



Research article

Parent–Child Interaction Therapy for sexual concerns of maltreated children: A preliminary investigation



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ABSTRACT

The current study examines whether an evidence-based treatment for externalizing behavior problems may reduce sexual concerns among children with maltreatment histories. An archival analysis identified 44 children between the ages of 3 and 8 exhibiting externalizing problems and co-morbid sexual concerns who were treated using Parent–Child Interaction Therapy (PCIT). A second group of children receiving PCIT for externalizing behaviors without sexual concerns was included for comparison purposes ($n = 143$). Wilcoxon Signed-Ranks Tests indicated significant improvement among the group with sexual concerns, with 63.6% of children no longer displaying clinically significant sexual concerns at post-treatment. In addition, these children showed a decline in general externalizing problems comparable to that observed among the group of children receiving PCIT and not displaying sexual concerns. Lastly, logistic regression analyses showed that pre-treatment posttraumatic stress scores did not moderate improvement of sexual concerns, suggesting that posttraumatic stress-related sexual concerns may improve from PCIT treatment. These findings suggest that evidence-based parent training interventions, specifically PCIT, may successfully reduce sexual concerns among children who experienced maltreatment.

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Research suggests that children experiencing sexual abuse are at increased risk for displaying various sexual concerns, including problematic sexual behavior (e.g., removing the clothes of others, simulating sexual acts), sexual preoccupation, and sexual anxiety (Friedrich et al., 2001; Kendall-Tackett, Williams, & Finkelhor, 1993). Indeed, some of the most prominent etiological theories of sexual concerns among children emphasize the social learning of sexual behavior and posttraumatic stress symptoms that commonly occur as a result of sexual abuse (Finkelhor & Browne, 1985). Supporting this contention, Allen, Thorn and Gully (2015) found that sexually abused children with sexual behavior problems were more likely to report posttraumatic stress symptoms than sexually abused children without sexual behavior concerns. However, findings note that other forms of child maltreatment (e.g., physical abuse, neglect) also increase the risk for sexual concerns (Merrick, Litrownik, Everson, & Cox, 2008) and it is generally regarded that a large proportion of children displaying sexual concerns, likely greater than 50%, do not have a sexual abuse history (Allen, in press; Bonner, Walker, & Berliner, 1999; Silovsky & Niec, 2002).

Another etiological hypothesis is that sexual concerns among children may be the result of core emotion and behavior regulation deficits (Chaffin, Letourneau, & Silovsky, 2002). In this model, sexual concerns are typically conceptualized as

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occurring within the context of other comorbid conditions. Support for this developmental psychopathology perspective is drawn from findings suggesting that children with sexual concerns are more likely to display externalizing problems (Lévesque, Bigras, & Pauzé, 2012; Allen et al., 2015), poor emotion regulation (Lepage, Tourigny, Pauzé, McDuff, & Cyr, 2010), and social skills deficits (Friedrich, Davies, Feher, & Wright, 2003).

From a treatment perspective, Trauma-Focused Cognitive-Behavioral Therapy is a well-established treatment for children experiencing various forms of trauma, and research suggests it is effective for treating sexual concerns associated with posttraumatic stress among children with sexual abuse histories (Cohen, Deblinger, Mannarino, & Steer, 2004; Deblinger, Stauffer, & Steer, 2001). However, many clinicians are uncertain how to proceed in treatment if the presenting sexual concerns are not related to sexual abuse and/or the child does not display posttraumatic stress symptoms, as a trauma-focused intervention specifically targeting sexual abuse-related sequelae is not indicated. A meta-analysis by St. Amand, Bard and Silovsky (2008) identified only four studies targeting sexual concerns that used interventions other than trauma-focused cognitive-behavioral models focused on ameliorating posttraumatic stress (Bonner et al., 1999; Gagnon, Tremblay, & Begin, 2005; Pithers, Gray, Busconi, & Houchens, 1998; Silovsky, Niec, Bard, & Hecht, 2007). Each of these four studies examined group administered protocols, which may not be feasible in many practice settings. In addition, externalizing behavior problems were not the primary focus of these groups and it is unclear if these group treatment protocols would be the appropriate choice for a child with broader externalizing problems.

Some have recommended that sexual concerns occurring within the context of broader externalizing problems be treated with behavioral parent-training models validated for treating externalizing problems (Chaffin et al., 2006). Supporting this recommendation is data from the St. Amand et al. (2008) meta-analysis, which found that the techniques most effective in reducing problematic sexual behavior are primarily parent-focused and include the use of behavioral child management skills, building the parent-child relationship and improving communication, and setting appropriate limits on behavior. It should be emphasized that, although evidence-based parent-training interventions are recommended for sexual concerns among children, no studies of evidence-based parent-training interventions for child sexual concerns were found by St. Amand et al., and no such studies have been published since their meta-analysis.

Parent-Child Interaction Therapy (PCIT; McNeil & Hembree-Kigin, 2010) is a parent-training program with considerable empirical support for the treatment of childhood externalizing behavior problems (Eyberg, Nelson, & Boggs, 2008; Thomas & Zimmer-Gembeck, 2007). PCIT results in improved parent-child relationships and reduced externalizing problems by teaching caregivers how to provide positive attention to children for desired behaviors and deliver appropriate consequences for undesired behaviors. In the first portion of PCIT, Child-Directed Interaction (CDI), caregivers are taught to use techniques such as praising appropriate behaviors, reflecting a child's verbalizations, and describing the child's behavior. In the second phase of PCIT, Parent-Directed Interaction (PDI), caregivers are taught to establish rules, deliver effective commands and provide non-violent forms of discipline for non-compliance and rule-breaking. A hallmark feature of PCIT is that the clinician provides in vivo coaching to the parent in the use of the skills while the parent interacts with his or her child during session. For more information on PCIT, the reader is referred to McNeil and Hembree-Kigin (2010) and Borrego, Klinkebiel and Gibson (2014). Importantly, PCIT incorporates many of the parent-focused components St. Amand et al. (2008) linked to positive outcomes for problematic sexual behavior, such as the use of behavior management techniques, improving communication in parent-child relationship, and setting appropriate limits on behavior. In addition, clinical observations suggest that PCIT may be effective with children exhibiting sexual concerns (Friedrich, 2007).

The current study examines the effectiveness of PCIT with children displaying sexual concerns, broadly conceived to include problematic sexual behavior, sexual anxiety, and sexual preoccupation, as well as co-morbid externalizing problems. Based on previous research and theory, we developed the following hypotheses:

1. PCIT would result in significant reductions of sexual concerns.
2. PCIT would result in significant reductions of externalizing problems, in general.
3. The improvement of sexual concerns as a result of PCIT would be moderated by pre-treatment posttraumatic stress scores. Given that PCIT and other behavioral parent-training programs do not focus specifically on ameliorating symptoms of posttraumatic stress (e.g., intrusive thoughts), posttraumatic stress-related sexual concerns may not respond to PCIT in the same manner as sexual concerns not resulting from posttraumatic stress. As such, we expected that children with higher pre-treatment posttraumatic stress scores would show smaller changes in sexual concerns than children with less posttraumatic stress.

Method

Participants

Archival data were obtained from a sample of 187 caregiver-child dyads referred to PCIT between January 2004 and January 2014 for treatment of children's externalizing behavior problems. Dyads were eligible for inclusion if the caregiver completed the Trauma Symptom Checklist for Young Children (TSCYC) pre- and post-treatment, and the child was at least 3 and less than 8 years of age. If more than one caregiver was in treatment with the child, the caregiver participating in PCIT was selected. If more than one child in a family was in treatment, we made a decision to select one child according to the following criteria, and in this order: (1) the child who completed more PCIT sessions; (2) the child

with greater sexual concerns; (3) the child with more complete information about his or her risk history; (4) the younger child.

The treatment setting was a university hospital-based outpatient clinic serving children with a history of maltreatment. Children were referred from various community sources, primarily Child Protective Services and local courts for the purposes of participating in PCIT. All children were assessed to determine the presence of a mental health diagnosis and the appropriateness of PCIT. All met County-defined criteria for medical necessity; 67% of the sample was referred to treatment by their child welfare social worker; and the court was involved in treatment in 50% of cases (e.g., supervising, or mandating treatment). The consent form and the description of the study were approved by an appropriate Institutional Review Board, and all participants gave informed consent to participate in research.

Only children who were referred to the clinic for PCIT were included in this study. Therefore, the primary presenting concerns for participants in the study were either significant externalizing problems (e.g., aggression, defiance) or a parent–child relationship of substandard or poor quality. Other symptoms or diagnoses, such as sexual concerns or posttraumatic stress, may have been present, but were not viewed as the primary target of treatment.

The sample consisted of 44 caregiver–child dyads with caregivers reporting that the children in their care exhibited borderline or clinical levels of sexual concerns on the TSCYC (T -score ≥ 65), and 143 caregiver–child dyads where caregivers reported sexual concerns within normative limits (T -score < 65). The children ranged in age from 3 to 8 years ($M = 4.8$ years; $SD = 1.2$), and 51% were male. Approximately half of caregivers and children were White/Non-Hispanic (45% of children and 49% of caregivers), 26% of the children and 20% of caregivers were African-American, and 23% of children and 20% of their parents were Latino. The majority of caregivers was female (92%) and biological parents (58%); 17% were relative caregivers, 18% were non-relative foster caregivers, and 7% were adoptive caregivers. These cases were drawn from a larger sample of dyads presenting for PCIT treatment that included those not completing treatment ($n = 494$). Caregivers who were known or suspected perpetrators of child sexual abuse were excluded from PCIT services.

Procedures

Caregivers were asked to complete a battery of standardized measures assessing child and caregiver functioning when they came to the clinic for the first time and once they completed PCIT. Dyads were considered to have completed treatment after the parents mastered the skills taught in both the CDI and PDI portions of PCIT, and children responded to their parents' efforts to manage their behavior. For example, if a child had a tantrum and the parent could not help the child to recover sufficiently to resume play without coaching from the clinician, they were not graduated. The average number of treatment sessions (including assessments) to treatment completion was 18.9 ($SD = 6.4$).

Measures

Trauma Symptom Checklist for Young Children (TSCYC). The TSCYC is a caregiver-report inventory designed by Briere (2005) to assess the severity of trauma-related symptoms in children 3 through 12 years old. The TSCYC contains 90 items, which are brief descriptions of psychological symptoms. Caregivers are asked to rate how frequently the symptoms occurred over the past month along a 4-point scale (1 = not at all to 4 = very often). The TSCYC has nine clinical scales, Sexual Concerns, Dissociation, Anxiety, Depression, and Anger/Aggression, in addition to 3 post-traumatic stress specific scales (Stress-Arousal, Stress-Intrusion, Stress-Avoidance) and a total Post-Traumatic Stress symptom scale. The primary focus of this study were responses on the Sexual Concerns scale, a 9-item scale with statements such as, "Pretending to have sex," "Touching other children's or adults' private parts (under or over clothes)," "Worrying about sexual things," and "Talking about sexual things." The internal consistency of the sexual concern scale was reported by Briere (2005) as $\alpha = .85$ for the standardization sample of 750 children. In the current sample of 187 children, the coefficient of reliability for the Sexual Concerns scale was $\alpha = .71$. Gilbert (2003; as cited in Briere (2005)) demonstrated the validity of the Sexual Concerns scale of the TSCYC in a sample of 384 children, finding that it significantly correlated with the Total Scale score of the Child Sexual Behavior Inventory (CSBI; Friedrich, 1997), $r = .66$, $p < .01$. However, the Sexual Concerns scale of the TSCYC assesses broad concerns related to sexual topics, such as sexual anxiety and thinking about sex, and is not focused specifically on problematic sexual behavior. In this study, we use the Sexual Concerns scale of the TSCYC to categorize children into one of two groups: those displaying sexual concerns (T -score ≥ 65) and those not displaying sexual concerns (T -score < 65). It should be noted that the Sexual Concerns scale and the Posttraumatic Stress Total scale, both used in this study, do not share any items on the TSCYC and the scores are independent. The reader is referred to Briere (2005) for more information on psychometric properties of the TSCYC.

Eyberg Child Behavior Inventory (ECBI). The ECBI (Eyberg & Pincus, 1999) is a 36-item scale that measures behavior problems exhibited by children aged 2–16 years. The ECBI lists behaviors commonly associated with disruptive behavior disorders (e.g., dawdling, arguing or fighting with siblings, sassiness). Caregivers indicate the frequency of these behaviors along a 7-point scale (1 = never to 7 = all the time) and whether they perceive the behavior as a problem (1 = Yes, 0 = No). Resulting scales reflect the Intensity and Number of behavior problems. The reliability and validity of the ECBI is well established (Eyberg & Pincus, 1999). Internal consistency coefficients measured in initial standardization studies (Robinson et al., 1980) were equal

to .98 for both the Intensity (as measured by Cronbach's α) and the Problem Scales (as measured by Kuder–Richardson-20). In this sample of 187 PCIT completers, the Intensity Scale internal consistency was measured at $\alpha = 0.95$; the Problem Scale's Kuder–Richardson 21 reliability coefficient was 0.92.

Family risk factors. Information about children's history of abuse, neglect, and exposure to domestic violence was obtained by review of the child's clinic file. The file contained therapists' reports, social workers' reports, court records, and therapists' clinical assessments, which contained information about the child's trauma history. When there was an unsubstantiated possibility that a child might have been abused, we labeled the case as having "suspected maltreatment." A child might have "suspected maltreatment" if an allegation of abuse or neglect was mentioned on a referral or other communication with a child welfare social worker or a caregiver. Children were classified as either having a suspected or documented history of maltreatment, or having no history of maltreatment. For purposes of this study, children with suspected and documented histories of maltreatment were both classified as having a history of maltreatment.

Data analyses

Using an alpha of .05 and an unevenly distributed N of 187 across two groups, the cell size of 44 in the sexual concerns group was sufficient to detect medium-large effect sizes with a power of .80. However, the small number of children with sexual concerns relative to the number of children within the normative range of sexual concerns increased the likelihood that the assumption of homogeneity of variance across groups in linear analyses could be challenged. Examination of Levene's tests of equality of error variance showed homogeneous error variance in children's age, caregivers' age, and caregivers' education across groups. However, the error variance of the groups' scores on outcome measures was significantly different. For this reason, we used analyses of variance when examining demographic differences between groups, but used non-parametric statistical tests (Wilcoxon Signed Ranks) to estimate the significance of pre- to post-treatment change for each group. We were able to use binomial logistic regression in follow-up analyses, as there is no assumption of homogeneity of error variance. For results reaching the level of statistical significance, we present η^2 (eta-squared) for analyses of variance, ϕ (phi) for chi-square analyses, Cohen's d for Wilcoxon Signed Ranks Tests, and R^2 for binomial regressions. These statistics indicate the proportion of variance accounted for by treatment (in analyses of treatment effectiveness) or membership in the designated groups (in analyses of demographic differences between groups). According to Cohen (1988), a small effect size for an analysis of variance is $d = .2$, $\phi = .10$ or $r = .10$ ($\eta^2 = .01$, $R^2 = .01$) accounting for 1% of the variance in the relationship, a medium effect size is $d = .5$, $\phi = .30$ or $r = .30$ ($\eta^2 = .09$, $R^2 = .09$), and a large effect size is $d = .8$, $\phi = .50$ or $r = .50$ ($\eta^2 = .25$, $R^2 = .25$).

Results

Demographic differences

Table 1 describes the demographic and family risk of the groups of children with elevated and normative levels of sexual concerns. Results of chi-square and ANOVA analyses show few group differences. Children did not differ in age, ethnicity, physical abuse or neglect history, exposure to interparental violence, or prenatal exposure to drugs or alcohol. Caregivers did not differ in age, gender, relationship to the child, ethnicity, marital status, or educational attainment. However, children with elevated sexual concerns were significantly more likely than children in the normative range to be female (normative: 43.4% female, elevated: 68.2% female) and to have a suspected or documented history of sexual abuse (normative: 11.2%; elevated: 31.8%).

Differences in treatment effectiveness

Termination of treatment. The first step in analyzing the effectiveness of PCIT for children with sexual concerns was to determine whether they were as likely to complete treatment as children without sexual concerns. We argue that this type of analysis is important in a study that compares pre- and post-treatment measures of treatment participants as a way of estimating treatment effectiveness because treatment completers may be different from those who terminate treatment early in a way that predisposes them to be successful. As the current analysis only utilizes treatment completers, we examined the larger archival sample from which the 187 dyads were drawn to determine whether increased sexual concerns had an impact on treatment retention. Using all 3–8 year old children with scores on the *pre-treatment* Sexual Concerns scale of the TSCYC, and at least one treatment session (i.e., not limiting the analyses to children completing PCIT; $N = 494$), we conducted a chi-square analysis looking at differences between those who completed treatment or terminated treatment early by level of sexual concerns (normative range vs. borderline/clinical range). Results of this analysis showed that overall, 37.9% were retained in treatment. No significant differences emerged between groups: 44% of caregiver–child dyads with elevated sexual concerns completed a full course of treatment compared with 36.1% of caregiver–child dyads in the normative range of sexual concerns ($\chi^2 (1, N = 494) = 2.01, p = .16$). As such, it does not appear that pre-treatment sexual concerns impacted treatment retention.

Table 1

Descriptive data for dyads with caregivers endorsing clinical levels and normal levels of child sexual concerns.

Variable	Sexual concerns group		Effects
	Normal (<i>n</i> = 143)	Elevated (<i>n</i> = 44)	
Sex of child (% female)	43.4%	68.2%	$\chi^2 = 8.3, p = .004, \phi = .21$
Age of child (in years)	4.74 (<i>SD</i> = 1.3)	4.85 (<i>SD</i> = 1.1)	$F = .27, p = .61$
Child ethnicity			
Caucasian/White (%)	42.0	55.3	$\chi^2 = 4.83, p = .19$
African-American/Black (%)	26.0	26.3	
Hispanic/Latino/a (%)	26.7	10.5	
Physical abuse history (%)	30.1	27.3	$\chi^2 = 0.13, p = .72$
Neglect history (%)	66.4	68.2	$\chi^2 = 0.05, p = .83$
Sexual abuse history (%)	11.2	31.8	$\chi^2 = 10.6, p < .001, \phi = .24$
Interparental violence history (%)	67.4	73.7	$\chi^2 = 0.54, p = .46$
Prenatal exposure to substances (%)	59.4	60.0	$\chi^2 = 0.05, p = .94$
Age of caregiver (in years)	36.7 (<i>SD</i> = 11.4)	37.8 (<i>SD</i> = 11.8)	$F = .31, p = .58$
Sex of caregiver (% female)	93.0	90.0	$\chi^2 = 0.21, p = .64$
Caregiver marital status (% single)	35.5	34.1	$\chi^2 = 0.03, p = .87$
Caregiver relationship to child			
Biological parent (%)	59.4	52.3	$\chi^2 = 1.36, p = .51$
Other biological relative (%)	15.4	22.7	
Non-biological relative caregiver	25.2	25.0	
Caregiver ethnicity			
Caucasian/White (%)	46.8	56.8	$\chi^2 = 3.41, p = .33$
African-American/Black (%)	18.4	22.7	
Hispanic/Latino/a (%)	22.7	11.4	
Caregiver education (years)	12.9 (<i>SD</i> = 2.5)	12.3 (<i>SD</i> = 1.8)	$F = 2.29, p = .13$

Sexual concerns. Table 2 shows the mean score of sexual concerns pre- and post-treatment for children with elevated and normative levels of sexual concerns. Results of Wilcoxon Signed Rank Tests of pre- and post-treatment sexual concerns for these two groups showed that the mean scores of children rated in the borderline or clinical range of sexual concerns pre-treatment were significantly lower post-treatment ($z = -4.69, p < .001$). In contrast, pre- and post-treatment scores for sexual concerns for children in the normative range pre-treatment did not significantly differ ($z = -1.05, p = .30$).

As a follow up, we examined the clinical significance of the decreases in sexual concerns over the course of PCIT. We created a dichotomous variable from the post-treatment Sexual Concerns scores, separating scores in the borderline or clinical range from those in the normative range, and performed a 2×2 Chi-square analyses to determine the percentage of children shifting from the elevated to normative range from pre- to post-treatment. Results of this analysis showed that of the children in the high problem group pre-treatment ($n = 44$), 63.6% were in the normative range at the post-treatment assessment ($n = 28$) and 36.4% remained in the elevated range ($N = 16$); 96.5% of children with normative levels of SBP remained in the normative range at post ($\chi^2 (1, N = 187) = 36.46, p < .001, \phi = .44$).

Influence of posttraumatic stress symptoms on treatment effectiveness. Pre-treatment sexual concerns and total posttraumatic symptoms (PTS), as measured by the TSCYC, were significantly correlated in this sample ($r = .39, N = 187, p < .001$); 57% of children with elevated pre-treatment sexual concerns ($n = 25$) also showed elevated total PTS scores. The presence of sexual concerns and PTS together may signify the relatedness of sexual concerns to a traumatic event or situation and render them more impervious to the effects of PCIT. In order to test whether the presence of posttraumatic symptoms affected change in sexual concerns, we conducted a hierarchical logistic regression. We regressed post-treatment sexual concerns (normative

Table 2

Results of Wilcoxon Signed Ranks Tests of differences between child sexual concerns pre- and post-treatment.

Assessment	Sexual concerns group	
	Normative (<i>n</i> = 143) <i>M</i> (<i>SD</i>)	Elevated (<i>n</i> = 44) <i>M</i> (<i>SD</i>)
Pre-treatment (SCT1)	48.0 (3.3)	82.3 (15.2)
Post-treatment (SCT3)	48.8 (7.0)	65.1 (22.2)
SCT3–SCT1		
Negative ranks	22	35
Positive ranks	19	8
Ties	102	1
Wilcoxon Signed Ranks Test:	$z = -1.05, p = .30$	$z = -4.69, p < .001$

Note: Outcome variable is the Trauma Symptom Checklist for Young Children Sexual Concerns scale, using *T*-scores.

Table 3

Hierarchical logistic regression of post-treatment sexual concerns on pre-treatment sexual concerns and posttraumatic stress.

Predictor variables	Model 1 Exp (B)	Model 2 Exp (B)	Model 3 Exp (B)
Pre-treatment SBP concerns (Elevated = 1)	11.14 ^{***}	9.91 ^{***}	22.13 ^{***}
Sexual abuse history (Yes = 1)	1.89	1.85	1.96
Child gender (Female = 1)	4.18 [*]	3.85	3.75
Relationship to caregiver (Biological parent = 1)	0.19 ^{**}	0.20 ^{**}	0.18 ^{**}
Pre-treatment posttraumatic stress (Elevated = 1)	1.63	4.24	
Pre-treatment SBP x posttraumatic stress			0.21
-2 LL	84.36	83.69	82.07
Cox & Snell R ²	.22	.23	.23
Step X ²	47.03 ^{**}	0.67	1.61
Model X ²	47.03 ^{**}	47.70 ^{***}	49.31 ^{***}

* $p < .05$.** $p < .01$.*** $p < .001$.

vs. borderline/clinical) on pre-treatment sexual concerns (normative vs. borderline/clinical; Step 1), pre-treatment Total PTS (normative vs. borderline/clinical; Step 2), and a sexual concerns by PTS interaction term (Step 3), controlling for child gender, sexual abuse history, and relationship of the caregiver to the child. Results of this analysis, shown in Table 3, suggested that PTS symptoms had no significant effect on change in SBP.

Child externalizing problems. Table 4 shows the mean levels of child externalizing problems pre- and post-treatment for children with elevated and normative levels of sexual concerns. We conducted Wilcoxon Signed Rank Tests (see Table 4) of pre- and post-treatment scores for (1) the intensity of disruptive behaviors; and (2) the number of these disruptive behaviors that caregivers considered to be problems for each of these two groups of children. Results showed significant reductions over the course of treatment for both children with elevated and normative levels of sexual concerns, suggesting that both groups of parents perceived significant reductions in the frequency of their children's externalizing behaviors and the number of those behaviors that they considered problematic.

In an effort to determine the clinical significance of the pre- to post-treatment decreases in the intensity of externalizing problems documented for children with elevated and normative levels of sexual concerns, we conducted a cross tabulation of the percentages of children in the clinical and normative ranges of the ECBI Intensity scale at pre- and post-treatment. Results showed that 46% of children with normative scores for sexual concerns and 64% of children with elevated sexual concerns scores had clinical levels of disruptive behavior problems pre-treatment. At post-treatment, each group showed an equivalent drop of 38% in the number of children with intensity scores in the clinical range. In order to see the relationship between sexual concerns and change in externalizing problems more clearly, we conducted a follow-up hierarchical logistic regression (see Table 5) of post-treatment externalizing behavior problems (normative vs. clinical range) on pre-treatment externalizing behavior problems (normative vs. clinical range; Step 1), sexual concerns (normative vs. elevated; Step 2), and an externalizing behavior by sexual concerns interaction term (Step 3), controlling for sex of child, relationship of the caregiver, and sexual abuse history. Results confirmed that children with elevated pre-treatment sexual concerns were more

Table 4

Results of Wilcoxon Signed Ranks Tests of differences between ECBI intensity and numbers of problems pre- and post-treatment.

Assessment	Sexual concerns group	
	Normal (n = 143) M (SD)	Elevated (n = 44) M (SD)
<i>Intensity of behavior problems</i>		
Pre-treatment (Int1)	123.3 (41.4)	139.2 (29.1)
Post-treatment (Int3)	84.2 (38.6)	104.6 (22.2)
Int3-Int1		
Negative ranks	125	33
Positive ranks	13	9
Ties	5	2
Wilcoxon Signed Ranks Test	$z = -9.31, p < .001$	$z = -4.57, p < .001$
<i>Number of behavior problems</i>		
Pre-treatment (Prb1)	13.7 (8.8)	16.9 (8.4)
Post-treatment (Prb3)	4.5 (6.6)	7.6 (8.2)
Prb3-Prb1		
Negative ranks	107	33
Positive ranks	12	7
Ties	25	4
Wilcoxon Signed Ranks Test	$z = -8.51, p < .001$	$z = -4.80, p < .001$

Table 5
Hierarchical logistic regression of post-treatment ECBI Intensity scores on pre-treatment ECBI Intensity and level of sexual concerns.

Predictor variables	Model 1 Exp (B)	Model 2 Exp (B)	Model 3 Exp (B)
Pre-treatment ECBI Intensity (Elevated = 1)	5.38**	5.63**	14.78 [†]
SBP group (Elevated = 1)		3.36 [†]	15.00 [†]
Sexual abuse history (Yes = 1)		2.50	2.39
Child gender (Female = 1)		0.66	0.64
Relationship to caregiver (Biological parent = 1)		0.23**	0.24**
Pre-treatment ECBI Intensity group × SBP group			0.15
–2 LL	122.80	106.23	104.07
Cox & Snell R ²	.07	.14	.15
Step X ²	10.88**	16.57**	2.16
Model X ²	10.88**	27.45***	29.61***

[†] $p < .05$.

** $p < .01$.

*** $p < .001$.

likely to have clinical levels of disruptive behavior problems at post-treatment. However, the interaction term in this analysis was not significant, suggesting that the presence of sexual concerns did not moderate the reduction of disruptive behavior problems.

Discussion

Relatively few clinical outcome studies specifically examine the treatment of children with sexual concerns and the extant research suggests that the etiological factors involved are likely multifaceted and complex. However, the literature also suggests that interventions focused on developing the caregiver's ability to implement behavioral child management skills may hold the greatest promise for effectiveness (St. Amand et al., 2008). This study examined the potential of an evidence-based parent-training intervention, Parent–Child Interaction Therapy, to reduce the presentation of sexual concerns within the context of other disruptive behavior concerns.

Results indicated that sexual concerns, as well as broader externalizing behavior concerns, significantly declined following PCIT, supporting the first two hypotheses of the study. In addition, moderating analyses found that the presence of sexual concerns at the pre-treatment assessment did not limit the improvement of other externalizing problems. Importantly, there was no observed difference in treatment completion/dropout rate based on whether the child displayed significant sexual concerns.

The third hypothesis of the study predicted that children with elevated levels of sexual concerns and posttraumatic stress would not improve in PCIT at the same rate as children with elevated levels of sexual concerns and normative levels of PTS. This hypothesis was not supported. As might be expected, the sexual concerns group contained a larger proportion of children with confirmed or alleged sexual abuse histories. However, pre-treatment PTS levels did not moderate outcome for children with sexual concerns. This finding suggests that sexual concerns conceptualized as sexual abuse-related PTS symptoms may respond to PCIT treatment. Although this may at first appear counterintuitive given the treatment literature's focus on gradual exposure for the treatment of child PTS and the fact that PCIT does not include an exposure component, clinical research suggests that PCIT may prompt improved emotion regulation skills among children (Chronis-Tuscano et al., in press; Luby, Lenze, & Tillman, 2012). Urquiza (Blacker & Urquiza, 2014) argues that improved emotion regulation skills may enable the child to better manage upsetting emotions, such as those provoked by trauma reminders, and cope with posttraumatic stress symptoms in general. These improved emotion regulation skills, combined with the behavioral limits and consequences implemented through PCIT, may be sufficient to ameliorate PTS-related sexual concerns. Caution is urged, however, as this hypothesis requires further research.

It should be noted that a sizable minority of children (36.4%) with elevated pre-treatment sexual concerns scores remained in the clinically significant range at post-treatment. Although PCIT incorporates a number of the components identified as key change techniques in the St. Amand et al. (2008) meta-analysis, it does not integrate all of them. Specifically, PCIT does not contain the sexual behavior-specific components, such as the establishment of sexual behavior rules and parent-focused sex education. Friedrich (2007) specified a PCIT-based treatment program for children with problematic sexual behavior that includes each of the effective components identified by St. Amand et al. (2008), as well addresses various risk factors for the presence of sexual concerns (e.g., family sexuality, lack of parental supervision). It may be the case that a sexual behavior-focused model of PCIT, such as that proposed by Friedrich (2007), would increase the effectiveness of PCIT and result in a greater rate of improvement. This question is best answered by a randomized clinical trial, and finding ways of improving treatment response awaits future research.

When interpreting the results of the current study, one should be cognizant of certain limitations. Much of the etiological and clinical research to date focuses specifically on observable problematic sexual behavior with a primary focus on intrusive/interpersonal sexual behavior problems. The current study is insufficient to demonstrate the impact of PCIT on these behaviors. However, since these intrusive behaviors are part of the broader conceptualization of sexual concerns used in this

study, it appears that PCIT is worthy of further study in the treatment of intrusive/interpersonal problematic sexual behavior. Second, the Child Sexual Behavior Inventory (Friedrich, 1997) is viewed as the current gold standard in the field for the assessment of child sexual behaviors. Although the TSCYC Sexual Concerns scale significantly correlates with the CSBI, the use of the CSBI would allow for greater specification of the sexual concerns construct. For instance, the current study makes no conclusions regarding possible differences in treatment response between children with intrusive/interpersonal sexual behavior and those with other sexual concerns. Examination of this variable is not possible with the TSCYC Sexual Concerns scale whereas it would be possible with the CSBI. In addition, the CSBI is more comprehensive in its assessment of sexual concerns. One should also remember that this study did not employ a randomized design and intent-to-treat analyses were not completed. Future prospective research with follow-up assessments would be helpful. Lastly, the treatment completion rate for the current sample was 37.9%. Such a low retention rate was likely due to the barriers typical for a low socioeconomic population and difficulties inherent in general community practice. However, such a low retention rate creates concerns about potential bias in the sample.

Although the current study included a group of children with externalizing behavior concerns receiving PCIT for comparison purposes, a control group examining the treatment of sexual concerns was not included. The Oklahoma model of group-based cognitive-behavioral therapy shows promising support for the treatment of problematic sexual behavior among children (Bonner et al., 1999; Silovsky et al., 2007), and clinical reports indicate this model may be effective in an individually-administered format (Allen & Berliner, 2015). A controlled study comparing the Oklahoma model and PCIT might provide useful information as to who best responds to different treatment approaches.

There remains a dearth of knowledge regarding the treatment of children displaying sexual concerns. However, the extant literature emphasizes the importance of teaching caregivers behavioral child management skills. The current study suggests that a well-validated and efficacious parent-training program, such as PCIT, may be effective in reducing the display of sexual concerns. Future research should further examine this contention using better measurements of sexual behavior and related concerns, a randomized controlled trial with another intervention designed to treat sexual concerns among children, and examine mediating and moderating factors of treatment response. In addition, given the popularity of parent-training programs for the treatment of externalizing behavior problems, it will be instructive to ascertain whether other parent-training programs exhibit the same benefits as PCIT for the treatment of child sexual concerns.

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