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A Motivational Intervention Can Improve Retention in PCIT for Low-Motivation Child Welfare Clients

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A motivational orientation intervention designed to improve parenting program retention was field tested versus standard orientation across two parenting programs, Parent–Child Interaction Therapy (PCIT) and a standard didactic parent training group. Both interventions were implemented within a frontline child welfare parenting center by center staff. Participants had an average of six prior child welfare referrals, primarily for neglect. A double-randomized design was used to test main and interaction effects. The motivational intervention improved retention only when combined with PCIT (cumulative survival = 85% vs. around 61% for the three other design cells). Benefits were robust across demographic characteristics and participation barriers but were concentrated among participants whose initial level of motivation was low to moderate. There were negative effects for participants with relatively high initial motivation. The findings suggest that using a motivational intervention combined with PCIT can improve retention when used selectively with relatively low to moderately motivated child welfare clients.

Keywords: *dropout; retention; parenting; PCIT; child abuse; child neglect*

Parent training programs focused on teaching child management and discipline skills are a staple of child welfare service plans for parents. In a large, nationally representative sample of cases, child welfare workers reported that 30% of parents in the child welfare system were referred for parent training services (NSCAW Research Group, 2005). Recent child welfare intervention development work has focused on adapting evidence-based parent training models, originally designed as parent-mediated treatments for childhood disruptive behavior, and applying these to parents in child welfare to reduce parent-to-child violence. In child welfare settings,

the parenting intervention is intended primarily to change harsh discipline practices and negative interaction patterns (e.g., Barth et al., 2005; Pinkston & Smith, 1998)

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irrespective of child behavior problem status. There has been some success in these development efforts. For example, Chaffin et al. (2004) reported substantial reductions in rates of negative parent-to-child behaviors and in future physical abuse reports among physically abusive parents who received an adapted version of Parent-Child Interaction Therapy (PCIT) compared to parents who attended a traditional didactic parenting group. Application of evidence-based behavioral parent training models to child welfare populations holds considerable promise for reducing subsequent child abuse, for example, reducing 2.5-year physical abuse recidivism from more than 50% to 19% in the Chaffin et al. (2004) study.

But effective service models may be of limited value in field settings if parents are not retained long enough to receive the designed treatment (e.g., Lundahl, Nimer, & Parsons, 2006; Lundquist & Hansen, 1998). Improving outcomes involves not only using effective treatment models but also delivering a sufficient dose of the treatment. Child welfare service providers often experience significant challenges in getting parenting services delivered to clients. Dropout rates in child welfare parenting programs are high, and even when parents are mandated to attend programs by child protective services or the courts, dropout rates of up to 70% have been reported (Lundquist & Hansen, 1998). This may be more of a problem in frontline service delivery settings than in intervention development settings because development settings often have considerable resources devoted to dropout management (Luongo, 2007; Stark, 1992), such as trackers, incentives, and outreach staff. Developing effective retention improvement approaches that are useable in frontline settings is an important task complementing the development of effective parenting models.

There is a range of possible factors driving service dropout. One group of factors involves external obstacles to retention. These include participation-related costs, low economic resources, social pressures, competing demands, language barriers, and cultural barriers (Kazdin, Holland, Crowley, & Breton, 1997). Parental distress and chaotic or unstable family circumstances also pose obstacles (Kazdin & Wassell, 1999). Apart from obstacles to retention, individuals' internal motivation plays a role in whether clients are retained in services or dropout (e.g., Littell & Girvin, 2005). Motivational factors include readiness to change parenting behaviors, attitudes toward the program, self-efficacy perceptions, and problem recognition. Motivational factors may be particularly salient among child welfare clients. In contrast to parent populations for whom most evidence-based parenting models were originally designed (i.e., parents of children with behavior problems), many child welfare

clients are not autonomously seeking help. In other words, child welfare parents may present for parent training services not because they personally desire help or because they are ready for change but rather because they have been ordered into parenting services by the authorities (Barth et al., 2005; Lundquist & Hansen, 1998). It often is a service that someone other than the parent believed was needed. Regardless of the child welfare system's good and useful efforts to involve clients in collaborative goal setting and service planning (e.g., family group conferencing or systems of care approaches), there is an intrinsic compulsory or coercive element to child welfare services that cannot entirely be eliminated. Complicating this, many child welfare clients have chronic or recurring involvement with the child welfare system (e.g., English, Marshall, & Orme, 1999; Way, Chung, Jonson-Reid, & Drake, 2001) and thus may have been through multiple compulsory parenting programs in the past. Consequently, the motivational mix among chronic child welfare service populations may be expected to differ from that of other clinical populations. Strategies solely focused on reducing obstacles (e.g., providing transportation or child care support, convenient locations and scheduling, free services, culturally or linguistically friendly services) may have limited impact without supplementary strategies directly addressing low motivation.

Motivational interventions have been tested with parent populations outside child welfare and found to generate retention benefits (for a review, see Nock and Ferriter, 2005). For example, Nock and Kazdin (2005) tested a brief adjunctive motivational intervention for parents entering parent management training to address their children's oppositional and defiant behavior. Parents randomly assigned to the adjunctive motivational intervention condition had greater session attendance. To date, there has been little research testing supplementary motivational interventions among child welfare clients referred for parenting programs.

Studies testing motivational approaches among child welfare populations have found mixed results across different populations and interventions. For example, Mullins, Suarez, Ondersma, and Page (2004) examined the effects of a short motivational interviewing intervention among substance abusing mothers involved in child welfare services because of a drug-exposed newborn. Women were enrolled in a comprehensive drug treatment and parenting program that included group sessions and home-based services. Women randomly assigned to receive the adjunctive motivational intervention did not show improved retention in group sessions or improved urine drug screen outcomes.

In the Chaffin et al. (2004) study, physically abusive parents received a brief motivational group program prior to receiving PCIT. This combined package was compared to a standard care package composed of an informational orientation group orientation followed by a group parenting program. Parents randomly assigned to the motivational intervention plus PCIT package had significantly better retention than did parents assigned to the standard package. However, it was not possible to disentangle the effects of the orientation condition (motivational group vs. standard informational group) from those of the parenting condition (PCIT vs. standard didactic group model) given the experimental design used. Consequently, it was not clear whether improved retention was related to the motivational intervention, the PCIT parenting model, a synergistic combination of the two, or confounded site and provider factors. The motivation plus PCIT intervention was delivered in a university-based development setting with significantly greater resources, whereas the standard interventions were delivered in a field agency setting with fewer resources.

We might expect that adjunctive motivational interventions are particularly relevant for newer evidence-based parenting models, such as PCIT. Modern evidence-based parenting models that are candidates for dissemination to child welfare services settings differ in several respects from their predecessors. Many traditional parenting programs delivered to child welfare clients use didactic parenting groups or classes (for a review, see Wolfe and Wekerle, 1993). Didactic parenting classes require that parents sit, listen or appear to listen, and occasionally participate in discussions focused on parenting concepts and attitudes. Didactic classes do not require demonstrated behavior change or in vivo skill practice. To a certain degree, they can be passively consumed because the focus is more on how parenting is conceptualized and talked about in vitro rather than on how parenting is behaviorally delivered in vivo. In contrast, many newer evidence-based parenting programs cannot be passively consumed and are more behavioral and live skill-focused in approach. They require practicing and demonstrating a specific set of skills, often during live parent-child interactions (e.g., Eyberg & Boggs, 1998; McMahon & Forehand, 2003). This more active and demanding approach has been related to larger effect sizes. For example, a recent meta-analysis of parenting program elements (Kaminski, Valle, Filene, & Boyle, in press) examined which program elements were associated with relatively better parent and child outcomes. Across both parent and child outcomes, program delivery via direct skill practice with the parent's own child was one of the most powerful predictors of larger effect sizes.

The type of parenting model could moderate the impact of a motivational intervention in at least three possible ways. It is possible that the more action-oriented elements common to evidence-based models may create additional retention challenges because of the higher demands placed on clients—therefore motivational interventions may be required to obtain any sort of reasonable retention in the face of higher demands. This was the rationale offered by Chaffin et al. (2004) for designing a motivational orientation pretreatment as part of the overall PCIT package for abusive parents. However, the converse is also possible. Clients may find action-oriented interventions more engaging because they prefer doing over talking, because of novelty, or because action-oriented parenting programs deliver greater palpable benefits, thereby rendering motivational interventions superfluous. In other words, action-oriented models may generate their own motivation. It is also possible that motivation and an action or behavioral orientation to parenting may combine synergistically or “match,” with the whole being greater than the sum of its parts. To our knowledge, the possible interaction pattern between a motivational intervention and different types of parenting approaches has not been studied.

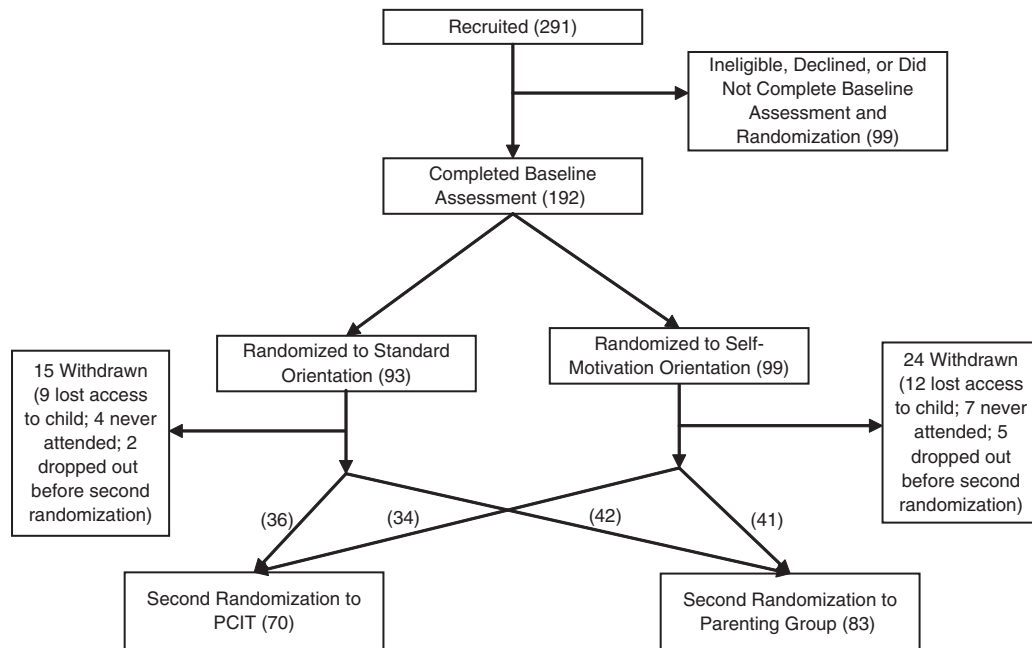
The overarching aim of this study is to test the effects of an adjunctive motivational intervention across two types of parenting conditions—PCIT and a didactic parenting group—utilizing intervention approaches drawn from the Chaffin et al. (2004) study but implementing all of the interventions in a frontline child welfare parenting program rather than in a university-based intervention development setting so that setting is not confounded with intervention condition. The study used a double-randomized 2×2 design with random assignment to an initial preparenting orientation condition (self-motivational or standard informational), followed by a second randomization after completion of orientation to PCIT or standard didactic group parenting models. Finally, the study examined the extent to which any retention benefits associated with the orientation condition (motivational vs. informational) or with the parenting interventions (PCIT vs. standard parenting) were moderated by other potential influences on retention, including demographic factors, obstacles to participation, lifestyle disorganization, parenting distress, and baseline level of motivation to change parenting behaviors.

Method

Participants

Participants were 192 parents referred for parenting services at a small, inner-city, nonprofit community

Figure 1
Enrollment and Randomization Flow Chart



agency operating a parenting program under contract with the state child welfare system. Study inclusion criteria for parents included a referral to the program by child welfare for neglect and/or physical abuse, an index child between 2.5 and 12 years of age who was available to participate in PCIT if so randomized, and a Kaufman Brief Intelligence Test (KBIT; Kaufman & Kaufman, 1990) parent IQ score of at least 65 to ensure adequate capacity to complete study measures. Parents in all assigned conditions were withdrawn from the study if there was a change in eligibility status because of termination of parental rights or any other loss of access to all children that would preclude randomization to the PCIT study arm. Ineligible, excluded, or withdrawn participants retained access to open services at the agency. A recruitment, enrollment, and randomization flow diagram is provided in Figure 1.

Participant parents were 75% female, with a mean age of 29. In all, 60% were non-Hispanic Caucasian, 19% were African American, 9% were Native American, 7% were ethnically Hispanic, and 6% were Asian or another race/ethnicity. Of participants, 35% were married or cohabitating, 29% were never married, 18% were divorced, and 17% were separated. In addition, 29% had less than a high school equivalent education, 40% were unemployed, and half received public support. Of households, 75% fell below the federal poverty threshold, and

the median household income was around \$900 per month. The mean and median KBIT IQ score was 92. Parents had an average of 2.6 children in their household, and 10% of women reported that they were currently pregnant. Most parents (73%) had at least one child in the preschool age range. On average, parents had multiple prior referrals to the child welfare system, usually for child neglect. The 192 parents had accumulated 1,142 unduplicated prior household referrals to the state child welfare system that were not ruled out or screened out, with a mean of 6 and a median of 4 prior referrals per household. The majority (70%) of past household referrals involved child neglect, followed by a smaller number involving physical abuse (23%) or sexual abuse (6%). More than 70% of parents had one or more children placed in foster care, and only 34% had any children still living in their household at study enrollment. In all, 81% self-reported that their reason for seeking parenting services was "told to come by child welfare" or "ordered to come by the court."

Assessment

Assessment information for this study was drawn from two sources. Questionnaire data were obtained using audio computer-assisted self-interview. Administrative data for session attendance and for past child maltreatment report

history were captured from service agency and state child welfare agency records and databases.

Demographic questionnaire. A basic demographic questionnaire was used to capture parent and family characteristics, referral information, and family background and economic information. An earlier version of the questionnaire was pilot tested on 100 parents in similar programs, and items answered inconsistently or indicated by parents to be confusing were modified prior to use in the current study.

Obstacles to Engagement Scale. This 34-item scale (Dumas, Nissley-Tsiopinis, & Moreland, 2006) was used to capture the extent to which common obstacles might interfere with session attendance. Items reflect competing demands (e.g., difficulty finding time away from job), social barriers (e.g., spouse or significant other objecting to participation), transportation barriers, cultural barriers (e.g., feeling distrustful, having different beliefs and values), financial barriers, and health and mental health barriers (e.g., personal depression, child health problems, family health problems). Each potential obstacle was rated by participants on a 4-point scale. The most strongly endorsed obstacles involved transportation problems, work schedules, finding time to participate, financial problems, and distrust. The alpha for the scale within the current study population was .97, and a single-factor solution accounted for 59% of the variance.

Parenting Stress Index/Short Form (PSI). The PSI (Abidin, 1990; 1997) is a 36-item questionnaire scale designed to measure the degree of stress parents experience in the parent-child relationship and in their role as parents. The instrument has well-established measurement properties, and the alpha for the scale within the current study population was .90.

Readiness for Parenting Change Scale (REDI). The REDI is a measure of motivation to change parenting behavior developed by Mullins et al. (2004) for use with substance-abusing parents in combined substance abuse and child welfare services. The measure was adapted for the current study by modifying items to reflect motivation for participating in the current parenting program, by adding items reflecting current program content or goals surrounding harsh punishment, and by adding items tapping attitudes toward the current program and being mandated to attend the program. The expanded pool of adapted items was pretested with 122 anonymous nonstudy clients at the study site prior to beginning the randomized trial to identify confusing items and test the

modified scale. Items rated as confusing by clients were dropped. A confirmatory maximum likelihood factor analysis was executed using the original REDI subscale plus newly added groups of items reflecting belief in harsh discipline and attitude toward program. Items with information values less than .25 were excluded, resulting in a 23-item scale with an overall Omega value of .92 and an intercorrelated subscale structure. Sample items from the final REDI subscales are as follows: (a) Readiness to Change (e.g., "I'm ready to change the way I discipline my child"; "I don't really need to change my parenting, I'm only here because I'm forced to be here"), (b) Problem Recognition (e.g., "The way I'm disciplining my child now is not working"; "If I don't change soon, my child's future could be hurt"), (c) Belief in Harsh Discipline (e.g., "Physical punishment is the only thing that will work for my child"), (d) Attitude Toward the Program (e.g., "It feels like an insult to be sent to a program like this"; "I am committed to completing this program, whatever it takes"), and (e) Self-Efficacy (e.g., "This program is asking for more than I can do"; "I'm sure I can do positive things to help my child and myself"). In the study sample, the alpha for the overall 23-item scale was .84.

Confusion, Hubbub, and Order Scale (CHAOS). The CHAOS (Matheny, Wachs, Ludwig, & Phillips, 1995) is a 15-item, forced-choice questionnaire assessing characteristics of noise, confusion, clutter, frantic activities, and disorganization in the household. Seven items focus on household routines and organization (e.g., "Your family can usually find things when they need them"), and eight focus on disorganization, confusion, and noise (e.g., "You can't hear yourself think at home"). In two separate studies, Dumas et al. (2005) found the CHAOS scale to have high internal consistency, with Cronbach's alphas of .81 and .83 and 12-month test-retest stability of .74. The CHAOS correlates highly with observational measures of home disorganization (Matheny et al., 1995). The alpha for the scale within the current study sample was .79.

Procedures

Parents were contacted by a research assistant shortly after agency intake, between January 2004 and August 2006, and invited to volunteer for the study. Recruitment, consent, and study procedures were approved by a university and a federal institutional review board. Those volunteering for the study completed a screening assessment to determine eligibility. Eligible participants were scheduled for full assessment. After assessment, participants were randomized using an unblinded sequential

computer-generated randomization list to one of two initial six-session preparenting orientation conditions (self-motivation group or standard informational group). Attendance in the planned six-session orientation groups was tracked from progress notes and sign-in sheets, verifying attendance with therapists as needed. If a participant missed a session but attended a make-up session, the session was counted as attended. Participants completing the orientation conditions were then randomized a second time to one of two parenting models (PCIT or standard didactic group; see Figure 1). A total of 39 cases were lost between the first randomization to orientation condition and the second randomization to parenting treatment condition. Loss was primarily because of parents losing access to their children and therefore losing study eligibility. For example, if the children were placed in a foster home outside of the geographic area or if the parent's rights were terminated, the parent was no longer eligible to remain in the study because he or she could not be randomized to the dyadic PCIT arm of the study. This withdrawal criterion was applied equivalently to all participants throughout the study regardless of their randomized condition. Loss of eligibility because of losing access to children accounted for 21 of the 39 cases lost during orientation. Parents who never attended a single session (i.e., treatment refusers) accounted for 11 of the 39 cases lost during orientation. Parents who dropped out of the program after attending at least one orientation session accounted for 7 of the 39 cases lost during orientation. Overall rates of attrition or reasons for attrition did not differ significantly between the two orientation conditions. Attendance across the first 12 planned parenting sessions (PCIT vs. standard) was tracked among the remaining 153 participants who completed the second randomization to one of the two parenting conditions. If a participant missed a parenting treatment session but attended a make-up session, the session was counted as attended.

Self-motivation orientation condition (SM). The SM was a six-session manualized group program based on the same protocol and structure used in the Chaffin et al. (2004) university-based PCIT study. The intervention is loosely based on motivational interviewing principles (Miller & Rollnick, 2001) and included sessions involving testimonials from parents who previously completed the parenting programs, decisional balance exercises weighing the pros and cons of harsh physical discipline and the pros and cons of change, encouragement of parents to develop their own list of parenting and parent-child relationship problems and goals, elaboration of the discrepancy between current parent-child interaction

patterns and personalized goals, and encouragement of commitment to a plan for change. Although motivational interviewing is normally delivered in individual sessions, the group approach was used so that the SM and standard orientation conditions in the study would share a common delivery modality. This decision did preclude some of the more individually tailored aspects of normal motivational interviewing in favor of a more fixed group protocol. SM was delivered via structured session-by-session group exercises THAT included written exercises completed during group, verbal presentation of written work to the group with feedback, and group discussion led by the therapist. Each session had a topical focus and a structured exercise. Written individual feedback for each session's participation was given. The overall delivery style of the motivational intervention and the feedback provided were collaborative, questioning, reflective, and nonconfrontational. Therapists were trained both in the structured protocol and in the overall philosophy and techniques of motivational interviewing.¹ In the current study, SM was delivered by master's-level agency therapists who were initially trained in the protocol by investigators and monitored by study staff for fidelity using session checklists. The checklist was coded by study staff from reviews of live or recorded sessions. These were reviewed in weekly clinical supervision meetings with the therapists, and any fidelity or implementation problems were addressed. The fidelity criterion was set at 90% of checklist items. None of the therapists evidenced sustained failure to maintain criterion levels during active study treatment.

Standard informational orientation condition. The standard informational orientation condition was a six-session, manualized group orientation program that had been routinely implemented at the service agency for many years. The focus was primarily educational and involved providing information about the roles of child welfare and the agency, definitions about child maltreatment and how it affects children, information about agency services, and information about the possible links between a parent's own childhood experiences and current parenting practices. The standard orientation group program was delivered by agency staff. The standard program was not fidelity monitored by research staff, but the agency provided a schedule of weekly clinical supervision comparable to the SM condition. Because the SM and standard informational conditions shared the same group format, cross-contamination was considered a risk. Consequently, agency therapists delivered one orientation condition or the other, but not both.

PCIT parenting condition. The PCIT condition followed the 12- to 14-session protocol used by Chaffin et al. (2004) in their study with physically abusive parents. PCIT is a dyadic behavioral parent training program that is considered an empirically supported treatment for disruptive childhood behavior disorders (Brinkmeyer & Eyberg, 2003). The adapted version of PCIT closely followed standard PCIT structure and content (Eyberg & Boggs, 1998). Treatment consisted of two phases. The first phase, child-directed interaction (CDI), focused on teaching relationship enhancement skills and establishing positive parent-child interactions. CDI consisted of a single didactic session followed by five to six weekly live-coached parent-child dyad sessions. A therapist directly coached in vivo parenting behaviors from behind a one-way mirror using a remote earphone. Parents were coached to ignore minor child misbehavior; to follow their child's lead in a play interaction; to avoid criticism, sarcasm, or other negative behaviors; and to increase use of five key parenting skills: labeled praise, reflection, imitation, description, and enthusiasm. The second phase of PCIT, parent-directed interaction (PDI), focused on teaching command-giving skills and a step-by-step behavioral discipline protocol for using consistent time-out and selective reinforcement to obtain child compliance with parental directives. PDI also consisted of a single didactic session followed by five to six weekly live-coached parent-child dyad sessions. As applied to child welfare populations, PCIT is intended primarily as a treatment for harsh, abusive, or detached parenting, not primarily as a treatment for child behavior problems. Adaptations for use with child welfare populations included incorporation of parental self-control and emotion regulation strategies into the PDI portion of the protocol and extending the ages of children who can be included in treatment. PCIT was delivered by master's-level agency therapists who were initially trained by study staff. PCIT sessions were fidelity monitored as described earlier.

Standard didactic parenting condition. The standard didactic parent training treatment was a 12-session weekly parenting group in which parents learned about child development and developmentally appropriate expectations, principles of discipline, use of praise, communication strategies, stress management, and the ways in which parental personal problems affect children. Special needs and crises presented by parents were also addressed during group discussion. The treatment utilized an unpublished group manual developed by the agency. The primary focus of the program was on attitudes, beliefs, and knowledge about parenting. The standard didactic

parenting condition was not fidelity monitored by study staff, but the agency provided a schedule of clinical supervision comparable to the PCIT condition. Given that the formats of the two parenting conditions were so fundamentally different (individual parent-child format vs. group parent discussion format), the advantages of therapist counterbalancing were felt to outweigh the limited risk of cross-contamination. As a result, the same therapists delivered both PCIT and the standard parenting program. Therapists from the orientation conditions delivered both of the parenting conditions to mitigate the potential therapist-related confound between orientation condition and parenting condition.

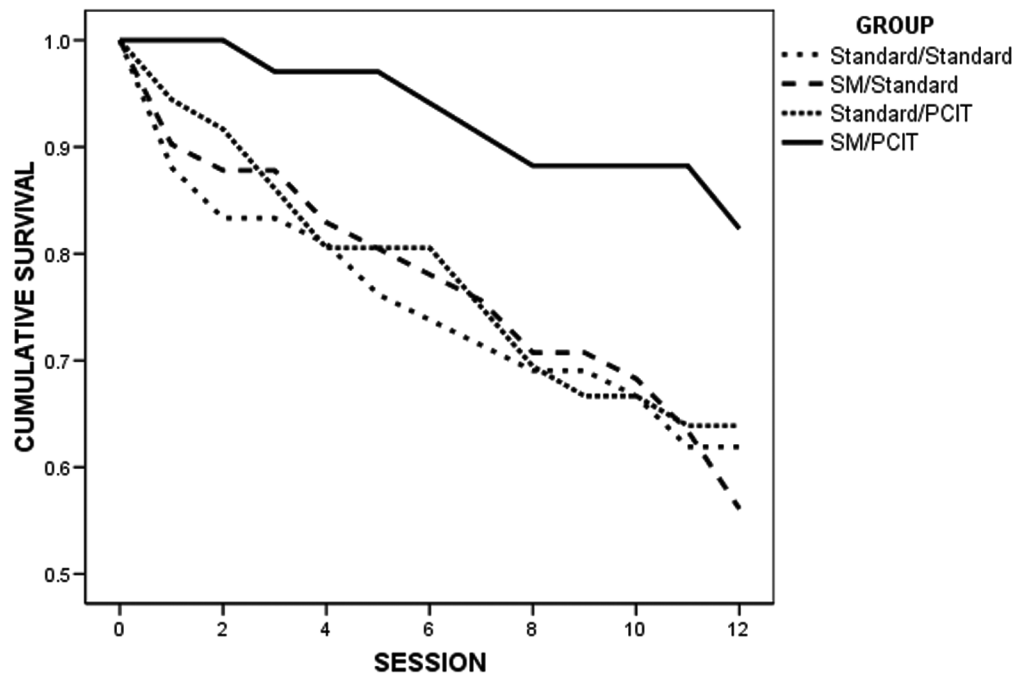
Results

To check the initial randomization, a series of simple bivariate tests were conducted comparing the SM and standard informational orientation conditions on parent age, sex, marital status, race/ethnicity, number of prior child welfare referrals, IQ score, self-report of being ordered into services, and scores on all study measures. No statistically significant differences were found. To check the second randomization, a similar series of bivariate tests were conducted comparing the PCIT and standard didactic parenting conditions. No statistically significant differences were found. Comparing all four cells in the 2×2 design, no significant baseline differences were found. No study-related unanticipated adverse events were recorded for any intervention condition.

A manipulation check for the SM intervention was performed comparing motivation change, as measured by the REDI, from baseline to postorientation (i.e., after completing orientation but before entering parenting). In a repeated measures ANOVA, REDI scores were found to improve over time across both conditions (Wilks's Lambda = .874, $F = 18.1$, $p < .001$) but improved significantly more in the SM condition than in the standard informational condition (Wilks's Lambda = .945, $F = 7.3$, $p < .01$). The SM intervention yielded significantly greater motivational change, as it was designed to do. Examining REDI subscales separately, significantly greater improvements over time were found for the SM condition on Readiness to Change (Wilks's Lambda = .97, $F = 4.3$, $p < .05$) and Attitude Toward the Program (Wilks's Lambda = .98, $F = 4.3$, $p < .05$), with a trend toward increased benefit in Self-Efficacy (Wilks's Lambda = .97, $F = 3.5$, $p = .06$).

The main study question concerns dropout from the parenting programs. This was approached as a survival

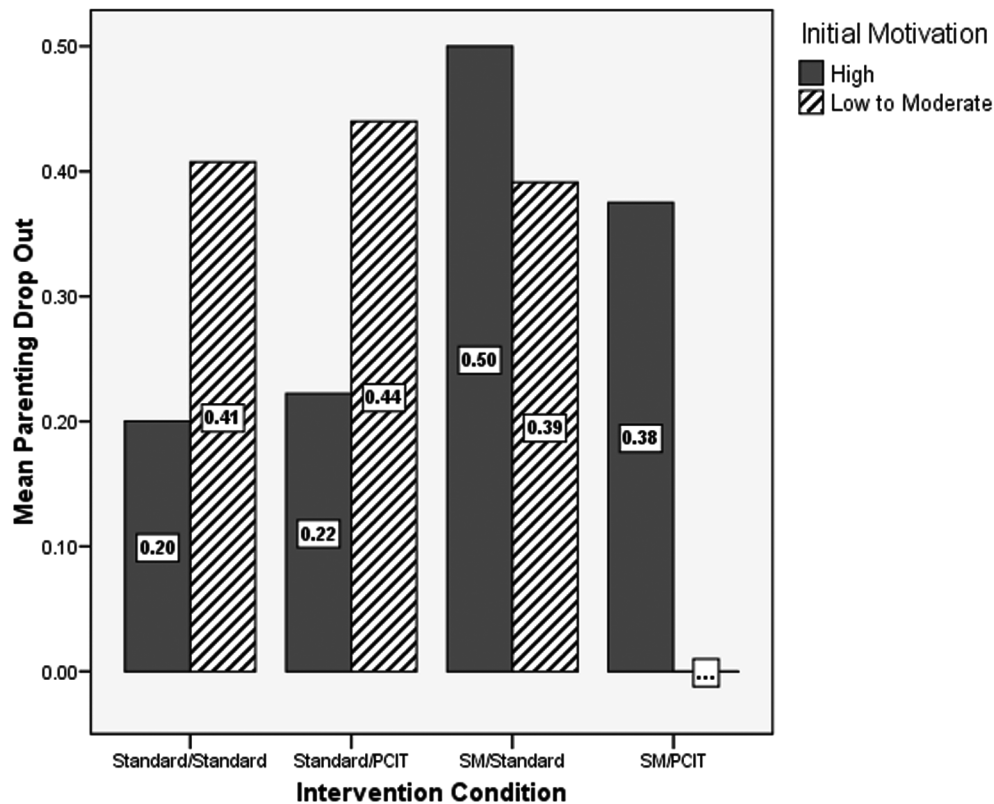
Figure 2
Survival for Dropout Across Design Cells



analysis problem to examine overall patterns of dropping out over time. Two variables were coded—whether or not a dropout event occurred (yes or no) and a survival variable reflecting how far into the parenting treatment course (0 to 12 sessions) the participant progressed before either completing or dropping out. Dropout was defined as a participant who quit coming to all further scheduled parenting sessions and failed to return despite several weeks of staff efforts to recontact and reengage the participant by phone, by mail, and through the child welfare worker. Treatment interruptions (i.e., missing sessions then resuming) were not treated as dropout. Cases in which parental rights were terminated or where treatment involvement was stopped for eligibility reasons other than dropout (e.g., the parent became incarcerated or the parent lost access to his or her children; $n = 19$) contributed data to the survival analysis up until the point where eligibility was lost. A single participant was voluntarily withdrawn from PCIT because of the parent reporting that it was emotionally difficult to see her children after they had been removed from her home, and this event was treated as a dropout. These data were analyzed using a Cox proportional hazard model. Initial testing of group by time interactions supported the proportionality assumption for Cox models. The model included two crossed-group main effects, each coded to

reflect the effect because of presence of the experimental intervention (SM vs. standard informational preparenting; PCIT vs. standard didactic parenting). The orientation condition \times parenting condition interaction term was significant ($\beta = -1.23$, Wald = 3.8, relative risk = 0.3, 95% confidence interval [CI] = 0.1 to 1, $p = .05$), and consequently the full factorial model was accepted. Neither main effect reached significance. The survival functions for the four cells of the 2×2 design are shown in Figure 2. Cumulative survival for the SM–PCIT condition was 85% (estimated survival time = 11.4, 95% CI = 10.8 to 12.0), compared to 56% for SM–standard (estimated survival time = 9.1, 95% CI = 7.8 to 10.4), 64% for standard–PCIT (estimated survival time = 9.2, 95% CI = 7.8 to 10.6), and 64% for standard–standard (estimated survival time = 9.1, 95% CI = 7.7 to 10.4). Pairwise comparisons among the cells were made using a nonparametric survival analysis for the four cells yielding an overall significant group effect (Wilcoxon = 8.3, $df = 3$, $p < .05$), with significant pairwise differences between the SM–PCIT condition and each of the other three conditions (SM–standard, standard–PCIT, and standard–standard; Wilcoxon = 8.0, $df = 1$, $p < .01$; Wilcoxon = 5.1, $df = 1$, $p < .05$; and Wilcoxon = 5.6, $df = 1$, $p < .05$; respectively), with no significant differences among any of the other three conditions.

Figure 3
Moderating Effect of Initial Motivation on Experimental Conditions



To test how consistently the SM–PCIT combination generated superior retention across a range of possible retention-relevant moderating factors, a series of Cox models was tested. To simplify interpretation of the interaction, and given the pattern of findings from the experimental condition tests, the design cell structure was simplified to reflect contrasts between the SM–PCIT condition and all other conditions collapsed. First, a series of demographic moderators was tested, including sex, race, and number of prior child welfare referrals and household income. Although not ideal for examining race/ethnicity effects, it was necessary to collapse race into categories of Caucasian, African American, and Other to achieve sufficient cell sizes for reasonable data analysis. None of the moderating effects approached significance and so were not considered in further tests of retention relevant factors. Next, a similar set of models was tested examining moderation by measures of potential obstacles and initial motivation, including PSI, Obstacles to Engagement, Readiness to Change, and CHAOS scale scores. Because this domain of barriers was intercorrelated, they were tested using a hierarchical

Cox model, first controlling for all moderator main effects and the group main effect, then testing any significant group \times moderator interaction effects in a forward stepwise fashion. There was a significant main effect for the REDI ($\beta = -3.5$, Wald = 4.5, $p < .05$), showing that as motivation scores improved, hazard for dropout decreased. The REDI \times group contrast interaction also was significant ($\beta = 3.6$, Wald = 4.7, $p < .05$), showing that as baseline motivation scores increased, there was attenuation of the SM–PCIT condition retention benefit. A series of comparable moderation models was repeated, checking moderation by separate REDI subscale scores. Significant moderation was noted by the Readiness to Change subscale ($\beta = 3.3$, Wald = 4.0, $p < .05$), and a trend was noted for the Problem Recognition subscale ($\beta = 3.8$, Wald = 2.9, $p = .09$). The moderation effect for the REDI score is shown graphically in Figure 3, where raw dropout rates for equal thirds of baseline motivation are shown for all design conditions. Participants in the top third of baseline motivation had *more* dropout when they received SM, whereas participants with relatively lower or moderate baseline motivation had *no*

dropout when they received SM prior to PCIT. Graphical depiction of moderation by the REDI Readiness to Change subscale was comparable to that seen for the overall REDI score.

Given the earlier manipulation check demonstrating that the SM intervention produced its intended improvement in motivation relative to the standard orientation, a structural Cox model was explored to see if it might be possible to confirm whether orientation condition effects on retention in PCIT are mediated by changes in measured motivation. A structural model was constructed in M-Plus for a survival outcome, examining simultaneous direct and mediated pathways between orientation condition and retention survival, across parenting condition and baseline motivation strata. Separate models were tested for mediation by the Wave 2 (postorientation but before beginning parenting) REDI score and mediation by a REDI change score. Mediation significance was assessed using the product of coefficients method (MacKinnon, Lockwood, Brown, Wang, & Hoffman, 2007). No statistically significant mediation was detected for the overall REDI scale or any subscale, although sample size was less than ideal for a structural model testing mediation of an effect appearing differentially across two- and three-way interaction strata.

Discussion

The combination of motivational pretreatment with PCIT produced significantly improved retention among individuals with initially low to moderate motivation. This improvement could not be attributed to either the motivational intervention or to PCIT alone but rather was created from the synergy obtained through their combination. Among parents whose initial motivation was relatively high, no effect or negative effects were observed. The original rationale cited in Chaffin et al. (2004) for pairing a motivational intervention with PCIT was that PCIT, like many skill-focused behavioral parenting programs, placed higher action-oriented demands on participants, and therefore some adjunct motivational work would be required for child welfare clients to adequately complete treatment. However, these results suggest that, absent the motivation intervention, retention in PCIT is comparable to that of traditional didactic group formats. Implementing PCIT—and potentially other behavioral parenting models—may create a window of opportunity for improving retention beyond what is customary through the selective use of motivational approaches.

The findings in this study suggest a possible resolution to previously discrepant findings for motivational

interventions tested among child welfare populations in parenting programs. Prior child welfare parenting retention studies have not dismantled the effects of the treatment model from the effects of the motivational intervention, nor have they modeled the moderating impact of baseline motivation. The interaction effects found in this study could explain both the improved retention found in Chaffin et al. (2004), where the motivational intervention was paired with PCIT, and the failure to find effects reported by Mullins et al. (2002), where the motivational intervention was paired with a discussion-based group program.

One possible explanation for retention improvements being found only in PCIT is that a more behavioral parenting model is a better match for parents after receiving a motivational intervention because of the fit between increased readiness to change and the behavioral action orientation of the PCIT parenting model. Anecdotally, agency clinicians reported that some parents in the SM–standard condition complained that they came into the standard didactic parenting group ready to take specific action and make changes but then found the discussion format disappointing.

The high parenting retention rate (85%) in the SM–PCIT condition overall, and especially among those with low to moderate initial motivation (100%), compared quite favorably with retention rates found among outpatient clinic services patients in general (Wierzbicki & Pekarik, 1993) as well as those reported for child welfare clients and similar populations in the welfare system (Lundquist & Hansen, 1998; Morgenstern et al., 2006). When interpreting the retention rates found in this study compared to rates found in other studies, one should consider the fact that there is no uniform definition for treatment dropout, and definitions used may vary across studies. One should also consider that some study participants were lost during the initial preparenting phase (i.e., prior to the parenting condition randomization), which may have inflated the overall parenting retention rates in this study by removing some dropout-prone individuals. However, most participants who were lost during the orientation phase were not lost because of dropout but were lost because of eligibility changes or because of treatment refusal (i.e., failure to attend any sessions). Treatment refusal is considered to be a different phenomenon than treatment dropout (Garfield, 1994) and is less relevant to the specific motivational approach used in this study.

Findings in this study were obtained using a high-risk child neglect population with multiple past referrals, high levels of child foster care placement, frequent termination of parental rights, and few economic resources.

This is a population that is arguably difficult to engage and retain in services. The research project initially intended to examine effects among a population of child welfare parents referred for physical abuse rather than a population of chronic neglect cases, but changes in referral patterns and utilization priorities by the county child welfare office altered anticipated sample characteristics. We would expect, but cannot confirm, that the effects found in this study would hold among physically abusive parents given that the pattern of SM–PCIT retention over standard–standard retention replicates the results found by Chaffin et al. (2004) with physically abusive parents.

The synergistic retention benefits because of SM–PCIT appeared to be robust across parent sex, race/ethnicity, income, and extent of past child welfare system involvement. Effects also were robust across other types of possible retention-relevant factors, including obstacles to participation, level of parenting distress, and level of household disorganization. Motivational enhancement combined with PCIT can generate improved retention even when external obstacles to participation are high.

One particular moderating effect needs to be emphasized. Baseline motivation moderated the SM–PCIT synergy effect. Individuals with relatively low or moderate initial motivation were the ones who benefitted from the motivational intervention. This benefit was not present among participants with relatively high initial motivation, and in fact this subgroup had elevated dropout when they received the motivational intervention. There is some precedent for this finding. Some studies of motivational interviewing with substance abusing populations also have reported that motivational interventions attenuate benefits or even produce iatrogenic effects among the already motivated (Rohsenow et al., 2004; Stotts, Schmitz, Rhoades, & Grabowski, 2001), although this has not been a consistent theme across all populations, interventions, or ways of measuring motivation. In the present study, it may have been that engaging in an examination or reexamination of the pros and cons of change, or simply delaying action among those who are ready to take action, may have lead to poor retention. Consequently, clinicians incorporating motivational components into child welfare parenting programs should consider a targeted approach, using a motivational orientation approach only where initial motivation is relatively low or moderate rather than for everyone. This implies that some initial baseline assessment of motivation may be required before referring for a motivational intervention.

Although the SM intervention produced greater improvement in motivation, as it was designed to do, we were unable to confirm that changes in motivation

directly mediated the intervention's moderated retention benefit. Testing the complex mediated moderation pattern was hampered by the smaller than ideal sample size for testing this complex a causal model. Results of the exploratory mediational model should be considered inconclusive and point toward the need for a larger sample size study focused on a broader collection of possible mechanisms among a carefully targeted low or moderate motivation population.

A number of limitations to this study should be considered when interpreting the results. Because the field agency where the study was conducted was small, the number of therapists involved was small and precluded nesting participants within therapists and examining the contribution of therapist variability to outcomes. It is possible that therapist effects may have played a role in outcomes, but this issue will require a larger sample to examine adequately. Similarly, the study was conducted at a single agency. Consequently, results should be generalized cautiously pending replication. Sample constraints should also be considered in interpreting the results, particularly to samples of parents outside of child welfare, parents who have a broader range of socioeconomic characteristics, and especially parents who have higher initial levels of motivation.

A strength of the study is the fact that retention effects were tested in a frontline field setting, not a development setting, so ecological validity is arguably an advantage. In practice, chronic child welfare populations seen in frontline field settings are sometimes considered hard to serve or even impervious to intervention. The results suggest that this is not completely the case and that these child welfare populations can be retained quite well in a field setting with the right combination of intervention models. There are two potential advantages to improving retention in field settings. Adequate retention is to some extent a prerequisite for delivering benefit when potentially more effective models are transported into field settings (Lundahl et al., 2006). Improved retention also has economic implications for the implementation process. Offering services is costly, and so are the translational costs of migrating to newer and potentially more effective models such as PCIT. If the economic costs attributable to failed appointments and lost billing can be mitigated, delivery and implementation costs can be partially offset by improved efficiency. Orientation activities are relatively common in parenting programs, so incorporating motivational elements into existing orientation programming could be fairly easily accomplished. The full six-session SM group format used in this study might prove prohibitive in some contexts, but it might be

possible shorten the protocol. A group format for motivational work is not necessarily required, and in fact most motivational interventions are individually delivered. For example, Nock and Kazdin (2005) successfully employed a much shorter, individually administered motivational intervention, and an individual approach might be especially suitable for child welfare populations receiving home based services. More individually tailored, one-on-one motivational sessions might also offer the potential advantage of mitigating the negative effects found among parents with relatively higher initial motivation by instituting action-oriented steps at the point of readiness rather than delaying action.

Note

1. Copies of the self-motivation orientation protocol are available by sending an e-mail to the first author.

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