



Published in final edited form as:

J Clin Child Adolesc Psychol. 2010 May ; 39(3): 302–313. doi:10.1080/15374411003691792.

Effects of Monetary Incentives on Engagement in the PACE Parenting Program

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Abstract

This study evaluated parental engagement in an 8-week parenting program offered through daycare centers that were randomly assigned to a monetary incentive or non-incentive condition. Of an initial sample of 1,050 parents who rated their intent to enroll in the program, 610 went on to enroll, 319 in the incentive and 291 in the non-incentive condition. Results showed that intent to enroll predicted enrollment irrespective of condition. Further, parents did not enroll in greater numbers, attend more sessions or participate more actively in the incentive condition. Incentives encouraged some parents, often younger and socioeconomically disadvantaged, to enroll but had no effect on their attendance. Importantly, these results could not be accounted for by between-condition differences in child and family or in daycare characteristics.

Research has repeatedly shown that positive parent-child interactions promote the growth of child coping competence, especially in the early years. Children with adequate coping competence are able to deal with the daily challenges that arise throughout development by relying on effective social, affective, and achievement skills (Moreland & Dumas, 2007), thereby lowering the risk that they will develop behavioral or emotional disorders that could have life-long detrimental consequences for them and others (e.g., Eisenberg, Fabes, & Spinrad, 2006). Conversely, dysfunctional parent-child interactions increase the risk of child

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disorders, particularly when they are prolonged and accompanied by other adverse factors, such as financial stress and neighborhood disadvantage (e.g., Dodge, Coie, & Lynam, 2006). It is not surprising, therefore, that family interactions have often been the focus of programmatic efforts to promote healthy child development. These efforts have led to the development and refinement of a sophisticated psychosocial approach, known generically as *parent training*. Applied successfully in diverse ethnocultural contexts, this approach offers a time-limited, cost-effective means of fostering positive parent-child interactions, especially in families in which the “fit” between parent, child, and environment is poor (Kazdin, 2005; Lundahl, Risser, & Lovejoy, 2006; Nixon, 2002; Serketich & Dumas, 1996). Parent training is widely used today to treat children with disorders of clinical intensity (e.g., Barkley et al., 2000; Brestan & Eyberg, 1998; Sanders, Markie-Dadds, Tully, & Bor, 2000) or, in a preventive perspective, to “nip early risk factors in the bud” (Webster-Stratton & Taylor, 2001) in order to lower the probability of disorders and other adverse outcomes (e.g., Conduct Problems Prevention Research Group, 1999; Sanders, 2008; Zubrick et al., 2005).

Researchers and interventionists seeking to promote parenting effectiveness and child coping competence through parent training must deal with the fact that many parents are difficult to engage in such training activities. Clinical studies and prevention trials report that 35% to 50% of parents do not attend their first appointment and that, when they do, 50% or more fail to complete the intervention (e.g., Barkley et al., 2000; Lutzker, Bigelow, Doctor, & Kessler, 1998; Miller & Prinz, 2003). Recruitment and retention may be particularly challenging in prevention programs, as they attempt to engage parents who are not seeking services and may often be socioeconomically disadvantaged (Dumka, Garza, Roosa, & Stoerzinger, 1997; Gross, Julion, & Fogg, 2001; Orrell-Valente, Pinderhughes, Valente, & Laird, 1999).

Limited engagement threatens the internal and external validity of parenting programs and, when efficacy is established, their adoption on a large scale (Lochman, 2000; Spoth & Redmond, 2000). Recognizing the importance of this issue, researchers address it both conceptually and practically. Conceptual approaches focus on predictors of engagement (e.g., Dumas, Moreland, Gitter, Pearl, & Nordstrom, 2006; Dumas, Nissley-Tsiopinis, & Moreland, 2007; Spoth, Redmond, & Shin, 2000), whereas practical approaches work to remove obstacles and provide incentives to recruit and retain parents (e.g., Conduct Problems Prevention Research Group, 2002; Guyll, Spoth, & Redmond, 2003; Heinrichs, 2006).

Parenting interventions that have been evaluated rely on different strategies to facilitate engagement. Typically, programs offer one or more of the following: childcare, transportation, meals or snacks, scheduling to suit working parents, make-up sessions, and monetary incentives (cash, vouchers, gift certificates) (e.g., August, Realmuto, Hektner, & Bloomquist, 2001; Conduct Problems Prevention Research Group, 2002; Dumas et al., 2007; Webster-Stratton, Reid, & Hammond, 2001). Although it stands to reason that these strategies should facilitate engagement, their actual impact remains largely unknown. This is because they are usually “bundled” into an incentive package that is offered to all families, making it impossible to evaluate which strategy may or may not be effective. In other words, assuming that monetary and other incentives contribute positively to family recruitment and retention, most studies describe but do not manipulate the incentives they provide. Manipulating incentives to determine which may help recruit and retain participants is essential to know how to allocate limited resources in the most effective way.

Two studies have conducted prospective evaluations of the impact of monetary incentives on parental engagement. Guyll et al. (2003) found that the offer of \$100 predicted parental enrollment in an adolescent drug use prevention program. This association was strongest among parents with less formal education and those who had previously reported that their intent to enroll in the program was weak. These findings are encouraging, as they suggest that

monetary incentives may partially reduce sampling bias in prevention research by attracting otherwise hard-to-reach families. However, as the authors acknowledged, the study was limited by the correlational nature of the design (incentives were not manipulated experimentally), and by the fact that incentives accounted for less than 3% of variance in enrollment and that their association with attendance was not investigated.

In another carefully designed study, Heinrichs (2006) compared rates of enrollment and attendance in a preventive parenting program offered through preschools that had been randomly assigned to an incentive or no-incentive condition. In the former, payments reflected number of sessions attended and parents could receive up to 110 euros (this included a bonus of 30 euros offered to parents who attended all sessions). More parents enrolled and attended at least one session in the incentive compared to the no-incentive condition (46% vs. 26%). However, this difference disappeared when attendance in subsequent sessions was considered. Irrespective of condition, 69% of parents who did not drop out after one session attended the program in its entirety and a further 16% attended three quarters of the sessions or more. Thus, whether they received incentives or not, 85% of parents were exposed to 75% or more of the intended “dose.”

This second study overcomes a major limitation of Guyll et al.'s (2003) research noted above. However, it is itself limited by the fact that “initial enrollers” were defined as parents who enrolled but did not attend any session *and* those who enrolled and attended at least one session. Although the same definition has been used in other parent training studies (e.g., Cunningham et al., 2000; Gross et al., 2001), it blurs the distinction between recruitment and retention. Confounding enrollment and attendance ignores the fact that not all parents who sign up to take part in a parenting program actually attend, as not all parents who seek clinical services for their children show up for their first appointment (e.g., Wenning & King, 1995). In other words, monetary incentives may facilitate recruitment by prompting enrollment but may have little or no influence on retention (i.e., attendance at sessions). Only by keeping these two variables clearly distinct can the hypothesis that monetary incentives contribute to *engagement* in a parenting program be properly tested, as interventionists are likely to rely on money to increase the number of participants who attend a program regularly, rather than the overall number of enrollees.

The present study is part of a research project known as PACE – Parenting Our Children to Excellence. PACE assesses the preventive impact of a structured group parenting program on child and family outcomes, with emphasis on the process of engagement and its relation to those outcomes. The program is designed for parents of preschoolers and delivered at the daycare centers the children attend. In keeping with reports based on the project's first two years (the current report is based on Years 3 to 5), we defined *engagement* as the entire process whereby parents become involved in a preventive program, from stated intent to enroll to actual enrollment, attendance at sessions, and quality of participation in sessions. This definition is broader than that found in other reports. Prevention studies typically limit their definition of engagement to enrollment and/or attendance (or a combination of the two) and do not assess intent or quality of participation, although evidence shows that they are key facets of the engagement process (Orrell-Valente et al., 1999; Spoth, Redmond, Kahn, & Shin, 1997). This is particularly true of intent. Research stimulated by the Theory of Planned Behavior (TPB) and similar motivational/health belief models has shown that intent predicts a variety of health and behavioral decisions (Ajzen, 1991; Rosenstock, 1990). As we did in an earlier report on the PACE program (Dumas et al., 2007) and others have done (e.g., Guyll et al., 2003), we cast engagement within this broad perspective, viewing monetary incentives and intent to enroll as motivational factors likely to influence actual enrollment, attendance, and quality of participation in the program.

We hypothesized that, following random assignment of PACE groups to an incentive (PACE-I) or a non-incentive (PACE-NI) condition: (1) The two conditions would not differ on measures of child and parent adjustment, and daycare characteristics. (2) Monetary incentives would predict enrollment, attendance, and quality of participation, with parents more likely to enroll, attend sessions, and participate actively in the PACE-I than in the PACE-NI condition. (3) Intent to enroll would predict enrollment irrespective of condition.

Method

Participants

The PACE program was delivered through daycare centers. Fifty centers were recruited with the help of Child Care Answers, an Indianapolis, Indiana, childcare provider training and licensing agency. To receive the program, centers had to serve: (1) a minimum of 35 families with children between the ages of 3 and 6 at time of recruitment, and (2) an economically disadvantaged and ethnically diverse population. However, families did not have to meet set income criteria to participate and were not recruited to obtain predetermined percentages of participants from different ethnic groups. Statistics provided by daycare center directors indicated that approximately 1 out of 2 families qualified for subsidized childcare ($M = 0.51$, $SD = 0.35$). Percentage of families within the centers receiving subsidized childcare did not significantly differ between PACE-I (61%) and PACE-NI (43%) groups, $\chi^2(1, N = 30) = 32.99$, $n.s.$

Initial participants were 1,050 parents or caregivers (hereafter referred to as parents) who completed a brief survey before the PACE program was offered at their center (see below). Of these parents, 961 (92%) were mothers and 89 (8%) were fathers. Ranging in age from 18 to 56 years ($M = 30.95$; $SD = 6.87$), 549 (52%) described their ethnic origin as African American, 438 (42%) as European American, and 63 (6%) as Other (i.e., Hispanic, Asian, or of biracial heritage); 592 (56%) described themselves as single (i.e., never married, separated, divorced, or widowed); and 710 (68%) reported that they were employed. Parents reported a median annual family income of \$22,500 ($M = \$25,850$, $SD = \$10,969$). When a parent had more than one child between the ages of 3 and 6 at time of recruitment, the oldest was the target child. Target children ranged in age from 2.62 to 6.93 years ($M = 4.37$, $SD = 0.85$) and 521 (50%) were girls. Of the initial sample of 1,050 parents, 610 (58%) went on to enroll in the PACE program. Table 1 provides sociodemographic data for the enrolled sample by condition.

Procedures

All procedures were approved by the Institutional Review Boards of Purdue University and of the Centers for Disease Control and Prevention.

Data collection—Daycare centers were randomly assigned to condition (PACE-I or PACE-NI) at the time of recruitment. However, to prevent self-selection into a particular condition, families were not made aware that an alternate condition might have been offered at the same time at another center. A pre-intervention survey, the *Brief Child Development Survey*, was then conducted for approximately four weeks at each center and was followed by the 8-week PACE program (see below). Following completion of the survey, parents were invited to enroll in the PACE program. Parents who enrolled in the program then completed a *Parent Survey* before the program began. The first survey assessed intent to enroll in PACE and asked for sociodemographic data; the second yielded baseline measures of child and parent adjustment. In addition, group leaders and assistants provided attendance data and completed a measure of parental participation at the end of each session. These measures are described below.

Parents were given opportunities to ask questions about the research and program before deciding to participate and providing informed consent. Parents completed the *Brief Child Development Survey* at their child's daycare center with a trained staff member present to assist them as needed. Parents were paid \$15 cash following survey completion. Parents who enrolled in the PACE program completed the *Parent Survey*, a structured interview individually administered by trained staff at the parents' home or at the child's daycare center, depending on parent preference. When two-parent families were involved, the family selected the parent who completed the survey. Parents received \$35 in cash at completion of this interview.

Before the program began, measures also were collected to describe each daycare center. These measures, which were independently obtained from center directors, teachers, and PACE staff, are described below.

Recruitment and monetary incentives—At each center, recruitment strategies included displaying poster advertisements in numerous locations, sending program registration forms to all eligible parents, and staffing a registration table twice a week for four weeks during which eligible parents were informed about the child development survey and the parenting program that would follow it, and invited to participate. Posters advertising the *Brief Child Development Survey* were the same in both conditions. Posters advertising the program differed. In both conditions, they briefly informed parents about the content of each session; stated that the program was free; and described that, at each session, parents and children would receive a free meal, free childcare, and \$3 in cash to cover cost of transportation. In the incentive condition, posters also described the monetary compensation parents would receive at the end of each session in the following way:

“Compensation depends on the number of sessions you attend. You will receive \$3 per session for the first two sessions you attend; \$6 per session for the next two sessions; \$10 per session for the two sessions after that; and \$15 per session for the last two sessions. This means that if you attend one session you will receive \$3; two sessions, \$6; three sessions, \$12; four sessions, \$18; five sessions, \$28; six sessions, \$38; seven sessions, \$53; and all eight sessions, \$68.”

In two-parent families, only one parent received the monetary incentive, although both parents were invited to attend all sessions.

The PACE Program

The PACE program was developed by Dumas on the basis of research on the promotion of parenting effectiveness and child coping competence (Dumas, Prinz, Smith, & Laughlin, 1999). It is manualized in terms of content and process, and addresses childrearing concerns and challenges commonly experienced by parents of young children in a format that fosters active parental participation and mutual support. Sessions cover eight topics: (1) Bringing out the best in our children, (2) Setting clear limits for our children, (3) Helping our children behave well at home and beyond, (4) Making sure our children get enough sleep, (5) Encouraging our children's early thinking skills, (6) Developing our children's self-esteem, (7) Helping our children do well at school, and (8) Anticipating challenges and seeking support.

Each group was conducted by a trained leader and an assistant. Training, supervision, and fidelity assessments focused on program *content* and *process* and followed procedures described elsewhere (Dumas, Lynch, Laughlin, Smith, & Prinz, 2001). Content training pertained to the topics to be covered in each session, and to their rationale, presentation, and supporting materials (videotapes, posters, handouts). Process training focused on effective communication skills. It emphasized the importance of involving parents in all aspects of each session and provided specific instruction on how to encourage and channel parental discussion,

avoid criticism and unsolicited advice giving, provide frequent positive feedback, and deal with resistance. Training was conducted in small groups and consisted of didactic presentations, vignettes, modeling, role-playing, discussions, and practice sessions. In the course of training, staff competence was determined using formal quizzes and live observations. In addition, throughout the study, group leaders received weekly supervision that included feedback from weekly fidelity assessments.

Group leader fidelity was assessed with procedures also described in Dumas et al. (2001). Leaders wore a lapel microphone attached to a small portable recorder to audiotape all sessions. Trained coders working under the supervision of an expert coder listened to these tapes weekly and coded them for fidelity to program content and process with the help of checklists developed for that purpose. Results from these assessments were sent to the group leaders' supervisor on a weekly basis for ongoing feedback and provided overall estimates of adherence to protocol. On average, group leaders covered 79% (range: 20-100%) of all content items (inter-rater agreement, $kappa = 0.79$) and attained an average score of 91% (range: 63-100%) on process fidelity (inter-rater agreement, $kappa = 0.88$).

Engagement Measures

Four variables assessed parental engagement in the program: intent to enroll, enrollment, attendance, and quality of participation. One *Brief Child Development Survey* question measured intent to enroll by asking, "Do you intend to enroll in the parenting program that is now offered or will be offered soon at your child's preschool or daycare?" Responses were made on a 4-point rating scale from 1 "Definitely no" to 4 "Definitely yes" and later dichotomized for analysis (1 or 2 = no intent; 3 or 4 = intent). Parents who returned a program registration form or contacted a daycare center or PACE staff member to register were considered enrolled. The number of sessions they then attended (from 0 to 8) provided the measure of attendance.

Number of sessions attended also was used also to compute the point at which parents dropped out of the program (when they did so before completion). This measure of retention accounts for the fact that many parents kept attending but were unable to come to every session, often for reasons beyond their control (e.g., work schedule, sick child or relative). Point of dropout ranged from 7 to 0: parents received a score of 7 when they did not return after the first session; a score of 6 when they did not return after the second session, etc. Parents who did not drop out (i.e., attended session 8) received a score of 0. To illustrate the difference between the attendance and dropout measures, a parent who attended sessions 1, 2, 4, and 8 would have received an attendance score of 4 but a point of dropout score of 0. Table 2 provides enrollment, attendance, and point of dropout statistics for the entire sample and by condition.

After each session, group leaders and assistants independently completed a rating of each parent's quality of participation by answering the question, "Overall, how well did the parent participate during the session?" Ratings ranged from "1 Did not participate or obstructed group functioning and activities," to "5 Participated enthusiastically. Was obviously interested and attentive to other group participants." Each anchor point had specific definitions. Leaders and assistants were trained to use the measure through examples and observations of PACE sessions. As their answers were internally consistent (Cronbach's $\alpha = 0.92$ for leaders and 0.94 for assistants) and highly correlated ($r = 0.71, p < .001$), they were aggregated and averaged over all attended sessions to yield a single quality of participation score per parent.

Child and Family Measures

Sociodemographic characteristics—The *Brief Child Development Survey* provided baseline information on parent gender, age, ethnicity, marital status, employment status, family

income, child age, and child gender (see Table 1 for comparison of all child and family measures by condition).

Child and parent adjustment—The *Parent Survey* yielded four baseline measures of child and parent adjustment. The *Coping Competence Scale (CCS_R)*; Moreland & Dumas, 2007) consists of 26 items rating child coping competence on a 5-point Likert scale, from (1) Very good to (5) Very poor. Scores were reverse coded and averaged, so that higher scores reflect higher levels of coping competence. The scale has high internal consistency (Cronbach's $\alpha = 0.91$ in Moreland & Dumas, 2007, and 0.93 in the current study) and correlates significantly with other measures of adjustment in the preschool years (Moreland & Dumas, 2007).

The *Eyberg Child Behavior Inventory-2 (ECBI)*; Boggs, Eyberg, & Reynolds, 1990) is a 36-item instrument assessing disruptiveness along two subscales. The Intensity subscale measures frequency of occurrence of commonly observed disruptive behaviors from (1) never to (7) always. The Problem subscale evaluates dichotomously whether each of these behaviors is (1) or is not (0) a problem for the parent. Subscale scores are internally consistent (Cronbach's $\alpha = 0.91$ and 0.89 respectively in Boggs et al., 1990, and 0.91 and 0.90 in the current study). Among clinic referred children, the ECBI has shown high concurrent validity with other measures of externalizing and internalizing child behavior (e.g., Boggs et al., 1990). In the current study, subscale responses were each summed; higher scores reflect more intensity or problematic disruptive behavior.

The *Parental Sense of Competence Scale (PSOC)*; Johnston & Mash, 1989) is a 16-item questionnaire evaluating the extent to which respondents find fulfillment in their responsibilities as parents on a 6-point scale from (1) Strongly agree to (6) Strongly disagree. Nine items yield a summary score of *parental satisfaction* and the remaining seven one of *parental efficacy*. These subscale scores have adequate internal consistency (Cronbach's $\alpha = 0.75$ and 0.76 respectively in Johnston and Mash, 1989, and 0.74 and 0.72 in the current study). When examined among parents of children age 5 to 12, the satisfaction and efficacy subscales demonstrated adequate concurrent validity with other measures of family functioning (e.g., Ohan, Leung, & Johnston, 2000). Scores were recoded so that higher scores reflect higher parental satisfaction and efficacy.

Finally, parents provided ratings of their own level of stress with the *Parenting Stress Index/Short Form (PSI/SF)*; Abidin, 1990). This 36-item inventory asks respondents to rate how well each item applies to their own situation on a 5-point Likert scale from (1) Strongly agree to (5) Strongly disagree. The PSI/SF yields a total score and three subscale scores. Abidin (1997) found that the PSI/SF total score was internally consistent (Cronbach's $\alpha = .91$) and stable over a 6-month period (.84) in a normative sample. Concurrent and discriminant validity have been demonstrated for the full-version of the PSI (Abidin, 1983), which is found to be highly correlated with the PSI/SF (Abidin, 1990). Scores were recoded and summed, so that scores increase as parenting stress becomes more pronounced.

Daycare Measures

Descriptive statistics—Daycare center directors provided statistics on the number of children between the ages of 3 to 6 who attended the center and the percentage of families with children in that age range who received subsidized childcare (see Table 2 for comparison of all daycare measures by condition).

Observations of daycare quality—Daycare quality was assessed with the *Early Childhood Environment Scale, Revised (ECERS-R)*; Harms, Clifford, & Cryer, 1998), which was completed at each daycare center by trained coders on the PACE staff. The ECERS-R, which takes approximately 4 hours to complete, consists of 43 items rated on a 7-point scale

ranging from (1) Inadequate to (7) Excellent. It provides descriptive measures of the physical and psychological characteristics of the daycare environment along seven dimensions: space and furnishings, personal care routines, language reasoning, activities, interaction with children, program structure, and parent and staff involvement. The ECERS-R has high internal consistency, with intraclass correlations ranging from 0.72 to 0.92 (Harms, Clifford, & Cryer, 1998). The ECER-R has demonstrated adequate external validity, as factor scores were significantly related to another classroom rating scale that measures key dimensions of classroom processes (La Paro, Pianta, & Stuhlman, 2004). Two coders were trained to reliability on the ECERS-R and completed the daycare observations at each daycare center, with 10% of centers coded simultaneously by both coders. Each coder maintained adequate internal consistency (intraclass correlations = 0.75 and 0.73) and inter-rater reliability ($kappa = 0.87$). When more than one teacher was present within a given classroom, the primary teacher was observed and rated during the observation. Teachers were compensated \$40 following completion of the observation.

Teacher evaluations of daycare climate—To assess the quality of the work environment at each daycare center, teachers and staff completed the *Organizational Climate Survey* (OCS; Glisson, 2000). To insure anonymity, teachers received the measure in a plain envelope, completed it at their discretion, and returned it in the same, sealed envelope. Each teacher received \$15 cash when returning the envelope (i.e., before the survey was checked for completion). This OCS, which contains 115 items ranging from (1) Not at all to (5) To a very great extent, measures organizational climate on dimensions pertaining to staff relations, workload, work quality, and stress and burnout. This measure is internally consistent. Cronbach's α ranged from 0.91 to 0.95 in previous studies (Glisson, Dukes, & Green, 2006; Glisson & Green, 2006) and was equal to 0.84 in the current study. Validity studies show that the OCS has been linked to quality and outcomes of services that children have received through involvement with organizations (Glisson & Hemmelgarn, 1998; Glisson & Green, 2006).

Data Analyses

Given the data structure, analyses relied on two-level hierarchical modeling (HLM2) using HLM 6.0 (Raudenbush, Bryk, Cheong, & Congdon, 2004), with participants as level-1 units nested within daycare centers as level-2 units. Level-1 variables included intent to enroll, enrollment, attendance, and quality of participation. Condition was the level-2 predictor, as centers, not individuals, were randomly assigned to PACE-I or PACE-NI. Level-1 and level-2 predictors were examined for normality. There was no significant skewness (i.e., values > 2.0 ; Curran, West, & Finch, 1996) ($M = 0.25$, range $-.48$ to $.89$) or kurtosis (i.e., values > 7.0 ; Curran et al., 1996) ($M = 0.21$, range $-.34$ to $.75$). Consequently, normality was assumed.

Results

Child and Family Measures

Table 1 shows that 319 parents enrolled in the incentive condition and 291 in the non-incentive condition. On average, parents in PACE-I were younger, more often African American, and more often single, and reported less family income compared to their counterparts in PACE-NI. These socioeconomic variables were included as covariates in the HLM analyses. Table 1 also shows that parents in PACE-I described their children as more competent and themselves as having greater parental efficacy than parents in PACE-NI. There were no group differences, however, on parental reports of child disruptive behavior, parenting stress, and parental satisfaction.

Daycare Measures

Table 2 summarizes the analyses that compared the characteristics of the 25 daycare centers in PACE-I and the 26 daycare centers in PACE-NI. In support of our first hypothesis, after the assumption of equal variances was met, results show that centers did not differ between conditions on two statistics describing their population (i.e., number of children enrolled and percentage of parents receiving subsidized childcare), seven observational measures of daycare quality, (i.e., space and furnishings, personal care routines, language reasoning, activities, interaction with children, program structure, and parent and staff involvement), and an overall evaluation of daycare climate (or work environment) provided by employees.

Engagement Measures

Using HLM analyses, SES covariates were first entered into the model, followed by all level-1 and level-2 variables, each of which were grand centered. To assess the amount of variance accounted for by daycare centers, unconditional models (i.e., models without predictors and covariates) were estimated first. Table 3 shows that each model resulted in a significant chi-square and that the proportion of between-group variance (i.e., variance accounted by centers) ranged from 5.2% to 33% for intent, enrollment, attendance, and quality of participation.

Conditional models were estimated next. When covariates were entered into each model, ethnicity was a significant covariate for intent ($t(1044) = 2.51, p < .05$) and attendance ($t(604) = 3.07, p < .01$), such that European American parents intended to enroll and attended more sessions than their counterparts. Age was a significant covariate in the prediction of attendance ($t(604) = 2.31, p < .05$), as older parents attended more sessions. The covariates (i.e., parent age, parent ethnicity, marital status, family income) were not significant in the prediction of any other model. When condition (i.e., incentive vs. no incentive) was entered at level-2, it predicted intent ($t(54) = -2.01, p < .05$), but not enrollment ($t(54) = -0.22, ns$), attendance ($t(48) = -1.90, ns$) or quality of participation ($t(48) = -0.31, ns$), not supporting the second hypothesis. To investigate further the relation between intent and enrollment as a function of condition, a logistic regression was conducted in which intent to enroll, condition, and their interaction were entered as a block to predict enrollment. The overall chi-square test was significant ($\chi^2(1, N = 3) = 11.17, p < .05$), but the model accounted for a small amount of variance (Nagelkerke $R^2 = .02$) that was entirely explained by intent (Wald = 6.81, $df 1, p < .01$), supporting our third hypothesis. Condition and the intent by condition interaction did not contribute to the model (Wald = 2.12, $df 1, ns$ and Wald = 1.79, $df 1, ns$ respectively). Overall, 63.5% of parents who intended to enroll actually did (60.9% in PACE-I and 66.3% in PACE-NI). This compares to 33.7% of parents who had no intention to enroll but later did (34.3% in PACE-I and 32.1% in PACE-NI).

As Table 4 shows, 610 parents enrolled in the program but 127 (20.8%) never came to any session, 30 (23.6%) in the non-incentive and 97 (76.4%) in the incentive condition. Attendance by condition was comparable among the 483 parents who came. At one extreme, 63 (13.0%) attended one session only. At the other, 292 (60.5%) attended three quarters or more of the sessions, with 122 (25.3%) attending all sessions. This means that 60% of parents received 75% or more of the intended dose. Cross tabulation of attendance by condition resulted in a highly significant chi-square when all 610 parents who enrolled were included in the calculation (47.28, $df 8, p < .001$). The test became non-significant, however, when parents who never came to any session were removed ($n=483; 10.04, df 7, ns$), suggesting that incentives encouraged parents to enroll in the program but not to attend sessions.

A similar picture emerges when one considers the point at which parents dropped out of the program (a variable that reflects the fact that many parents came to sessions regularly but did not attend all sessions). At one extreme, 44 parents (9.1%) dropped out after one session. At

the other, 315 (65.2%) completed the program, even though 193 of them did not come to all 8 sessions. Cross tabulation of point of dropout by condition resulted again in a highly significant chi-square when all 610 parents who enrolled were included (41.03, df 8, $p < .001$). But the test became non-significant when parents who never came to any session were removed ($n=483$; 3.76, df 7, ns). More parents dropped out of the incentive compared to the non-incentive condition during the time that separated their enrollment from the first session.

Discussion

Our findings provide very limited support for the use of monetary incentives to engage parents in a preventive parenting program, above and beyond the use of the incentives that were offered to all families (i.e., free meal, childcare, and transportation). Parents did not enroll in greater numbers, attend more sessions or participate more actively in the PACE-I than in the PACE-NI condition. A difference between conditions was only found when all parents who enrolled in the program were considered, whether they attended sessions or not. When parents who enrolled but never came to any session were excluded, however, this difference disappeared. In other words, monetary incentives encouraged some parents to sign up but did not have a significant effect on their attendance. The fact that, despite random assignment of daycare centers to condition, parents in PACE-I tended to be younger, more often African American, more often single, and poorer than their counterparts in PACE-NI suggests that incentives may have had a stronger impact on more vulnerable families. This interpretation is supported by Guyll et al. (2003) who found that incentives had their greatest influence on engagement of parents with limited education. These authors concluded that providing monetary incentives might reduce a potential sampling bias in prevention science, as individuals who agree to participate in research studies might be more affluent on average than the populations from which they are drawn. This would be welcomed, obviously, but ultimately of little relevance in studies that, like the current one, want to maximize participant recruitment *and* retention. That is, incentives may increase the diversity of the sample upon initial recruitment but not solve the challenge of maintaining this diversity over time.

Consistent with our findings, Heinrichs' (2006) reported that monetary incentives only had a significant influence on parental decision to enroll and attend the initial session. As she notes, "This strategy... loses its power when considering attendance in subsequent sessions" (p. 359). However, our data lead to the more radical conclusion that incentives may have little power to influence attendance at all. Indeed, it may be that Heinrichs was led to her conclusion because her "initial enrollers" included parents who enrolled *and* those who attended at least one session, whereas we kept enrollment and attendance distinct in analyses examining the effects of incentive. This interpretation appears to be supported by Heinrichs' remark that, when parents who never attended any session were removed from the analyses, "the percentages as well as the average hours of attendance are fairly similar [between conditions] and no significant effect of payment occurs anymore" (p. 360). Although our results are consistent with findings from Heinrichs' (2006) study, it is important to highlight differences between the two studies: (1) Heinrichs offered larger monetary incentives than we did; (2) these incentives did not increase session-by-session, as they did in the present study; and (3) the two interventions differed in length (i.e., 8 two-hour sessions in the present study, compared to 4 two-hour sessions in the Heinrichs study). Future research on the use of different incentives will need to control for such differences.

More generally, our findings question the use of monetary incentives as a public policy tool to induce otherwise hard-to-reach parents to attend a preventive program regularly, especially when such incentives are offered in combination with the free meal, childcare, and transportation incentives that were offered to parents in both conditions. Although it is likely that increasingly larger monetary incentives would induce more and more parents to attend a

parenting program, we believe that relatively modest amounts of money – as were offered in this study – are unlikely to influence many parents over the length of the program. Some critics may argue that we should have offered larger incentives to provide a fair test of our hypothesis. However, even modest incentives may be unaffordable to most community agencies where the program might later be disseminated (Gross & Fogg, 2004). This would be especially true if an agency wishes to provide other incentives such as food, childcare, and/or transportation. In some cases also, money might inadvertently undermine attendance. As one mother put it to the first author at the end of an initial PACE session: “Why are you paying us? I mean, we get childcare, you had a meal for us earlier, and now you give me money. It almost cheapens my participation!” We do not know the extent to which parents in the PACE-I condition shared this view. However, rewarding people for engaging in an activity that they consider adequately rewarded already or worth doing for its own sake may diminish their interest and motivation, especially when the reward is tangible (Deci, Koestner, & Ryan, 1999). Researchers considering the use of monetary incentives as an engagement tool may want to keep this overjustification effect in mind and test it in future studies. For example, one way to minimize this effect may be to refer to the monetary incentives as a “salary.”

In keeping with earlier PACE research (Dumas et al., 2007), we found that intent to enroll in the program predicted actual enrollment. On average, almost two thirds of parents who intended to enroll later did, compared to one third of parents who did not intend to enroll. The fact that, when entered in the HLM analyses, condition negatively predicted intent indicates that the role of intent was somewhat weaker in the incentive condition. As Guyll et al. (2003) found, this suggests that incentives might have encouraged some parents to enroll, even though they had reported earlier that they would not. More generally, the link between intent and enrollment supports the motivational perspective within which this and other studies of engagement have been cast (Guyll et al., 2003; Spoth et al., 1997, 2000), as well as parenting programs that rely on motivational techniques to promote engagement (e.g., Crooks, Scott, Francis, Kelly, & Reid, 2006).

Finally, we are encouraged by evidence of strong engagement in the PACE program. Percentage of enrollment (58%) in the PACE program was comparable to other parenting programs in the literature (e.g., 37% in PCIT, Chaffin et al., 2004), including preventive programs (e.g., 71% in Family Connections, DePanfilis & Dubowitz, 2005; 48% in Healthy Start, Duggan et al., 2004). Overall attendance was high and dropout was low. Many parents were unable to attend all sessions, but 60% of parents attended three quarters of the sessions or more and thus received at least 75% of the intended dose. These figures are lower than in Heinrichs (2006) but in keeping with or somewhat higher than in other successful programs (e.g., Barkley et al., 2000; Conduct Problems Prevention Research Group, 2002). However, these comparisons need to be made cautiously, as programs vary in targeted population, contents, length, availability of makeup sessions and other important characteristics.

Methodologically, the fact that daycare centers explained from 5.2% to 33% of the variance in parental engagement and in child and family characteristics justifies the use of HLM analyses to reflect the study's nested design. These percentages are in accord with estimates obtained from large national databases of group randomized trials (Hedges & Hedberg, 2007) and give some confidence that the data are representative of trends when similar designs and standardized outcome measures are used. More importantly, use of a standard OLS analysis of the data might have led to misleading results (e.g., inaccurate parameter estimates and test statistics) and would have masked differences in engagement attributable to centers, rather than individuals.

Important limitations must be considered when interpreting these findings. First, the *Brief Child Development Survey* from which our measure of intent was obtained was completed by one

person only, although the decision to enroll in PACE and to attend sessions is likely to have been influenced by all members of the household. As Guyll et al. (2003) noted, intent would have been assessed more accurately if other family members had been consulted. The same applies to the *Parent Survey*, which mothers completed in most cases and thus reflected their evaluations but not necessarily that of other family members. Further, the extent to which parents in this study were representative of parents of preschoolers attending daycare is unknown. We believe that the sample was representative of English-speaking lower to lower-middle class families in general, as we were able to attract families from diverse ethnic backgrounds and with a fairly wide range of income levels. However, differences in child competence, parenting skill, and attendance rates between conditions suggest that parents may have been motivated to enroll in the program for different reasons. Specifically, some may have been motivated for parenting assistance and others because of the incentives offered. In addition, our results may only be relevant to similar universal prevention programs. They may not generalize to targeted settings in which parents of children with behavioral problems are invited to enroll.

Implications for Research, Policy, and Practice

To conclude, although we are encouraged by the fact that attendance in the PACE program was high (even though a majority of parents did not attend all sessions) and dropout was low, our findings show that parents did not enroll in greater numbers, attend more sessions or participate more actively when they received monetary incentives. Such incentives encouraged some vulnerable parents to enroll in the program but not attend sessions. This calls into question the use of modest amounts of money as were offered in this study to induce otherwise hard-to-reach parents to attend and participate actively in a preventive parenting program. More generally, this suggests to policy makers and service providers that money may not be an effective tool to maximize participation in prevention programs, unless the amount of money offered is significantly larger than what we offered our participating parents. Stated differently, engagement has long been a major challenge in parent training and other community-based mental health promotion programs, one that, according to our data, modest offers of money are unlikely to solve.

Acknowledgments

This study would not have been possible without the collaboration of Marsha Hearn-Lindsey, Director, Child Care Answers, Indianapolis, of all the parents and children who participated in various aspects of the research, and of staff members who played major roles in data collection and program implementation, including Amanda Mosby, Sharon Hampton, and Stephanie Wynder. Their help and encouragement are gratefully acknowledged.

This study was supported by grant R49/CCR 522339 from the Centers for Disease Control and Prevention to the first author. The support and encouragement of Linda Anne Valle, Ph.D., and Michele Hoover, MS, is gratefully acknowledged, as is their critical feedback on an earlier version of the manuscript. The study's findings and conclusions are those of the authors and do not necessarily represent the views of the Centers for Disease Control and Prevention.

References

- Abidin, R. Parenting Stress Index: Manual, Administration Booklet, and Research Update. Charlottesville, VA: Pediatric Psychology Press; 1983.
- Abidin, R. Parenting Stress Index. Odessa, FL: Psychological Assessment Resources; 1990.
- Abidin, RR. Parenting Stress Index: A measure of the parent-child system. In: Zalaquett, CP.; Wood, RJ., editors. Evaluating stress: A book of resources. Lanham, MD: Scarecrow Press; 1997. p. 277-291.
- Ajzen I. The theory of planned behavior. *Organizational Behavior and Human Decision Processes* 1991;50:179–211.

- August GJ, Realmuto GM, Hektner JM, Bloomquist ML. An integrated components preventive intervention for aggressive elementary school children: The Early Risers program. *Journal of Consulting and Clinical Psychology* 2001;69:614–626. [PubMed: 11550728]
- Barkley RA, Shelton TL, Crosswait C, Moorehouse M, Fletcher K, Barrett S, Jenkins L, Metevia L. Multi-method psycho-educational intervention for preschool children with disruptive behavior: Preliminary results at post-treatment. *Journal of Child Psychology and Psychiatry* 2000;41:319–332. [PubMed: 10784079]
- Boggs S, Eyberg S, Reynolds L. Concurrent validity of the Eyberg Child Behavior Inventory. *Journal of Clinical Child Psychology* 1990;19:75–78.
- Brestan EV, Eyberg SM. Effective psychosocial treatments of conduct-disordered children and adolescents: 29 years, 82 studies, and 5,272 kids. *Journal of Clinical Child Psychology* 1998;27:180–189. [PubMed: 9648035]
- Chaffin M, Silovsky JF, Funderburk B, Valle LA, Brestan EV, Balachova T, Jackson S, Lensgraf J, Bonner B. Parent-Child Interaction Therapy with physically abusive parents: Efficacy for reducing future abuse reports. *Journal of Consulting and Clinical Psychology* 2004;72:500–510. [PubMed: 15279533]
- Conduct Problems Prevention Research Group. Initial impact of the Fast Track prevention trial for conduct problems: I. The high-risk sample. *Journal of Consulting and Clinical Psychology* 1999;67:631–647. [PubMed: 10535230]
- Conduct Problems Prevention Research Group. The implementation of the Fast Track program: An example of a large-scale prevention science efficacy trial. *Journal of Abnormal Child Psychology* 2002;30:1–17. [PubMed: 11930968]
- Crooks CV, Scott KL, Francis KJ, Kelly T, Reid M. Eliciting change in maltreating fathers: Goals, processes, and desired outcomes. *Cognitive and Behavioral Practice* 2006;13:71–81.
- Cunningham CE, Boyle M, Offord D, Racine Y, Hundert J, Secord M, et al. Tri-ministry study: Correlates of school-based parenting course utilization. *Journal of Consulting and Clinical Psychology* 2000;68:928–933. [PubMed: 11068980]
- Curran PJ, West SG, Finch JF. The robustness of test statistics to nonnormality and specification error in confirmatory factor analysis. *Psychological Methods* 1996;1:16–29.
- Deci E, Koestner R, Ryan R. A meta-analytic review of experiments examining the effects of extrinsic rewards on intrinsic motivation. *Psychological Bulletin* 1999;125:627–688. [PubMed: 10589297]
- DePanfilis D, Dubowitz H. Family Connections: A program for preventing child neglect. *Child Maltreatment* 2005;10:108–123. [PubMed: 15798007]
- Dodge, KA.; Coie, JD.; Lynam, D. Aggression and antisocial behavior in youth. In: Damon, W.; Lerner, RM.; Eisenberg, N., editors. *Handbook of child psychology: Vol 3 Social, emotional, and personality development*. 6th. New York: Wiley; 2006. p. 719-788.
- Duggan A, McFarlane E, Fuddy L, Burrell L, Higman SM, Windham A, Sia C. Randomized trial of a statewide home visiting program: Impact in preventing child abuse and neglect. *Child Abuse & Neglect* 2004;28:597–622. [PubMed: 15193851]
- Dumas JE, Lynch AM, Laughlin JE, Smith EP, Prinz RJ. Promoting intervention fidelity: Conceptual issues, methods, and preliminary results from the EARLY ALLIANCE prevention trial. *American Journal of Preventive Medicine* 2001;20:38–47. [PubMed: 11146259]
- Dumas JE, Moreland AD, Gitter A, Pearl A, Nordstrom A. Engaging parents in preventive parenting groups: Do ethnic, socioeconomic, attitude, and value match between parents and group leaders matter? *Health Education and Behavior* 2006;33:715–724.
- Dumas JE, Nissley-Tsiopinis J, Moreland AD. From intent to enrollment, attendance, and participation in preventive parenting groups. *Journal of Child and Family Studies* 2007;16:1–26.
- Dumas JE, Prinz RJ, Smith EP, Laughlin J. The EARLY ALLIANCE prevention trial: An integrated set of interventions to promote competence and reduce risk for conduct disorder, substance abuse, and school failure. *Clinical Child and Family Psychology Review* 1999;2:37–53. [PubMed: 11324096]
- Dumka LE, Garza CA, Roosa MW, Stoerzinger HD. Recruitment and retention of high-risk families into a preventive parent training intervention. *Journal of Primary Prevention* 1997;18:25–39.

- Eisenberg, N.; Fabes, RA.; Spinrad, TL. Prosocial development. In: Damon, W.; Lerner, RM.; Eisenberg, N., editors. *Handbook of child psychology: Vol 3 Social, emotional, and personality development*. 6th. New York: Wiley; 2006. p. 646-718.
- Glisson, C. Organizational climate and culture. In: Patti, RJ., editor. *The Handbook of Social Welfare Management*. Thousand Oaks, CA: Sage; 2000. p. 195-217.
- Glisson C, Dukes D, Green P. The effects of the ARC organizational intervention on caseworker turnover, climate, and culture in children's service systems. *Child Abuse & Neglect* 2006;30:855-880. [PubMed: 16930699]
- Glisson C, Green P. The effects of organizational culture and climate on the access to mental health care in child welfare and juvenile justice systems. *Administration and Policy in Mental Health and Mental Health Services Research* 2006;33:443-448.
- Glisson C, Hemmelgarn AL. The effects of organizational climate and interorganizational coordination on the quality and outcomes of children's service systems. *Child Abuse & Neglect* 1998;22:401-421. [PubMed: 9631252]
- Gross D, Fogg L. A critical analysis of the intent-to-treat principle in prevention research. *Journal of Primary Prevention* 2004;25:475-489.
- Gross D, Julion W, Fogg L. What motivates participation and dropout among low-income urban families of color in a preventive intervention? *Family Relations* 2001;50:246-254.
- Guyll M, Spoth R, Redmond C. The effects of incentives and research requirements on participation rates for a community-based preventive intervention research study. *Journal of Primary Prevention* 2003;24:25-41.
- Harms, T.; Clifford, R.; Cryer, D. *Early Childhood Environment Scale*. Revised. New York: Teachers College Press; 1998.
- Hedges LV, Hedberg EC. Intraclass correlation values for planning group-randomized trials in education. *Educational Evaluation and Policy Analysis* 2007;29:60-87.
- Heinrichs N. The effects of two different incentives on recruitment rates of families into a prevention program. *Journal of Primary Prevention* 2006;27:345-365. [PubMed: 16802074]
- Johnston C, Mash EJ. A measure of parenting satisfaction and efficacy. *Journal of Clinical Child Psychology* 1989;18:167-175.
- Kazdin, AE. *Parent management training*. New York: Oxford University Press; 2005.
- La Paro K, Pianta R, Stuhlman M. The Classroom Assessment Scoring System: Findings from the prekindergarten year. *The Elementary School Journal* 2004;104:409-426.
- Lochman JE. Parent and family skills training in targeted prevention programs for at-risk youth. *Journal of Primary Prevention* 2000;21:253-265.
- Lundhal B, Risser HJ, Lovejoy C. A meta-analysis of parent training: Moderators and follow-up effects. *Clinical Psychology Review* 2006;26:86-104. [PubMed: 16280191]
- Lutzker JR, Bigelow KM, Doctor RM, Kessler ML. Safety, health care, and bonding within an ecobehavioral approach to treating and preventing child abuse and neglect. *Journal of Family Violence* 1998;13:163-185.
- Miller GE, Prinz RJ. Engagement of families in treatment for childhood conduct problems. *Behavior Therapy* 2003;34:517-534.
- Moreland A, Dumas J. Evaluating child coping competence. Theory and measurement. *Journal of Child and Family Studies* 2007;17:437-454.
- Nixon RDV. Treatment of behavior problems in preschoolers. A review of parent training programs. *Clinical Psychology Review* 2002;22:25-546.
- Orrell-Valente JK, Pinderhughes EE, Valente E, Laird RD. If it's offered, will they come? Influences on parent's participation in a community-based conduct problems prevention program. *American Journal of Community Psychology* 1999;27:753-783. [PubMed: 10723534]
- Raudenbush, S.; Bryk, A.; Cheong, Y.; Congdon, R. *Scientific Software International*. 2004. HLM 6: Hierarchical linear and nonlinear modeling.
- Rosenstock, IM. The Health Belief Model: Explaining health behavior through expectancies. In: Glanz, K.; Lewis, FM.; Rimer, BK., editors. *Health behavior and health education: Theory, research, and practice*. San Francisco: Jossey-Bass; 1990. p. 39-62.

- Sanders MR. Triple P – Positive Parenting Program as a public health approach to strengthening parenting. *Journal of Family Psychology* 2008;22:506–517. [PubMed: 18729665]
- Sanders MR, Markie-Dadds C, Tully LA, Bor W. The Triple P-positive parenting program: A comparison of enhanced, standard, and self-directed behavioral family intervention for parents of children with early onset conduct problems. *Journal of Consulting and Clinical Psychology* 2000;68:624–640. [PubMed: 10965638]
- Serketich WJ, Dumas JE. The effectiveness of behavioral parent training to modify antisocial behavior in children: A meta-analysis. *Behavior Therapy* 1996;27:171–186.
- Spoth R, Redmond C. Research on family engagement in preventive interventions: Toward improved use of scientific findings in primary prevention practice. *Journal of Primary Prevention* 2000;21:267–284.
- Spoth R, Redmond C, Kahn JH, Shin C. A prospective validation study of inclination, belief, and context predictors of family-focused prevention involvement. *Family Process* 1997;36:403–429. [PubMed: 9543661]
- Spoth R, Redmond C, Shin C. Modeling factors influencing enrollment in family-focused preventive intervention research. *Prevention Science* 2000;1:213–225. [PubMed: 11523749]
- Webster-Stratton C, Reid MJ, Hammond M. Preventing conduct problems, promoting social competence: A parent and teacher training partnership in Head Start. *Journal of Clinical Child Psychology* 2001;30:283–302. [PubMed: 11501247]
- Webster-Stratton C, Taylor T. Nipping early risk factors in the bud: Preventing substance abuse, delinquency, and violence in adolescence through interventions targeted at young children (0–8 years). *Prevention Science* 2001;2:165–192. [PubMed: 11678292]
- Wenning K, King S. Parent orientation meetings to improve attendance and access at a child psychiatric clinic. *Psychiatric Services* 1995;46:831–833. [PubMed: 7583488]
- Zubrick SR, Northey K, Silburn SR, Williams AW, Blair E, Robertson D, et al. Prevention of child behavior problems via universal implementation of a group behavioral family intervention. *Prevention Science* 2005;6:287–304. [PubMed: 16160760]

Table 1
Child and Family Characteristics: Descriptive Statistics by Condition

	Non-incentive <i>n</i> = 291	Incentive <i>n</i> = 319		
	<i>M</i> (<i>SD</i>) or %	<i>M</i> (<i>SD</i>) or %	χ^2 or <i>t</i> (<i>df</i>)	<i>p</i>
<i>Sociodemographic characteristics</i>				
Parent gender (female/male)	92/8%	94/6%	0.89 (1)	<i>ns</i>
Parent age	32.03 (6.93)	30.07 (6.70)	4.12 (608)	.001
Parent ethnicity (AA/EA/Other)	35/60/5%	61/33/6%	45.84 (2)	.001
Parent marital status (single/married)	46/54%	64/36%	17.95 (1)	.001
Parent employment (no/yes)	37/63%	32/68%	1.35 (1)	<i>ns</i>
Family income	\$29,425 (\$13,784)	\$22,371 (\$12,246)	5.05 (603) ¹	.001
Child gender (female/male)	45/55%	50/50%	2.05 (1)	<i>ns</i>
Child age	4.38 (0.83)	4.43 (0.73)	-0.77 (608)	<i>ns</i>
<i>Child and parent adjustment</i>				
Child coping competence	-0.36 (3.35)	0.39 (3.39)	-2.75 (608)	.01
Child disruptive behavior – Intensity	104.85 (27.75)	101.53 (30.03)	1.41 (608)	<i>ns</i>
Child disruptive behavior – Problem	11.33 (7.41)	11.36 (7.55)	-0.54 (608)	<i>ns</i>
Parenting stress	85.80 (20.55)	85.50 (22.40)	0.17 (608)	<i>ns</i>
Parental satisfaction	37.15 (6.78)	37.64 (7.18)	-0.86 (608)	<i>ns</i>
Parental efficacy	29.78 (5.01)	30.66 (5.19)	-2.11 (608)	.05

¹Reduced degrees of freedom reflect the fact that some parents declined to report family income

Table 2
Daycare Center Characteristics: Descriptive Statistics by Condition

	Non-incentive	Incentive	<i>t</i> (<i>df</i>)	<i>p</i>
	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)		
Number of children enrolled	82.13 (74.44)	91.48 (69.20)	34.66 (32)	<i>ns</i>
Percentage of parents receiving subsidized childcare	24.00 (21.67)	16.84 (12.06)	49.00 (46)	<i>ns</i>
<i>Observations of Daycare Quality</i>				
Space and furnishings	4.48 (0.89)	3.92 (1.25)	15.11 (15)	<i>ns</i>
Personal care routines	3.62 (1.06)	3.44 (0.56)	13.73 (12)	<i>ns</i>
Language reasoning	4.79 (1.15)	3.94 (1.54)	12.69 (14)	<i>ns</i>
Activities	3.81 (1.31)	3.07 (1.45)	19.93 (18)	<i>ns</i>
Interaction with children	5.35 (1.27)	4.58 (2.14)	13.18 (10)	<i>ns</i>
Program structure	4.57 (2.37)	4.05 (1.96)	17.17 (14)	<i>ns</i>
Parent and staff involvement	4.78 (0.68)	4.73 (0.98)	8.84 (10)	<i>ns</i>
Teacher evaluations of daycare climate	39.00 (3.09)	38.63 (3.22)	336.00 (301)	<i>ns</i>

Table 3
HLM Unconditional Models

	Intent	Enrollment	Attendance	Quality of Participation
Chi-square	116.61***	234.98***	228.70***	305.61***
<i>df</i>	55	54	54	49
ICC	5.2%	17%	15.9%	33%

 $p < .001$

Table 4
Enrollment, Attendance, and Point of Dropout (Overall and by Condition)

	Overall	Non-incentive condition	Incentive condition
Total population	4,098	1,816	2,282
Initial PACE sample (N)	1050	582	468
Not enrolled	440	177	263
Enrolled sample	610	291	319
Enrolled but never attended program	127	30	97
Enrolled and attended program	483	261	222
Attended 1 session	63	30	33
Attended 2 sessions	35	22	13
Attended 3 sessions	22	13	9
Attended 4 sessions	25	14	11
Attended 5 sessions	46	25	21
Attended 6 sessions	61	37	24
Attended 7 sessions	109	66	43
Attended all 8 sessions	122	54	68
Dropped out after session 1	44	21	23
Dropped out after session 2	35	20	15
Dropped out after session 3	27	15	12
Dropped out after session 4	12	7	5
Dropped out after session 5	15	11	4
Dropped out after session 6	10	5	5
Dropped out after session 7	25	15	10
Did not drop out	315	167	148
	100.0%	44.3%	55.7%
	26.5%	55.4%	44.6%
	41.9%	40.2%	59.8%
	58.1%	47.7%	52.3%
	20.8%	23.6%	76.4%
	79.2%	54.0%	46.0%
	13.0%	11.5%	14.9%
	7.2%	8.4%	5.9%
	4.6%	5.0%	4.1%
	5.2%	5.4%	5.0%
	9.5%	9.6%	9.5%
	12.6%	14.2%	10.8%
	22.6%	25.3%	19.4%
	25.3%	20.7%	30.5%
	9.1%	8.0%	10.4%
	7.2%	7.7%	6.8%
	5.6%	5.7%	5.4%
	2.3%	2.7%	2.3%
	3.1%	4.2%	1.8%
	2.1%	1.9%	2.3%
	5.2%	5.7%	4.5%
	65.2%	64.0%	66.7%