AN EVALUATION OF TREATMENT DROP-OUT: FAMILIES WITH A HISTORY OF CHILD PHYSICAL ABUSE

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AN EVALUATION OF TREATMENT DROP-OUT: FAMILIES WITH A HISTORY OF CHILD PHYSICAL ABUSE

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THESIS ABSTRACT

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Treatment attrition is a problem and is researched less in the child than in the adult literature. While the child is the identified client, parents have more control over treatment attendance. The child treatment attrition literature addresses parent, child, family, and participation variables as potential predictors of treatment attrition. To date, no consistent predictors of treatment drop-out have been identified for child treatment. This study analyzed a sample of parent-child dyads with a history of child physical abuse by the parent that participated in either Parent-Child Interaction Therapy (PCIT) or a Standard Community Group treatment for physical abuse. Pre-treatment measures were completed and included in analyses. Potential predictors identified after preliminary *t*-test and chi-square analyses were treatment group, family type, if children had ever been removed from the home, household income, positive parental behavior, and therapist experience. Logistic regressions revealed significant predictors of positive parental

behavior and therapist experience. This analysis used archival data which lacked many desirable variables for an attrition study, especially therapist and participation variables. Future research concerning the attrition of families with a history of physical abuse in child treatment should focus more on therapist and participation variables.

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INTRODUCTION

Attrition in treatment is a problem for both treatment outcome researchers and clinicians. Treatment goals are not met when participants do not complete treatment and the likelihood of achieving positive outcomes is greatly diminished. The only way to alleviate this problem is to identify risk-factors for dropping out and develop programs to keep these high-risk participants in treatment long enough to reach their treatment goals. However, how to identify risk-factors for attrition is a complex issue.

Defining drop-out is different across research studies, which contributes to inconsistencies in the literature. Put one way, "One person's 'continuer' is another's 'dropout'" (Garfield, 1989, p. 168). These inconsistencies in the attrition literature have been referred to as "chaos" by different researchers (Armbruster & Kazdin, 1994; Garfield, 1989). As pointed out by Garfield (1989), some people never show up for an assessment or intake but are only referred to treatment and then classified into the drop-out group with those who start treatment but do not finish. Garfield's (1989) point is that these groups could differ in important ways and should not be classified together. Some studies use the term drop-out to mean any participant who does not complete the entire treatment (e.g. Kazdin, Holland, & Crowley, 1997) while others might establish a cut-off point to determine drop-outs (e.g. Kazdin & Mazurick, 1994). These cut-off points are generally put in place where the family is most likely to have received the benefits

needed from the treatment. However, with these points being so different, it is difficult to compare studies and conclude with consistent drop-out predictors.

Some researchers suggest the use of data from participants who have dropped out of treatment as a control group to compare with treatment completers (Armbruster & Kazdin, 1994; Weisz, Weiss, & Langmeyer, 1987). However, there are some inherent problems with using treatment drop-outs as a control group. For example, to allow drop-outs to be used as a control group, researchers must first rule out the existence of any variables that identify this group distinctly from those who complete treatment. Also, treatment drop-outs are a convenience sample and can only provide a quasi-experimental design.

Attrition could also lead to selection factors which would influence the validity of the results of a study (Armbruster & Kazdin, 1994). Those who drop out of treatment prematurely may represent an important part of the sample in a study and their removal may lead to a change in the dynamic of the sample and overall treatment outcome results. By overlooking participants who drop out, the validity and usefulness of treatment outcome results may not apply to the intended population.

The prevalence of attrition in clinical research is unclear as many research studies do not report their attrition rates or include how they accounted for those who did not complete treatment (Forehand, Middlebrook, Rogers, & Steffe, 1983). Without these data it is impossible to assess what populations researchers are losing, when they are losing them, and for what reasons.

Child Treatment

One of the major difficulties in analyzing the child treatment literature is how different it is from the adult treatment literature. The unique feature about child therapy is the participation of the caregiver. Children do not seek out treatment on their own but are brought to treatment, usually by a caregiver (Kazdin, 1996). Completion of treatment is not contingent on the child alone but more on the caregiver involved in treatment with the child. Therefore, not only do child factors have to be accounted for in predicting drop out, but parental factors also. The parental factors may be more important than the child characteristics when determining who drops out of treatment and who completes it (Forehand et al., 1983). Therefore, parental factors must be used in predicting drop-out from family-based treatment modalities.

When evaluating attrition in child therapy, parental and family factors such as parent age, ethnicity, education, or psychopathology along with family income or size, must be considered with child factors such as child age or gender. Other research suggests that therapist variables and treatment modality should also be analyzed when trying to predict drop-out (Armbruster & Kazdin, 1994; Forehand et al., 1983; Pekarik & Stephenson, 1988). With all these factors, it can be determined that child therapy is a complex process that involves many variables that may even interact with one another.

It has been estimated that only one to two percent of the research on attrition was focused on child therapy with the larger portion focusing on adult treatments (Dierker, Nargiso, & Wiseman, 2001; Pekarik & Stephenson, 1988). There is a clear need for more research on the attrition rates in child treatment where the parental factors are identified

(Andrews, 2002; Pekarik & Stephenson, 1988). The attrition rates that have been reported may also be skewed as only those studies with low attrition may report these rates (Forehand et al., 1983). Researchers should report on their attrition rates to shed light on the actual percentages of those completing treatment and analyze those leaving treatment to attempt to retain these families in future treatment programs.

Factors Predicting Drop-Out

The literature is varied on what factors predict drop-out. Some studies report there are demographic variables that contribute to treatment drop-out. Age, gender, and ethnicity are not noted as consistent predictors of drop out from treatment but may be found individually as contributors in some studies. Using a sample of mothers identified at-risk for child maltreatment, Danoff, Kemper, and Sherry (1994) reported that teenage, African-American parents were more likely to drop out of treatment. Kazdin et al. (1997) report that drop-outs in a study using children with oppositional, aggressive, and antisocial behavior were from a minority group, were younger, and were single parents. In a more recent analysis with a sample of 57 sexually abused children and a non-offending parent, Hsu (2003) found younger parent age as the only demographic predictor of drop-out. Marx (2004) found no differences in gender or ethnicity when comparing drop-outs to completers in a treatment for sexual abuse victims among Latino and European-American children. Socioeconomic status is reported somewhat more consistently as a predictor. For example, Firestone and Witt (1982) reported that in a parent-training program for hyperactive children, drop-outs had a lower mean family income and less maternal education. Frankel and Simmons (1992) found that lower

socioeconomic status was the only demographic variable that predicted drop out in a study with a parent-training intervention.

Most studies include demographic variables for analysis but focus less on them and more on other variables such as parental stress and psychopathology. Kazdin and Mazurick (1993) suggest that parental stress and psychopathology are more reliable predictors of treatment drop-out because parents control treatment participation. Many studies do highlight parental stress and psychopathology as potential predictors but still do not agree on what are consistently significant predictors of treatment drop-out. Mcnamara (2001) evaluated a sample of children that were victims of maltreatment and found that higher parental stress contributed to drop-out. However, Marx (2004) did not find any differences between drop-outs and completers with parental stress in a treatment for sexual abuse. Kazdin et al. (1997) found that parent history of antisocial behavior predicted dropout, while Andrews (2002) found that parental psychopathology was not a predictor of drop-out.

Child factors may influence attrition in treatment because children have a direct influence on their caregivers. Some of the child factors that may be important for attrition include child age, gender, race, IQ, and psychopathology or functioning. Some studies, such as Werba, Eyberg, Boggs, and Algina (2006), do not find that any child variables predict drop-out. However, other studies have found significant child-based predictors of drop-out. Mcnamara (2001) found that more severe child symptomatology, as reported by the parents, was a significant predictor of drop-out. Kazdin and Mazurick (1994) also reported that child functioning is a significant predictor of drop-out. Firestone and Witt

(1982) found that families who dropped out of treatment had children with lower IQs. These studies all report on predictors that are variables of child functioning. Notably, child demographic variables, such as age, gender, or race, are not reported in the literature as significant predictors of drop-out.

There is also some evidence that treatment-specific variables influence who completes or drops out of treatment. For example, Kazdin et al. (1997) report that parent perception of the difficulties in the treatment was a significant predictor of drop-outs. These difficulties included "stressors and obstacles associated with treatment, perception that treatment is not very relevant, and a poor relationship of the parent with the therapist" (Kazdin et al., 1997, p. 460-461). Pekarik and Stephenson (1988) report that therapist experience and referral source were predictors of adults continuing in treatment but did not have an effect on child treatment. Treatment modality should be studied further in determining what variables could be contributing the attrition (Armbruster & Kazdin, 1994). Treatment-specific variables, including variables concerning the therapist, should also be included in analyses looking at predictors of drop-out and not just the parent, child, and family variables.

Reyno and McGrath (2006) recently conducted a meta-analysis to determine what variables would significantly predict drop-out across 31 studies. Four general categories of predictors were used: demographics variables, child variables, participation variables, and parent variables. Variables with significant effects were single parent status, low family income, low education/occupation, younger maternal age, minority group status, and negative life events/stressors. Those variables with *p* values above .05 were family

size, barriers to treatment, severity of child behavior, adverse parenting, maternal psychopathology, maternal depression, marital satisfaction, and parenting stress. All variables studied had either an insubstantial (.0-.1) or small (.1-.3) effect size. From this meta-analysis it appears that family demographic variables contributed more to the attrition rates than did the child, participation, or parent variables. However, with such low effect sizes, these results still need further research.

Armbruster and Kazdin (1994) suggest that findings related to attrition are "contradictory and inconclusive" (p. 84) because variables interact with one another. The characteristics that are being studied may be moderated by other unknown variables influencing the results of predicting drop-out (Kazdin, 1996). The conclusion is there is not a definitive answer of what predicts drop-out from child therapy. This is not to say the drop-out rates should not be studied further. If researchers can identify participants that are most at risk of dropping out of treatment prematurely, programs can be designed to reduce this problem. Study of attrition is warranted to find out how to retain these families in treatment until some help can be given. Drop-out rates are reported anywhere from 30 to 75 percent (Dierker et al., 2001), with consistent reporting between 40 and 60 percent (Andrews, 2002; Kazdin, 1996; Werba et al., 2006). Kazdin (1990) reports that between 50 and 75 percent of families that are initially referred for treatment will not complete due to dropping out early or never initiating treatment to begin with. These large percentages are alarming and, if possible, should be reduced.

Drop-Outs in Families with a History of Child Maltreatment

Families with a history of maltreatment are those most in need of therapy. However, research indicates that those families who have a history of child maltreatment are more likely to drop out of treatment than families with no history of child maltreatment (Andrews, 2002; Lau & Weisz, 2003). Child Welfare families, especially, may drop out of treatment if they feel forced into services by the courts (Andrews, 2002; Chaffin et al., 2004). Maltreating mothers have been found to show significantly more negative and fewer positive behaviors when compared to control mothers (Bousha & Twentyman, 1984). Therefore, it is important to look at this specific population.

Johnson (1988) used inactive case files of parents that were treated for child abuse and reported that the "most motivated and least chronic" (p. 434) parents appeared to be "more successful" (p. 434) in treatment. Andrews (2002) used abusive child welfare families and identified variables that predicted those who dropped out of treatment prematurely. These variables were lack of court involvement, minority status, greater parental stress, more child behavioral problems, and having only one child in treatment; however, parental psychopathology was not identified as a risk factor for dropping out of treatment. Despite the studies cited here and the many mentioned in the review above, there is still much more research that needs to be conducted on the families with a history of child maltreatment. Much of the literature that exists for child therapy is on populations with no known history of child abuse or neglect. As mentioned, because of the tendency for families with a history of child maltreatment to drop out, it is so important to intervene and keep these families engaged in treatment.

Parent-Child Interaction Therapy

Parent-Child Interaction Therapy (PCIT; Eyberg, 1988; Hembree-Kigin & McNeil, 1995) is an empirically supported treatment program for behavior disruptive children (Brestan & Eyberg, 1998; Chambless & Ollendick, 2000) and has been adapted and used with additional populations (McCabe, Yeh, & Garland, 2005; McDiarmid & Bagner, 2005; Pincus, Eyberg, & Choate, 2005). Caregivers are taught specific skills to facilitate interaction with their children and are coached by therapists to use these skills during a concentrated time period with other opportunities to practice in the home. PCIT is comprised of two distinct phases: Child-Directed Interaction (CDI) and Parent-Directed Interaction (PDI). During CDI the child leads the activity and the parent uses specific skills to facilitate the child's direction. These skills include praising, reflecting, imitating, describing, and being enthusiastic while ignoring any minor negative behavior and avoiding any questions, commands, or negative talk. In PDI the parent learns to give effective commands and how to implement time-out, thereby improving their discipline strategies with the child. PCIT concludes with parents learning to generalize skills to other siblings and settings outside of therapy. PCIT is characterized by didactics, modeling, role-playing, and coaching by the therapist with time for the parent to practice at home.

PCIT is one of the top three treatments recommended for child physical abuse (Kauffman Best Practices Project, 2004). This treatment was effective in Chaffin et al. (2004) and other studies for families with a history of abuse for several reasons. Children have been included in the therapy process for families with a history of maltreatment

more as researchers are seeing improvements in the children's behavior and the benefits of including them in the treatment process (Timmer, Urquiza, Zebell, & McGrath, 2005). PCIT works with caregivers and children together in treatment instead of focusing only on teaching caregivers techniques that they should employ outside of therapy. Also, in families with a history of abuse, children are likely to exhibit behavioral problems (Bousha & Twentyman, 1984; Herschell & McNeil, 2005; Lau & Weisz, 2003) and parents need treatment to effectively deal with the child's behavior problems and break the abusive cycles. PCIT is an effective treatment program for children with disruptive behavior problems (Brestan & Eyberg, 1998) and does work to provide ways to deal with child misbehavior. In addition, children who are abused are usually younger in age. For example, in 2004, 92.5% of child fatalities caused from maltreatment occurred to children 7 or under (Child Welfare Information Gateway, 2006). PCIT was developed for children between the ages of three to seven. Further, families with a history of abuse often have coercive parent-child interactions and inconsistent discipline practices, both of which are addressed by PCIT (Herschell & McNeil, 2005). Coercive interactions have been hypothesized by Urquiza and McNeil (1996) as a possible reason for an escalation in parental responding that leads to harsh, physical discipline. Stopping this coercive cycle is critical for stopping the abusive behavior. (For a full review on the rationale of using PCIT with a physically abusive population see Herschell and McNeil, 2005, or Urquiza and McNeil, 1996).

Drop-Outs in PCIT

During PCIT, parents are observed interacting with their child for a short time period and then coached by therapists behind a one-way mirror. It has been suggested that treatments with observation portions may create higher drop-out rates (Forehand et al., 1983). For example, it is possible parents may be intimidated by treatment that incorporates observation and choose to drop out of treatment completely. In PCIT the parent and child are both highly involved in the therapy process. This involvement could facilitate a more engaging therapeutic process but could also hinder the process if the parents are intimidated. The first step in determining if either of these situations is occurring is to identify patterns of attrition in PCIT.

The drop-out rates for PCIT are generally reported between 27-51% (McNeil, 2007); however, some studies have reported percentages as high as 66% (Lyon et al., 2007) or even 77% (McNeil, 2007). There is quite a difference between these rates reported. One reason could be where the PCIT services are being administered. Research-based studies performed in clinics with more resources generally have lower attrition rates. One example of a study performed with a research-based, clinic population by supervised graduate students is Schuhmann, Foote, Eyberg, Boggs, and Algina (1998), with 34% of participants dropping out of treatment before completion. This attrition rate was for a group of participants that were administered PCIT or assigned to a wait-listed control group. Of note, there was no difference in the drop-out rate for the two groups. In contrast, McNeil (2007) reported a drop-out rate of 77% in a community-based study using mental health workers trained in using PCIT. In this community-based setting there

were many more barriers to treatment including travel difficulties, high therapist turnover, full therapist caseloads, equipment problems, and scheduling difficulties (McNeil, 2007), which all could have contributed to a higher drop-out rate. Because PCIT is continually being disseminated into more clinic-based settings, it is important for researchers to distinguish between research and clinic-based populations and determine how to bridge the gap in the attrition rates.

To date, very little research has addressed the pre-treatment variables that contribute to drop-out from PCIT and no study has yet addressed attrition from PCIT among a sample of families with a history of child physical abuse. Werba et al. (2006) conducted the first analysis of pre-treatment variables and found that, for a sample of 99 preschool-aged children with a disruptive behavior disorder, the only variables that predicted drop-out were waitlist assignment, direct commands given by the parent, inappropriate parental behavior, parental depression, and maternal age. More studies need to identify pre-treatment variables in samples participating in PCIT that are predicting drop-out.

Goals of Proposed Study

This study contributes further to the child treatment attrition literature. Focusing on past predictors that have been inconsistent (e.g. Reyno & McGrath, 2006), risk-factors are identified for families who are more likely to drop out of treatment. This study also extends the attrition literature that is so scarce concerning treatment for families with problems related to child maltreatment, specifically physical abuse, as this population is reportedly more at-risk for treatment attrition (Andrews, 2002; Lau & Weisz, 2003).

Further, pre-treatment predictors of drop-out in PCIT populations have not been reported very widely (Werba et al., 2006). In this study, by comparing participants in PCIT and a control group, rates of attrition in PCIT are observed and differences discussed.

Hypotheses

1. It was hypothesized that those who dropped out of treatment would be more likely to have been in a standard community group (SCG) than in PCIT.
2. It was hypothesized that observed caregiver negative behavior would significantly predict those families who dropped out of treatment.
3. It was hypothesized the following demographic variables would predict drop-out: for parent – age, gender, education, and relationship to child; for child – age and gender; for family – household income, minority status, single or two-parent family, number in household, and if children in the family had ever been removed from the home. There is mixed support in the literature for demographic variables such as the ones used in this study (e.g. Armbruster & Kazdin, 1994; Danoff et al., 1994; Firestone & Witt, 1982; Frankel & Simmons, 1992; Hsu, 2003; Kazdin et al., 1997; Marx, 2004; Reyno & McGrath, 2006).
4. In the treatment attrition literature, there is also mixed support for parental psychopathology as a treatment drop-out predictor (e.g. Andrews, 2002; Kazdin et al., 1997). Parental psychopathology was also hypothesized to contribute to those families who dropped out of treatment. Parental drug or alcohol use (warranting a diagnosis), antisocial behavior, and depression, were expected to emerge as significant predictors. Further, it was hypothesized that lower parental

functioning, measured by an intelligence score, would be a significant predictor for those who dropped out of treatment.

5. Child functioning was also hypothesized to influence treatment drop-out (e.g. Kazdin & Mazurick, 1994; Mcnamara, 2001). It was hypothesized that lower child functioning, as measured by IQ, would be a significant predictor of treatment drop-out in this analysis.
6. Parental stress has also been inconsistent in predicting treatment drop-out (e.g. Kazdin & Mazurick, 1993; Marx, 2004; Mcnamara, 2001). There are no measures available that directly measure parental stress in this analysis. However, parental stress was examined through measures assessing the child abuse potential and parental readiness to change, and it was hypothesized to be a significant predictor of treatment drop-out.
7. Among participants in the PCIT assignment, it was hypothesized that therapist experience would significantly predict treatment drop-out. Because there were no therapist variables available for those participants in the SCG group, therapist experience was not evaluated for the treatment control group.

METHOD

Data used for this analysis were compiled at the University of Oklahoma Health Sciences Center by Chaffin et al. (2004) as a treatment program for families with a history of physical abuse. After completing pre-treatment measures, participants were randomly assigned to a standard community group (SCG), PCIT, or enhanced PCIT (EPCIT). Total time in treatment for all conditions lasted approximately six months. The

SCG was a psychoeducational model that was comprised of three modules: orientation, a parenting-skills group, and an anger-management group. This treatment approach had previously been used by the community-based agency for many years to treat approximately 750 families per year. To estimate the same amount of time and engagement as the participants in the SCG, the PCIT modules were modeled in a similar way. Participants in the PCIT group had three modules of orientation, clinic-based and individualized PCIT sessions, and a follow-up group. The EPCIT group completed the same orientation and PCIT modules as the PCIT group, but also received other individualized services as needed, particularly targeting parental depression, current substance abuse, and family, marital, or domestic violence problems. Because of the similarity in PCIT and EPCIT for the purposes of this analysis, those participants in PCIT and the EPCIT were grouped into the same PCIT category. Therapist experience was recorded for those participants completing both PCIT and EPCIT. Specifically, therapist experience was defined by Chaffin et al. (2004) as "basic trainees (graduate practicum students, interns, and beginning postdoctoral fellow, all of whom had no prior experience delivering PCIT), experienced trainees (trainees who had significant experience with PCIT and were observed by their supervisors to be fluent with the technique), and experts (PCIT trainers with many years of experience)" (p. 508). Trainees were able to move from basic to experienced through the treatment implementation, and each of the three categories treated similar percentages of the participants (Chaffin et al., 2004). See Table 2 for the percentages of completers and drop-outs at each level of experience.

Participants

Participants were referred from child welfare workers. One hundred and ten parent-child dyads participated in treatment and completed assessment measures at pre- and post-treatment. Each dyad consisted of the abusive parent and at least one of the abused children. With this sample, 66 percent of the caregivers were female and the average age was 32 (*SD* = 8.7). Seventy-five percent of the abusive caregivers were biological parents. The percentage of parents with some college education was 22. Of the children participating in PCIT, 61 percent were male with an average age of 8 (*SD* = 2.8). Fifty-three percent of the families had two parents in the household. The average monthly household income was between $600 and $1,249. There were comparable numbers of Caucasian (49.5%) and minority (50.5%) families. See Table 1 for a complete list of the descriptive statistics for the demographic variables.

The statewide child welfare administrative database was utilized for follow-up of child maltreatment occurring after treatment. Full results of the described study were reported by Chaffin et al. (2004). In short, families in the PCIT group had fewer reports of future abuse than did the SCG or the EPCIT group.

Measures

Demographic Questionnaire

Developed by Chaffin et al. (2004), a questionnaire was used to gather demographic information about each family. The questionnaire was pilot tested on 100 families to correct any confusing items. It was screened by outside consultants for use with Hispanic and Native American populations and deemed appropriate. A test-retest

correlation of .74 was obtained for continuous variables and a kappa of .79 for nominal variables (Chaffin et al., 2004). In this analysis, parent variables of age, gender, education, race, and relationship to the child were used to predict treatment attrition. Child variables used were child age and gender. Other family variables that were analyzed were monthly household income and single parenthood.

Dyadic Parent-Child Interaction Coding System (DPICS-II)

A useful measure for coding parent-child interactions is the DPICS-II (Eyberg, Bessmer, Newcomb, Edwards, & Robinson, 1994). In PCIT each segment of CDI, PDI, and clean-up are coded using both verbal and physical categories to comprise a composite score for positive and negative behavior. For this study, brief parent-child interactions were recorded and then observed and coded by trained coders that were blind to study condition. Coders had to meet reliability criteria and were periodically checked to ensure reliability. An off-site group coded a subset of tapes for reliability. Correlations were reported at .94 for parent negative behavior and .84 for parent positive behavior (Chaffin et al., 2004).

In this analysis a composite score was used for both positive parent behavior and negative parent behavior. The positive parent behavior composite was comprised of total frequencies of praises, reflections, and behavior descriptions, while the negative behavior composite used smart talks, critical statements, and negative physical behaviors. The parent-child dyads were observed during two separate observations, by two separate observers, in three five-minute segments of CDI, PDI, and a time for clean-up. Only participants with all six situations were used for analysis.

Beck Depression Inventory (BDI)

The BDI is a 21-item self-report measure of depressive symptoms that was completed by the parent. The higher the score on the BDI, the more severe the depressive symptoms are (Beck, Ward, & Mendelson, 1961). Like the other measures, the abusive parents involved in treatment completed the BDI upon intake and prior to group assignment. For the pretreatment measures in this study, alpha was .90 (Chaffin et al., 2004). In this analysis, a pre-treatment depression diagnosis was determined from the information gathered from the BDI.

Diagnostic Interview Schedule (DIS) Alcohol, Drug, and Antisocial Personality Disorder Modules

The DIS (Robins, Helzer, Croughan, & Ratcliff, 1981) is a structured, diagnostic interview using diagnostic criteria from the *Diagnostic and Statistical Manual of Mental Disorders, Third Edition* (*DSM-III*; American Psychiatric Association, 1980). With support from other studies with valid results (e.g. Kovess & Fournier, 1990), Chaffin et al. (2004) modified the interview to be a self-report measure for the parents to complete. The modules used in this analysis were for Alcohol, Drug, and Antisocial Personality Disorder. All modules yielded a DSM-III diagnosis at pre-treatment.

Stages of Change Readiness and Treatment Eagerness Scale (SOCRATES)

The SOCRATES (CASAA, 1995) was originally created for alcohol users but was adapted for the Chaffin et al. (2004) study using parenting and physical abuse content. Using three subscales (Recognition, Ambivalence, and Taking Steps), the SOCRATES was used in this analysis to assess the caregivers' readiness to change their

parenting behavior at pre-treatment. Alpha coefficients for the Recognition, Ambivalence, and Taking Steps subscales were .86, .76, and .88, respectively.

Kaufman Brief Intelligence Test (KBIT)

The KBIT (Kaufman & Kaufman, 1990) is used as a brief assessment of verbal and nonverbal intelligence providing measures of both crystallized and fluid intelligence. The KBIT can be administered to ages 4 to 90 and was completed by both the parent and child in this sample (Chaffin et al., 2004). This analysis used KBIT scores from both child and parent.

Child Abuse Potential (CAP)

The CAP (Milner, 1986) is an assessment measure designed to identify families at risk for committing child physical abuse. The abusive parent in this sample completed the 160-item questionnaire. There is an Abuse Scale on the CAP and subscales of Parent Distress, Rigidity, and Loneliness. To assess parental stress, this analysis included the Parent Distress subscale as a potential predictor of treatment drop-out. Pretreatment alpha for the Parent Distress subscale was .94 (Chaffin et al., 2004).

Behavior Assessment System for Children (BASC)

The BASC (Reynolds & Kamphaus, 1992) is a widely-used instrument with child, parent, and teacher forms. It is normed across age and gender and provides measures of adaptive and problematic internalizing and externalizing behaviors. In this sample the abusive parent, abused child, and child's teacher, when available, completed the appropriate forms. In this analysis, the BASC served as a measure of child functioning by using the Behavioral Symptoms Index score from the Parent BASC.

Procedure

All participants completed pre-treatment measures prior to group assignment and this analysis utilized the data to determine what variables contributed to the attrition. This analysis used Kazdin's (1990) convention of defining completers as those participants who attend 75% or more of the sessions. Kazdin's (1990) rationale is that after 75% of the sessions much of the information presented is for review and extension of the information into the home or public. PCIT has criterion guidelines that caregivers are expected to reach with a certain number of skills demonstrated in a five-minute time period. However, Chaffin et al. (2004) conducted orientation and follow-up sessions in addition to the standard PCIT protocol. Therefore, this analysis is used the 75% convention as these extra sessions are unnecessary to the effectiveness of PCIT.

Analyses

In order to identify potential predictors of drop-out, the individual variables for group membership, DPICS composite scores, demographics, parental psychopathology, and therapist experience, were entered into independent sample t-test or chi-square analyses. All variables that were identified as potential predictors ($p < .10$) were then put into logistic regression models. This same model or similar ones have been used in studies similar to this analysis (e.g. Kazdin & Mazurick, 1993; Timmer et al., 2005; Werba et al., 2006). The logistic regression model was used in this analysis because of the dichotomous nature of the drop-outs and completers. The results produced odds ratios that determined how the odds of a family dropping out of treatment increased as the

predictor variables increased. Both continuous and categorical variables were entered and analyzed.

RESULTS

Preliminary Analyses

All hypothesized predictors were run through independent samples *t*-test and chi-square test of independence analyses. Potential predictors identified were treatment group (PCIT or the control group), family type (single parent or not), if the children had ever been removed from the home, household income, total positive DPICS score, and therapist experience. Table 3 lists all hypothesized predictors and the results of the preliminary *t*-test and chi-square analyses.

Before performing any further analyses, all potential predictors were checked for multicollinearity. Tolerance values below .1 indicate that a variable is highly correlated with the other variables (Pallant, 2005). All potential predictors obtained acceptable tolerance values in order to be included in the logistic regression. Therefore, no variables had to be eliminated or combined with another variable.

Some of the participants were missing data from these potential predictors. In order to perform the logistic regression procedure, participants with missing data were not included in the analyses. Two separate logistic regressions were run since the therapist experience variable was only available for the PCIT condition participants and including this variable with the others would eliminate the entire Standard Community Group from the analysis.

Logistic Regressions

The first logistic regression included treatment group, family type, if the children had ever been removed from the home, household income, and total positive DPICS score as potential predictors and drop-out of treatment as the outcome variable. A total of 70 participants had complete data with these predictor variables and were utilized in the analysis. Descriptive information for these variables is listed in Table 1. The analysis with the full model (i.e., using all five potential predictors) was not statistically significant, χ^2 (5) = 9.45, p = .092, indicating that the set of potential predictors was not able to distinguish between drop-outs and completers any better than the model with the constant only. The model was able to correctly predict 50% of the dropouts (specificity) and 68% of the completers (sensitivity) with an overall prediction rate of 60%. The overall prediction rate of 60% is an improvement over the 54% overall prediction rate with the constant only in the model, but is unimpressive.

Each predictor variable has a regression coefficient, Wald statistic, significant value, odds ratio, and confidence interval, which are reported in Table 4. Using these data, only the positive DPICS score predicted drop out in this sample, $\underline{z}$ = 4.37, p = .037. The odds ratio of 1.011 (95% Confidence Interval 1.001-1.020) indicates that, in this model, as the positive DPICS score increases by one unit, the odds of completing treatment increases by 1.011.

The second logistic regression included therapist experience as the only predictor variable. The data for therapist experience were only available for a portion of the PCIT participants, totaling 62 participants. The analysis using therapist experience as a

predictor of treatment completion was significant, χ^2 (1) = 6.696, p = .01, indicating that the set of potential predictors distinguished between drop-outs and completers better than the model with the constant only. The model was able to correctly predict 0% of the dropouts (specificity) and 100% of the completers (sensitivity) with an overall prediction rate of 74%. However, these prediction rates are exactly the same as the model with the constant only.

The regression coefficient, Wald statistic, significant value, odds ratio, and confidence interval for therapist experience are all listed in Table 4. Therapist experience was a significant predictor of treatment completion, $\underline{z}$ = 5.568, p = .018. The odds ratio of 2.929 (95% Confidence Interval 1.200-7.153) indicates that, in this model, as the therapist experience increases by one level, the odds of completing treatment increases by 2.929.

Discussion of Hypotheses

Hypothesis 1

While treatment group was identified as a potential predictor using a chi-square analysis (see Table 3), it was not a significant predictor in the logistic regression. Fifty-six percent of the participants who dropped out of treatment and 78 percent of those participants who completed treatment were in the PCIT group. However, treatment group did not significantly predict participants who dropped out of treatment.

Hypothesis 2

Caregiver negative behavior, as measured by total negative DPICS score, was not identified as a significant predictor of treatment drop-out. However, caregiver positive

behavior, as measured by total positive DPICS score, was identified as a significant predictor in the first logistic regression, $\underline{z} = 4.37$, $p = .037$ (see Table 4). Caregivers that were more positive were more likely to complete treatment (odds ratio = 1.011). This difference was very small, though, and was unimpressive.

Hypothesis 3

Demographic variables were checked through preliminary *t*-test and chi-square analyses. Household income, family type, and if the children had ever been removed from the home were the only demographic variables that were identified as potential predictors (see Table 3). However, once entered into the logistic regression, they were not found to be significant predictors for the model.

Hypothesis 4

None of the parental psychopathology or functioning variables were identified as potential predictors through the preliminary *t*-test and chi-squared analyses.

Hypothesis 5

Child functioning, as measured by the KBIT score, or behavior problems, as measured by the BASC Behavior Symptom Index, were not found to be potential predictors through the preliminary analyses.

Hypothesis 6

Neither parental stress, as measured from the Distress subscale from the CAP, nor parental readiness to change, as measured by the three subscales from the SOCRATES, were identified as a potential predictor of treatment completion.

Hypothesis 7

Therapist experience was identified as a significant predictor of treatment completion, $\underline{z} = 5.568$, $p = .018$, in the second logistic regression (see Tables 4). The odds of completing treatment increased by 2.929 when therapist experience increased by one level from basic trainee to experienced trainee or experienced trainee to advanced expert.

DISCUSSION

This analysis was intended to examine predictors of treatment drop-out in a sample of physically abusive parents that completed either PCIT or a standard community treatment group. In this analysis, parental factors proved to be more useful in predicting drop-out, especially as potential predictors, than were child factors. While the child is generally the identified client in treatment, the parent has control over when termination occurs. In some cases parents may end treatment due to reasons that have little or nothing to do with the identified client or the identified treatment problem (Forehand et al., 1983). As pointed out earlier, Kazdin and Mazurick (1993) suggest that parental psychopathology and stress are more reliable predictors of treatment drop-out. Treatment attrition studies should then focus more on parental variables and less on child variables.

As discussed, Werba et al. (2006) have conducted the only analysis of pre-treatment variables in predicting drop-out in PCIT. Variables found to have significance were waitlist assignment, direct commands given by the parent, inappropriate parental behavior, parental depression, and maternal age. While the waitlist assignment and direct commands given by the parent were not examined in this analysis, the other three

variables were. As reported, parental depression and parental age were not significant predictors of treatment drop-out. The present study found that parents that were more positive or appropriate with their children were more likely to complete treatment, which is commensurate with Werba et al.'s findings that high levels of inappropriate parental behavior significantly predicted treatment drop-out. Clearly, more research needs to be conducted on PCIT drop-out in order to find consistent predictors. However, in examining the differences in these two analyses, Werba et al. had a sample of pre-school-aged children with a disruptive behavior disorder and the sample for this analysis included older children and only families with a history of parental physical abuse. In addition, the sample used in this analysis also included some participants from the standard community group. The differences in the samples could account for the difference in significant predictors.

The interactional style of physically abusive parents is clearly different from control parents. Bousha and Twentyman (1984) found that, compared to control mothers, both neglectful and abusive mothers had significantly fewer interactions with their children. Families with a history of abuse often have coercive parent-child interactions and inconsistent discipline practices (Herschell & McNeil, 2005). Bousha and Twentyman also found that abusive mothers showed significantly more physical and verbal aggression than both the neglectful or control mothers and concluded that

> "…it suggests that physical abuse of the child is not simply the end product of a low-frequency, high-intensity outburst on the part of the abusive mother. Rather, a picture of the abusive mother emerges in which

> a relatively stable and frequent pattern of aggression exists. In fact, the high rates of maternal aggression suggest that negative and aversive behavior is the preferred mode of interactional style, not only for situations that require resolving differences and administering discipline but for other situations as well." (p.113)

Participants in other studies of treatment drop-out, such as Werba et al. (2006), will be markedly different than this abusive sample. As such, there are clear differences in families with a history of physical abuse that should be considered when trying to predict treatment drop-out.

Herschell, Calzada, Eyberg, and McNeil (2002) suggest that the therapist-parent relationship may be the most important variable to be examined in PCIT attrition studies. Examining therapist experience as a significant predictor was important but still leaves more to be speculated. Maltreating mothers have been found to be more negative than control mothers (Bousha & Twentyman, 1984). Perhaps with this sample the therapists with more experience were more able to engage the parents with more negative behavior in the treatment and move from the precontemplation (with no intention to change behavior) to the contemplation stage (being aware of the problem) (see Prochaska, Norcross, & DiClemente, 2005). Werba et al. (2006) found parents that were more inappropriate were more likely to drop out of treatment. The difference in therapist could have accounted for the different results in this analysis. Without more information about the specific therapists that worked with this sample, it is difficult to know how these differences can be accounted for.

Fiester (1977) suggests that the role of the therapist or the process of therapy is more predictive of treatment attrition and should be evaluated more in attrition studies. In PCIT, parents with more positive interactions demonstrate a greater number of skills that they are taught. With the more positive parents more likely to complete treatment in this sample, perhaps they were able to understand the skills-based approach to therapy easier than the parents that demonstrated fewer skills when beginning treatment. More information on treatment satisfaction, such as therapeutic alliance, would have helped to clarify this idea.

Limitations

Data were originally collected by the University of Oklahoma Health Sciences Center (Chaffin et al., 2004) to evaluate the effectiveness of PCIT with a sample of parents with a history of physical abuse. Since this analysis was performed after the data were already collected, more information could not be collected. However, this analysis would have benefited from the addition of several variables. One of the inconsistent predictors of treatment drop-out is parental stress (e.g. Kazdin & Mazurick, 1993; Marx, 2004; Mcnamara, 2001). There was not a direct measure of parental stress available for study. The parental distress subscale from the CAP was used as a measure of parental stress, however, it was not identified as a potential predictor of treatment drop-out. A more direct measure of parental stress, such as the Parenting Stress Index – Short Form (PSI-SF; Abidin, 1995), could have served as a more reliable measure of parental stress, which could have influenced the results of the analysis.

More therapist variables would also have been beneficial for this analysis in order to examine these ideas further. The therapist experience variable for the PCIT participants was identified as a significant predictor of treatment drop-out. The PCIT therapists with the most experience in this analysis could have developed the therapeutic relationship earlier and stronger, thereby, influencing the participants who dropped out of treatment. Baldwin, Wampold, and Imel (2007) point out the importance of therapist variables in alliance with the patient for treatment outcome. For example, therapists must be able to engage patients in the collaborative process of therapy. The theoretical orientation of the therapist can contribute to early treatment attrition (Fiester & Rudestam, 1975) or how early therapeutic alliance is established can influence those who complete treatment (Kazdin, 1996). Harwood and Eyberg (2004) found that, by coding the verbal behavior of PCIT therapists during the first few sessions, treatment outcome was predicted. These results suggest that, in PCIT, the early relationship between the parent and therapist may be essential for treatment completion (Harwood & Eyberg). Evaluating therapist variables in this sample would have been useful to identify if treatment drop-out was due to therapist variables as well as the patient variables evaluated in this analysis.

Other variables that could have been useful for this analysis are treatment-specific or participation variables. Patient expectations may be one of the most important parts of the therapeutic process, and yet, are often ignored (Greenberg, Constantino, & Bruce, 2006; Lorion, 1974; Noble, Douglas, & Newman, 2001). Kazdin et al. (1997) reported that parent perception of the difficulties of treatment was a significant predictor of

treatment drop-outs. Other PCIT researchers have reported that barriers to treatment have influenced their treatment completion (McNeil, 2007). For example, information on stressors, perception of the treatment, or how engaged the family was in the treatment process could have proven useful in predicting treatment drop-outs. An assessment of parent motivation, such as the Parent Motivation Inventory (PMI; Nock & Photos, 2006), could also be used to identify parents that are not as involved in the treatment process. Even if formal assessment could not have been administered, information such as how often homework was completed, how many times the family showed up late to treatment, or how cooperative they were in the treatment process, could have been observed by the therapist and recorded (Forehand et al., 1983).

Barriers to treatment are one way to consider why families drop out of treatment (Nock & Ferriter, 2005). Kazdin et al. (1997) classified barriers into four areas: stressors and obstacles that compete with treatment, treatment demands and issues, perceived relevance to treatment, and relationship with the therapist. Each of these has significantly predicted treatment drop-out beyond the influence of other parent, child, or family variables.

Because this study was based on archival data, no information on when participants dropped out of treatment was available. Rather, data were available for the number of sessions the families completed. As discussed, defining when a person is a drop-out can be difficult and having access to this information could have proven useful in establishing different drop-out criteria in this analysis. If the point of termination had

been known, meeting PCIT mastery criteria, based on DPICS codes (Eyberg et al., 1994), could have been followed in defining treatment drop-out.

It also would have been beneficial to follow up with the families to find out why they did not finish treatment. Nock and Ferriter (2005) point out that variables of convenience, such as the information on an intake form, are most often used, but lack theoretical perspective. The variables most often studied in treatment attrition literature do not provide any information of why families drop out of treatment (Nock & Ferriter). Pekarik (1992) found that problem improvement, environmental obstacles, and dissatisfaction with treatment were the reasons given for dropping out of treatment for both adult clients and the parents of child clients. A follow-up such as the one in Pekarik's analysis could have been useful in this analysis in order to identify reasons for leaving treatment.

Another problem with using archival data is that when portions of the data are missing, participants must be left out of some analyses. After removing participants with missing data, only 70 of the 110 participants could be used in the first logistic regression and only 62 of the 75 PCIT participants could be used for the second logistic regression. A sizeable reduction of participants could negatively influence the statistical power of the analysis. In addition, there was no way to determine if the participants with incomplete data sets differed in some important way from those participants included in the study.

Future Directions in Research

The problem of treatment attrition cannot be ignored. Effective treatment requires attendance and adherence (Nock & Ferriter, 2005). However, only a small portion of

research has focused on treatment attrition and even less so on attrition from child therapy (Pekarik & Stephenson, 1988). Future research should continue to analyze demographic, parental functioning, parental stress, and child functioning variables in an attempt to find any consistent predictors that may be identified. However, the results of the present study suggest that, for families with a history of child physical abuse, researchers should focus more on therapist and participation variables when designing treatment drop-out studies.

Forehand et al. (1983) suggests that those leaving treatment before completion can provide valuable information regarding satisfaction with treatment process and outcome. If this is the case, then why are researchers not utilizing this potentially important group of participants? If we currently do not have a way to reduce the problem of attrition, perhaps those who do not complete treatment can provide useful information to eventually decrease attrition from treatment. This information could serve as a bridge to reach those families most in need of services that are currently not completing treatment.

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APPENDIX

Table 1

Variables Used to Predict Treatment Attrition

Variables	Total n = 110 %	Completers n = 59 %	Drop-Outs n = 51 %
Child Gender – Male	60.9	57.6	64.7
Parent Gender – Female	65.5	64.4	66.7
Parent Relationship to Child – Biological	74.5	52.4	47.6
Two-Parent Families	52.7	62.7	41.2
Minority Status	50.5	50.8	48.0
Children Removed from Home Before	32.7	40.7	23.5
Alcohol Diagnosis	16.4	13.6	19.6
Drug Diagnosis	20.0	20.3	19.6
Antisocial Personality Diagnosis	17.0	11.9	19.6
Depression Diagnosis	20.9	20.3	21.6
Monthly Household Income ($600 - $1,249)	36.4	31.6	42.0
Years of Parent Education – Some College	22.2	19.0	26.0

	M (SD)	*M (SD)*	*M (SD)*
Negative DPICS Score	25.0 (19.2)	22.9 (17.3)	27.5 (21.3)
Positive DPICS Score	126.5 (57.8)	140.9 (58.2)	109.3 (53.2)
Child Age	8.0 (2.8)	8.0 (2.8)	8.0 (2.8)
Parent Age	32.2 (8.7)	32.7 (9.1)	31.6 (8.2)
Number in Household	2.2 (0.7)	2.2 (0.7)	2.2 (0.7)
Parent BASC BSI	59.0 (14.7)	59.2 (15.9)	58.8 (13.4)
Child IQ	94.2 (14.2)	95.1 (14.0)	93.2 (14.5)
Parent IQ	94.5 (13.6)	95.6 (15.5)	93.3 (11.1)
Parent CAP Distress Scale	98.4 (72.0)	90.2 (65.8)	107.7 (78.0)
SOCRATES Recognition Scale	16.1 (5.2)	16.3 (5.1)	16.0 (5.4)
SOCRATES Ambivalence Scale	9.1 (3.4)	8.9 (3.5)	9.3 (3.3)
SOCRATES Taking Steps Scale	27.5 (7.3)	27.0 (8.1)	28.1 (6.3)

Note: DPICS = Dyadic Parent-Child Interaction Coding System; BASC BSI = Behavioral Assessment System for Children, Behavioral Symptoms Index; CAP = Child Abuse Potential; SOCRATES = Stages of Change Readiness and Treatment Eagerness Scale

Table 2

Therapist Experience Frequencies

	Total	Completers	Drop-Outs
	n = 110	n = 59	n = 51
Levels of Experience	%	%	%
Basic Trainee	21.8	23.7	19.6
Experienced Trainee	20.9	30.5	9.8
Advanced Expert	13.6	23.7	2.0

Table 3

Preliminary T-Test and Chi-Square Analyses

Categorical Variables	*t* or χ^2	df	*p*
Treatment Group	5.616	1	.02*
Child Gender	.576	1	.45
Parent Gender	.062	1	.80
Parent's Relationship to Child	.186	1	.67
Family Type	5.633	1	.02*
Minority Status	.088	1	.77
Children Removed from Home	3.110	1	.08*
Alcohol Diagnosis	.731	1	.39
Drug Diagnosis	.009	1	.92
Antisocial Personality Diagnosis	1.273	1	.26
Depression Diagnosis	.030	1	.86
Continuous Variables			
Negative DPICS Score	1.042	75	.30
Positive DPICS Score	-2.466	75	.02*
Child Age	-.064	108	.95

Parent Age	-.660	108	.51
Household Income	-2.264	105	.03*
Number in Household	1.009	108	.32
Parent Education	-.940	106	.35
Parent BASC BSI	-.135	108	.89
Child IQ	-.720	108	.47
Parent IQ	-.903	108	.37
Parent CAP Distress Scale	1.277	107	.20
SOCRATES Recognition Scale	-.260	101	.80
SOCRATES Ambivalence Scale	.533	107	.60
SOCRATES Taking Steps Scale	.733	102	.47
Therapist Experience	-2.577	60	.01*

* $p < .1$ so identified as potential predictor

Note: DPICS = Dyadic Parent-Child Interaction Coding System; BASC BSI = Behavioral Assessment System for Children, Behavioral Symptoms Index; CAP = Child Abuse Potential; SOCRATES = Stages of Change Readiness and Treatment Eagerness Scale

Table 4

Variables in the Logistic Regression Models

Variables	*β*	Wald	*p*	Odds Ratio	95% C.I.
First Logistic Regression Model					
Positive DPICS Score	.010	4.367	.037*	1.011	1.001-1.020
Treatment Group	-.003	.000	.997	.997	0.276-3.610
Family Type	.761	1.898	.168	2.140	0.725-6.320
Household Income	.124	.374	.541	1.132	0.760-1.687
Children Ever Removed	.465	.649	.421	1.591	0.514-4.931
Second Logistic Regression Model					
Therapist Experience	1.075	5.568	.018*	2.929	1.200-7.153

* $p < .05$ significant predictor

Note: DPICS = Dyadic Parent-Child Interaction Coding System