (Cronbach's $\alpha = .68$).

Results

Preliminary Analyses

Descriptive statistics for the variables that comprise the summary measures analyzed in this report appear in Table 1. Ratings of positive behaviors (e.g. sensitivity, child positive mood) tend to be towards the high end of each rating scale, while negative ratings tend to average near the lower end of each scale. However, for both ratings and quantitative measures, standard deviations tend to reduce concerns about floor or ceiling effects. We also examined relations between child care characteristics and our two summary measures of the child care provider's behavior. Provider's college-level training in early childhood education was modestly associated with structured care, $r = .20$, $n = 112$, $p < .05$, but not with sensitive/supportive care, $r = .02$, $n = 112$, *ns.* No relationship was found between parent's education level and care providers' scores on either structured care, $r = .12$, $n = 112$, *ns*, or sensitive/supportive care, $r = -.01$, $n = 112$, *ns.* Similarly, family income was not associated with either structured care, $r = .13$, $n = 112$, *ns* or sensitive/supportive care, $r = -.10$, $n = 112$, *ns.* Group size was negatively associated with sensitive/supportive care, $r = .-.28$, $n = 112$, $p <. 001$, but not structured care, $r = -.07$, $n = 112$, *ns.* Finally, the percentage of toddlers relative to preschoolers was not significantly associated with either summary measure of care provider behavior, *r's* < .10.

We then examined the relations between family and child care characteristics and child behaviors (see Table 2). Family income, care provider's college level training, and the percentage of toddlers in the child care were not significantly correlated with any of the child behavior measures. Group size was negatively correlated with social integration and positive mood, while parent education was positively correlated with attention/engagement.

Next we examined the inter-correlations among the child measures. These were largely comparable for toddlers and preschoolers. For both age groups, social integration, positive mood, and attention/engagement were positively inter-related. For toddlers these inter-correlations ranged from $r\ (56) = .36$ to $r\ (56) = .64$, *p's* < .05, while for preschoolers they ranged from $r\ (56) = .53$ to $r\ (56) = .64$, *p's* < .05. For preschoolers, angry/aggressive behavior was negatively correlated with positive mood, $r = -.38$, $n = 56$, $p < .01$, while these measures were uncorrelated for toddlers, $r = .03$, $n = 56$, *ns.* The difference in these correlation coefficients between toddlers and preschoolers was significant for the correlation of positive mood with attention/engagement ($z = 1.95$, $p < .05$) and for positive mood with angry/aggressive behavior ($z = 1.90$, $p < .05$). Given the high degree of association among the child

measures, caution is warranted in interpreting the independence of the hierarchical regressions described in this paper.

Primary Analyses

Hypothesis I: Preschoolers will receive less sensitive/supportive care and more structured care than the toddler age group—A multivariate analysis of covariance with group size as the covariate was computed with the two caregiver summary variables as dependent measures and age group as the independent measure. Parent education was not included as a covariate in these analyses as it was uncorrelated with either measure of care provider behavior. To control for possible gender differences, child sex was also included as an independent measure. After controlling for the covariate, a significant multivariate effect of gender was noted, *Hotelling's F* (2,106) = 4.1, $p < .05$, $\eta_p^2 = .07$. Follow-up univariate tests indicate that boys ($M = -.13$, $SD = .78$) received less sensitive/supportive care than did girls ($M = .17$, $SD = .72$). Age group was also significant, *Hotelling's F* (2, 106) = 4.6, $p < .05$, $\eta_p^2 = .07$. Contrary to our hypothesis, univariate tests indicated that toddlers ($M = -.17$, $SD = .73$) received less sensitive/supportive care than did preschoolers ($M = .17$, $SD = .72$); while structured care was not significantly different by age group. There were no significant gender differences for structured care, nor was the multivariate effect of age group by gender significant. Therefore, subsequent analyses did not examine gender by age group interactions, although gender was included among the predictor variables.

Hypothesis II: Child behavior would be less strongly correlated with care provider behaviors among preschoolers compared to toddlers—Hierarchical regressions were computed with child measures as dependent variables. The equations were built to control for family characteristics (Step 1: family income and average parent education), child care characteristics (Step 2: provider's college-level training in early childhood education, group size, and percentage of toddlers relative to preschoolers), and child characteristics (Step 3: child gender and age group of the target child as toddler or preschooler). Having entered these variables, we examined care provider behavior (Step 4: sensitive/supportive care and structured care). Finally, the interaction of child care provider behavior with age group was examined (Step 5: age group by sensitive/supportive care and age group by structured care). The interaction step provided the test of the hypothesis of age group differences in associations between care provider behavior and child behavior; however, if that step was not statistically significant it was removed to stabilize the equations. Table 2 presents the correlations between the predictor variables and the child measures. Table 3 presents the regression statistics. In Table 3, non-significant interaction terms are noted as "NA".

As shown in Table 3, each of the equations was significant, although the interaction step was only significant for positive social integration. Including the interaction step, the final equation for positive social integration accounted for 52% of the variance, $F (11,99) = 9.8$, $p < .001$. Excluding the non-significant interaction step, the final equation accounted for 29% of the variance for attention/engagement, $F (9,101) = 4.47$, $p < .001$, 19% of the variance for angry/aggressive behavior, $F (9,101) = 2.58$, $p < .05$, and 31% of the variance for child positive mood, $F (9,101) = 5.04$, $p < .001$.

Again, as shown in Table 3, the family characteristic step was not significant in any of the equations. Child care characteristics were significantly associated with positive social integration and child positive mood. For both age groups, larger group sizes were associated negatively with these child measures. For none of the child measures was either the care provider's college-based training in early childhood education or the percentage of toddlers to preschoolers significant predictors. The child characteristics step was significant for positive social integration, attention/engagement and angry/aggressive behavior. In each case, age

group was the predictor accounting for the significance of this step. Preschoolers relative to toddlers scored higher on positive social integration, attention/engagement, and angry/aggressive behavior.

Notably, Table 3 shows that the behaviors of the child care provider significantly predicted each of the child measures. Sensitive/supportive care was positively associated with children's positive social integration, attention/engagement, and positive mood. It was negatively associated with angry/aggressive behavior. Contributing uniquely to the variance explained, structured care was also positively associated with children's positive social integration, attention/engagement, and positive mood. However, structured care was not significantly associated with angry/aggressive behavior.

Only for positive social integration was a significant interaction between age group and provider behavior noted. Here, both the interactions of age group with sensitive/supportive care and with structured care were negatively associated with positive social integration, although the association only reached a trend level for sensitive/supportive care. Follow up analyses examined within age group correlations with each provider behavior after controlling for variables (i.e. group size) shown in the regression to also predict positive social integration. Consistent with the hypothesis that care provider behaviors would be less strongly correlated with child behavior for preschoolers than toddlers, controlling for group size, the association of positive social integration with sensitive/supportive care was highly significant for toddlers, partial $r = .51$, $df = 53$, $p < .001$, but not for preschoolers, partial $r = .14$, $df = 53$, *ns.* The same was true for structured care: Toddlers, partial $r = .58$, $df = 53$, $p < .001$; Preschoolers, partial $r = .19$, $df = 53$, *ns.*

Discussion

Patterns of child care use suggest that many parents rely on home-based child care for younger children (e.g. toddlers and infants), shifting to center-based programs as their children enter the preschool years. Presumably these patterns reflect, at least in part, parents' belief that their toddler will receive more age appropriate care in smaller, home-like settings. However, in home-based child care it is common for toddlers to be in settings where the care provider must juggle the developmental needs of a wide age range of children. In this study we examined whether, in settings with both toddlers and preschoolers, care providers were modifying their behavior in relation to children's developmental needs and whether toddler's or preschooler's functioning at child care appeared to be more or less dependent on care provider sensitivity/support or structuring of the care setting. Specifically, we tested the hypothesis that sensitive/supportive care would be greater for toddlers than preschoolers, while structured care involving more educational activities would be observed more for preschoolers than toddlers. Using associations between child functioning and care provider behavior, we also tested the hypothesis that these associations would be larger for toddlers than preschoolers, indicating a greater reliance of toddlers than preschoolers on the care provider for successful functioning in the child care home. These hypotheses were tested after controlling for family, child care and child characteristics.

The results led us to reject our first hypothesis. Contrary to predictions, toddlers received less sensitive/supportive care than did preschoolers, while preschoolers did not receive more structured care than did toddlers. Turning to the absence of an age-group difference in structured care, this result needs to be interpreted in light of the fact that the percentage of toddlers to preschoolers in these settings did not differ by the age of our target child. Furthermore, most of our settings involved only one care provider. Given this, it is not surprising that children, regardless of age, were exposed to similar types of activities. Care providers could not plan structured, educational activities for preschoolers that excluded the

younger children in their care and leave these younger children unsupervised. It is difficult to imagine, however, structured activities that are fully age appropriate for both toddlers and preschoolers. The lack of higher levels of structured activities for preschoolers relative to toddlers in these family child care homes would seem to underscore the choices parents make to more often enroll their preschool-aged children in center-based than family child care (Burchinal et al.,1995; Early & Burchinal, 2001; Erdwins & Buffardi, 1994; NICHD ECCRN, 2004).

As parents tend to choose center-based over family child care for preschool aged children and as the preschoolers in our study were receiving no more structured, educational care experiences than were the toddlers, this raises the question of whether the preschoolers in this study differ in ways that led their parents to continue to place them in family child care. We did not find any significant differences in either parent education or income between the toddler and preschool aged children. Overall, the parents were fairly well educated and with good incomes. We did note that the preschoolers engaged in more angry/aggressive behavior than did the toddlers. Several studies have shown that aggressive acts peak during the toddler period and then tend to decline over the preschool years as children become more prosocially competent in negotiating conflicts (Chen, Fein, & Tam, 2001; Cote, Vaillancourt, LeBlanc, Nagin, & Tremblay, 2006; Vaughn, Vollenweider, Bost, Azria-Evans, & Snider, 2003). Thus the fact that we observed more angry/aggressive behavior among the preschoolers than the toddlers in our study might indicate that the preschool-aged children were less socially competent in handling peer conflicts than other children their age. This might have prompted the parents to choose family child care as a less demanding context for their children than center-based care. On the other hand, we included relational aggression along with verbal and physical aggression in our aggression measure, and the pattern of change in relational aggression across the toddler and preschool years diverges from that of physical aggression (Crick et al., 2006), perhaps because of the social knowledge that children must develop in order to use relational aggression effectively. Thus the increase in angry/aggressive behavior we noted with age may reflect our measurement instrument.

Turning now to the age difference in the amount of sensitive/supportive care, here the results were also the opposite of predicted. Rather than observing toddlers receiving more sensitive/supportive care than preschoolers, we found that the toddlers were receiving less sensitive and supportive care. There are a number of possible reasons for this finding. First, given greater language competence, preschoolers may be more capable of communicating their needs to care providers than are toddlers, thus making it easier for providers to respond more sensitively to the preschoolers than toddlers in their care. That is, care providers may not be as competent at interpreting the often non-verbal signals of their toddler-age charges as they are at understanding the clearer, likely verbal requests of their older charges. Second, given only one care provider in a setting, when the provider needs to choose between responding to a younger or older child, older children may be able to out-compete the younger children for the provider's attention. Third, given that the toddlers were likely less self-regulated and socially competent than the preschoolers (Fabes, Gaertner, & Popp, 2006; Rothbart, Posner, & Kieras, 2006), it may be that the care provider was overwhelmed by the demands of responding to their needs. While these possibilities may explain why toddlers received less sensitive and supportive care than preschoolers in these home-based care settings, they do not discount concerns that this finding raises for the quality of care toddlers may be receiving in mixed-aged home-based settings. As noted, family child care providers in the present study had only modest levels of education and training, comparable to levels noted in other samples of family based child care (Kisker et al., 1991; NICHD ECCRN, 2000, 2004). Their training may not have allowed them to understand the needs of their toddler charges and/or to adequately read the signals of the toddlers in their care, or to have strategies for responding to toddler needs that were sensitive and effective in such mixed-aged settings. This finding, along with the finding for structured

care, highlights the challenges of providing age-appropriate activities and sensitivity to the varying needs of children at different developmental stages in settings that include one caregiver and a group of children ranging widely in age.

Providing supportive care for toddlers is important as it has been shown to be associated with children's behavior and experiences in child care. (e.g., see NICHD, 2003; Vandell & Wolfe, 2000). We hypothesized that toddlers would be more dependent on the care provider's sensitive/supportive care than would preschoolers. Our results showed that not only were toddlers observed to be less positively integrated and less attentive and engaged than preschoolers, but the structure and supportiveness of the care they received was equally (for attention/engagement, positive mood and anger/aggression) or *more* strongly associated (in the case of positive social integration) with these outcomes for toddlers than for preschoolers. Toddlers who received more sensitive/supportive and structured care from care providers were more positively integrated with other children at child care, while variations among caregivers in these behaviors appeared to have little or no association with variations in child positive social integration for preschool-aged children. The increase in positive social integration between toddlers and preschoolers likely, in part, reflects normative developmental changes, even though we attempted to reduce age difference from our coding scheme by adjusting the behaviors required to be scored as integrated in the social activities of the setting for toddlers. Nonetheless, the differences in association of positive social integration and provider sensitivity and support indicates that, given their lesser social competence, toddlers need a more sensitive and supportive environment in order to successfully insert themselves into the on-going social interactions in the child care home than do preschoolers. This may be particularly true when toddlers are in care with preschoolers who may not have much patience with relatively less sophisticated playmates. What is of concern, is the combined evidence that the toddlers, who need strong support for growth in these social and attention abilities, were actually experiencing less support than the preschoolers and, in turn, the extent of caregiver supportiveness and structure the toddlers experienced was significantly associated with individual differences in these emerging developmental skills.

More generally, our findings of positive associations between every measure of child functioning we analyzed and both the supportiveness of the care and the extent of structure provided to the children are consistent with previous findings. These results indicate that while toddlers may need more supportive care in order to integrate themselves successfully into the social life of the family child care setting, both toddlers and preschoolers function more effectively in settings with more structure where they receive more sensitive and responsive care. While prevailing assumptions that family child care may be more appropriate for toddlers than for preschoolers were not wholly supported by the evidence provided here, it remains the case that variation in the quality of this care matters for all children. Indeed, the quality of family child care may be especially important with regard to the critical developmental tasks that toddlers and preschoolers need to accomplish, namely the development of social and cognitive skills and the management of anger and aggression.

Notably, the associations between child care provider behavior and child measures were obtained after controlling for a number of family, child care, and child characteristics. Considering these characteristics, we found little evidence that the child measures we examined were associated with either family income or parent education, although children who exhibited more attention and engagement did have parents with higher education. This association may reflect genetic or family environment contributions to individual differences in young children's attentional capacities (Rothbart et al., 2006). We also found little evidence that the child's gender was associated with any of our child measures, including angry/aggressive behavior. This is somewhat contrary to the literature on gender differences in aggression (e.g. Ostrov & Keating, 2004), although it may reflect the inclusion of relational aggression in our

measure of aggressive interchanges (Crick et al., 2006). On the other hand, we did note a gender difference in the care provider's behavior. Specifically, boys received less sensitive/supportive care than did girls. This finding is consistent with prior evidence of differences in the overall quality of child care environments experienced by boys and girls (Sussman & Phillips, 2005).

Of particular note, group size was negatively correlated with the care provider's sensitive/supportive care and negatively predicted both positive social integration and child positive mood. We did not, however, find any associations between the percentage of toddlers relative to preschoolers and either child or care provider behavior. Thus, size rather than the age composition of the setting appeared to impact the quality of care provided and children's outcomes at family child care. This finding contrasts past research, which reported higher ratings of caregiver sensitivity in child care homes that were in compliance with age group compositions recommended by the National Association for Family Child Care (Clarke-Stewart, Vandell, Burchinal, O'Brien, & McCartney, 2002). However, when measuring global quality, no relation between quality and compliance with the NAFCC's recommended age group weightings has been found (Burchinal, Howes, & Kontos, 2002; Clarke-Stewart et al., 2002). Perhaps unexpectedly, the care provider's amount of college-level training in early childhood education was not associated with the child behaviors we measured. We also noted no significant correlation between amount of college-level training in ECE and the care provider's sensitive/supportive care and only a very modest (4% of the variance) association between college-level training and structured care. This finding, which runs counter to prior evidence of the importance of college-level training (as distinct from community-based training) (see Phillips, McCartney, & Sussman, 2006) raises concerns about the quality of the training these licensed family day care providers have received. This concern is consistent with our evidence that the providers in this sample did not appear to adjust their behaviors to the differing developmental needs of the toddlers and preschoolers in their care.

There were several limitations to this study that should be noted. First, this study cannot inform discussions regarding which type of care – home- or center-based – offers higher quality care or confers greater benefits for children of different ages insofar as we examined only family child care settings. Second, the findings are appropriately generalized only to licensed family child care homes and Caucasian children whose families are generally well educated and have incomes that place them in the middle class. Third, our sample of family child care settings did not differ significantly in the percentage of toddlers relative to preschoolers for our target toddlers and preschoolers. As a result, we cannot address questions about whether and how reducing the age range of children in a care setting would affect the care provider's ability to provide more adequate care for each age group. Because licensing requirements often limit the number of infants and toddlers a provider is able to care for, in reality most family child care homes have a mix of toddlers and preschoolers. Finally, although we attempted to adjust our coding scheme so that it could apply equally to children of a wide range of age, expected developmental changes with age in our measures need to be considered in interpreting the results.

In sum, the current findings raise concerns about the quality of care that toddlers receive in family child care settings that include both toddlers and preschoolers. The care providers' supportive and structured caregiving predicted a set of important outcomes for both toddlers and preschoolers, but the toddlers in the mixed-age family child care homes we observed received less supportive, sensitive care than did their preschool peers. In turn, the toddlers also exhibited lower levels of social integration and attention/engagement relative to the preschoolers in the same homes, despite our efforts to capture age-appropriate dimensions of these behaviors. While we cannot assert causality in this correlational study, these associations, combined with the large literature on the importance of sensitive, responsive, and supportive caregiving are causes for concern. A constructive response may involve tailoring the training

and education of family child care providers to foster their abilities to provide supportive, developmentally appropriate care to the diverse ages of children who are typically in their care.

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Appendix A* Original (ORCE) and New Items Constituting the modified ORCE (M-ORCE)

	Quantitative Scales	
	ORCE	**M-ORCE**
Child's Activity Context	Physical Care[a]	Physical/Emotional Distress
	Solitary Play/Activity[b]	Purposeful Transition/Waiting
	Watching TV [a,b]	Time Out
	Watching/unoccupied [a,b]	Dyadic Play/Activity
		Organized Group Activity
		Other Activity
Child's Attention/Engagement Level		Uninvolved/Low/High
Child's Level of Social Integration		Unintegrated/Low/High
With Peers		Unintegrated/Low/High
With Adults		
Peer Interaction	Directs Prosocial Act[a,b]	Directs Negative Act (includes Verbal, Physical and Relational Aggression)
		Receives Negative Act (includes Verbal, Physical and Relational Aggression)
		Rejected by Peer
		Adult Intervention in Interaction
		Receives Prosocial Act
Adult Language	Speaks Positively to Child/ren[a]	
	Speaks Negatively to Child/ren[a]	
Adult Stimulation	Teaches Academic Skill[a,b]	Reads/Tells Story/Sings
	Teaches Social Rule[a,b]	Supervises Project
	Positive Physical Contact[a]	
	Mutual Exchange[a]	
Adult Physical Control	Negative Restricting Actions[a]	
Compliance with Adult	Comply (yes, no),[ab]	Scoring in M-ORCE Readily, Slowly, Ignore, Resist)
	Qualitative Scales	
	ORCE	**M-ORCE**
Caregiver Behavior	Sensitivity/Responsiveness[b]	
	Intrusiveness/Over-Control[a,b]	
	Detachment/Disengagement[a,b]	
	Positive Regard for Child[a]	
	Negative Regard for Child[a]	
Child Behavior	Positive Mood,[ab]	Vigilant/Anxious Mood
		Sad/Unhappy Mood
		Angry/Irritable Mood
		Overall Belongingness/Integration
Environmental Ratings	Chaotic[b]	Positive Community Building
	Overcontrol[b]	Negative Community Building
	Positive Emotional Climate[b]	Expressed Community
	Negative Emotional Climate[b]	Overall Impression of Quality

[a] = kept from 24/36 month ORCE

[b] = kept from 54 month ORCE

* Complete definitions and scoring procedures available from the authors on request.

Table 1

Means (Standard Deviations) for Variables Used in Caregiver Quality and Child Outcome Composites

Variable	Toddlers	Preschoolers
Sensitive/Supportive Caregiving		
Sensitivity/Responsivity[a]	2.63 (.82)	3.13 (.85)
Intrusiveness/Overcontrol[a]	1.59 (.73)	1.38 (.68)
Detachment/Disengagement[a]	1.83 (.80)	1.59 (.76)
Positive Regard for Child[a]	2.48 (.76)	2.79 (.76)
Negative Regard for Child[a]	1.23 (.47)	1.18 (.43)
Structured Caregiving		
Organized group activity[b]	.12 (.19)	.20 (.25)
Adult stimulation[b]	.26 (.26)	.27 (.27)
Positive Social Integration		
Integration quality rating[a]	2.48 (.85)	3.03 (.74)
Integration frequency counts[c]	.63 (.29)	1.02 (.34)
Attention/Engagement		
Attention/engagement[c]	1.41 (.30)	1.60 (.30)
Unoccupied[b]	.17 (.15)	.09 (.12)
Child Positive mood		
Positive mood[a]	2.41 (.78)	2.61 (.76)
Vigilant/anxious mood[a]	1.27 (.59)	1.45 (.66)
Sad/unhappy mood[a]	1.21 (.46)	1.29 (.62)
Angry/Aggressive Behavior		
Angry/irritable mood[a]	1.27 (.56)	1.52 (.79)
Involved in negative interaction[d]	.48 (.89)	.91 (1.47)

[a] Rated on a scale of 1 to 4: 1= not at all characteristic, 4 =highly characteristic.

[b] Percent of total observation target child involved in activity.

[c] Average rating, on a scale of 1 to 3, over thirty, 30-second intervals.

[d] Average number of negative interactions over thirty, 30-second intervals.

Table 2

Correlations of Predictor Variables with Child Measures

Variable	Social Integration	Attention/Engagement	Angry/Aggressive	Positive Mood
Family Income	.00	.02	.12	−.07
Average Parent Education	.11	.19*	.04	.08
Provider's College-Level Trg.	.10	.11	−.05	.07
Group Size	−.25*	−.07	.12	−.30**
Percent Toddlers	−.05	.03	−.10	−.08
Child's Gender[a]	−.01	−.05	−.08	.14
Age Group[a]	.38**	.28**	.15	.01
Sensitive/Supportive Care	.45**	.26**	−.23*	.42**
Structured Care	.36**	.39**	−.07	.20*

$p < .05$.

* $p < .01$.

** $p < .001$.

[a] = non-parametric correlation, otherwise Pearson correlations were computed

Table 3

Regression Analyses Predicting Child Measures

	Child Measures											
	Positive Social Integration			Interest/Engagement			Angry/Aggressive			Positive Mood		
	β	SEB	*b*	β	SEB	*b*	β	SEB	*b*	β	SEB	*b*
Step 1: Family Characteristics		*R^2 Change*= .02			*R^2 Change*= .04			*R^2 Change*= .02			*R^2 Change*= .02	
Income	.00	.11	.00	−.04	.07	−.05	.22	.13	.18	−.07	.15	−.12
Education	.21	.14	.12	.20	.09	.22*	−.04	.16	−.02	.11	.07	.14
Step 2: Day Care Characteristics		*R^2 Change=.08**			*R^2 Change=.03*			*R^2 Change=.02*			*R^2 Change=.10**	
Provider Training	−.07	.21	−.03	−.03	.13	−.03	−.20	.26	−.08	.02	.11	.01
Group Size	−.19	.07	−.22**	−.02	.04	−.04	−.00	.08	−.00	−.07	.03	−.20*
Toddlers/Preschoolers	−.00	.11	−.01	.06	.07	.09	−.19	.13	−.14	.03	.06	.05
Step 3: Child Characteristics		*R^2 Change=.23***			*R^2 Change=.09***			*R^2 Change=.07**			*R^2 Change=.04*	
Gender	−.04	.27	.−.01	−.02	.07	.00	−.40	.32	−.15	.28	.13	.18*
Age Group	1.44	.27	.39**	.42	.17	.22*	1.06	.33	.31**	−.22	.14	−.14
Step 4: Provider's Behavior		*R^2 Change=.15**			*R^2 Change=.14****			*R^2 Change=.08****			*R^2 Change=.14****	
Supportive Care	1.03	.26	.42**	.24	.12	.19*	−.59	.23	−.26*	.37	.10	.35**
Structured Care	.46	.11	.45**	.17	.05	.33**	−.15	.09	−.15	.08	.04	.19*
Step 5: Age Group		*R^2 Change=.05**			*R^2 Change=.03*			*R^2 Change=.03*			*R^2 Change=.00*	
Age Group Interactions												
By Supportive Care	−.66	.36	−.19+	NA	NA	NA	NA	NA	NA	NA	NA	NA
By Structured Care	−.34	.15	−.25*	NA	NA	NA	NA	NA	NA	NA	NA	NA

Note: Regression terms are from the final step of the regression model, excluding interaction terms when not significant. For the model predicting positive social integration, $F(11,99) = 9.8$, $p < .001$, $R^2 = .52$. For the model predicting attention/engagement, $F(9,101)=4.47$, $p<.001$, $R^2=.29$. For the model predicting anger/aggression, $F(9,101) = 2.58$, $p < .05$, $R^2 = .19$. For the model predicting positive mood, $F(9,101) = 5.04$, $p < .001$, $R^2 = .31$.

NA indicates that the interaction term did not significantly increase the amount of variance explained in the original model and was removed from the equation.