PREDICTORS OF TREATMENT OUTCOME FOR A GAME-BASED COGNITIVE-BEHAVIORAL GROUP TREATMENT FOR CHILDREN WHO HAVE BEEN SEXUALLY ABUSED

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ABSTRACT

Research has recently begun to identify factors that may moderate the effects of interventions for symptomatology associated with child sexual abuse (CSA). However, there is disagreement about which factors may be important for different populations. The present investigation examined predictors of treatment outcomes among 89 economically impoverished and culturally diverse CSA victims between the ages of six and ten, who were treated using a game-based cognitive-behavioral group therapy program (GB-CBT). It was hypothesized that all children would benefit from GB-CBT, regardless of the presence of abuse-related risk factors (i.e., degree of invasiveness of abuse, frequency of instances of CSA, use of force in the perpetuation of CSA, type of relationship to the perpetrator, and experiences of other forms of abuse) or differences in demographic characteristics (i.e., age, gender, ethnicity, household income). Treatment outcomes were operationalized as the extent of internalizing and externalizing symptoms, sexually inappropriate behaviors, and knowledge of abuse and personal safety skills. Results indicate that the level of household income resulted in differences in post-treatment internalizing symptoms, and that the type of force used to perpetuate the abuse impacted the acquisition of personal safety skills. No other variables were found to affect participants' responsiveness to treatment. Thus, GB-CBT appears to be effective for treating a wide range of CSA victims irrespective of their varied abuse histories and symptomatology.

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Predictors of treatment outcome for a game-based cognitive-behavioral group treatment for children who have been sexually abused

Child sexual abuse (CSA) presents as a unique treatment and research challenge, as children are often referred for clinical services as a result of an abuse experience rather than specific psychological symptomatology, as is the case with most other mental health referrals (Finkelhor & Berliner, 1995). Thus, the type and range of psychological and social impairments can vary considerably and may include post-traumatic stress disorder (PTSD), anxiety, depression, delinquency and violence, and sexually inappropriate behaviors, among many other problems (Kendall-Tackett, Williams, & Finkelhor, 2001; Paolucci, Genuis, & Violato, 2001; Putnam, 2003; Wolfe, Rawana, & Chiodo, 2006). Yet, children who have experienced sexual abuse may also present to treatment as asymptomatic (Cohen, Berliner, & Mannarino, 2000; Saywitz, Mannarino, Berliner, & Cohen, 2000; Yancey, Hansen, & Naufel, 2011). Researchers have identified various factors that impact the development and severity of symptoms following CSA. Risk factors include the severity of abuse, including greater invasiveness of abuse, longer duration of abuse, the use of force, and a familial relationship to the perpetrator, as well as experiencing other forms of abuse (Bulik, Prescott, & Kendler, 2001; Mullen, Martin, Anderson, Romans, & Herbison, 1996; Tyler, 2002; Yancey & Hansen, 2010). Protective factors include supportive relationships with nonoffending caregivers, including their belief of the disclosure and their active support, such as seeking appropriate care (Tyler, 2002; Yancey & Hansen, 2010). Moreover, researchers have found gender differences in symptom presentation. Males tend to show higher levels of externalizing symptoms such as aggression and oppositional behaviors, whereas females evidence higher levels of

internalizing symptoms such as depressed mood and anxiety (Banyard, Williams, & Siegel, 2004). As such, treatment for CSA is implemented for a diverse array of children, with a variety of trauma histories, and with many different symptom profiles.

Researchers and clinicians alike recognize that early, abuse-focused intervention not only reduces symptoms, but can also mitigate the development of subsequent problems in children who have been sexually abused (Cohen, Mannarino, & Deblinger, 2006; Silverman et al., 2008). As such, a number of efficacious individual, group, and family treatments have been developed to address the impairments associated with CSA. Trauma-Focused Cognitive-Behavioral Therapy (TF-CBT; Cohen et al., 2006), a short-term, cognitive-behavioral treatment, has evidenced the greatest empirical support for its efficacy in treating sequelae of CSA in children, and is considered a well-established intervention according to Chambless and Hollon's (1998) criteria for Empirically Supported Treatments (ESTs; Silverman et al., 2008). TF-CBT consists of coping skills training, gradual exposure to the traumatic memories, cognitive processing, and psychoeducation about CSA and healthy sexuality for both children and their caregivers (Cohen et al., 2006). A number of randomized controlled trials have indicated that TF-CBT is effective at reducing depression, anxiety, PTSD symptoms, behavior problems, and sexually inappropriate behaviors, as well as increasing body safety skills among preschoolers and older children who have been sexually abused (Berliner & Saunders, 1996; Cohen, Deblinger, Mannarino, & Steer, 2004; Cohen & Mannarino, 1996, 1998; Deblinger, Lippmann, & Steer, 1996; Deblinger, Mannarino, Cohen, & Steer, 2006; Deblinger, Stauffer, & Steer, 2001).

Play therapy is another popular form of treatment that has been used effectively with children who have experienced sexual abuse, although there is a dearth of controlled research supporting its efficacy (Gil, 2006). Play therapy is predominately a psychodynamic, non-directive approach, whereby children engage in play, their natural form of expression, in order to develop more adaptive emotions and behaviors in response to their abuse experiences (Gil, 2006; Leblanc & Ritchie, 2001). Developmentally appropriate games (DAGs) are a specific play therapy intervention that allow children to learn, practice, and master skills corresponding to the topic of the group session. They were developed according to the following principles: (1) children can participate in the DAGs according to their own capabilities; (2) the structure of the DAGs allow several opportunities to learn and practice emotional and social skills, and (3) playing the DAGs promote positive interactions among participants despite potential skill level differences (Reddy, Spencer, Hall, & Rubel, 2001; Reddy, Springer, et al., 2005). DAGs have been successfully incorporated in the cognitive-behavioral treatment of social skill deficits, childhood attention-deficit/hyperactivity disorder (ADHD), and most recently, CSA (Misurell, Springer, & Tryon, 2011; Reddy, Files-Hall, & Schaefer, 2005; Reddy, Springer, et al., 2005; Springer, Misurell, & Hiller, in press; Springer & Reddy, 2010). In a meta-analysis of treatments for CSA, Hetzel-Riggin, Brausch, and Montgomery (2007) found that play therapy was most effective for reducing social skill deficits and improving academic functioning and risk assessment abilities compared to other types of therapy.

Group therapy is another modality of treatment that has been implemented from both cognitive-behavioral and psychodynamic perspectives for children who have

experienced CSA (Cohen, Mannarino, & Deblinger, 2006; Friedrich, 2002). Group therapy allows children to socialize with peers who have had similar experiences, thereby potentially reducing the sense of alienation and stigma that often results from victimization (Avinger & Jones, 2007; Friedrich, 2002). The group format is a useful means of improving social skill deficits by teaching healthful ways of interacting with others that can be practiced in vivo (Hecht, Chaffin, Bonner, Workley, & Lawson, 2002; Tourigny, Hebert, Daigneault, & Simoneau, 2005). While the majority of the empirical literature has focused on individual treatments for CSA, research indicates that group therapy is effective at reducing behavior problems, depression, anxiety, post-traumatic symptoms, and low self-esteem among children who have experienced CSA (Avinger & Jones, 2007; De Luca, Boyes, Grayston, & Romano, 1995; Hetzel-Riggin et al., 2007; Reeker, Ensing, & Elliott, 1997).

Game-Based Cognitive-Behavioral Therapy (GB-CBT) is a short-term, innovative group therapy approach designed to treat victims of CSA (Springer & Misurell, 2010). GB-CBT was developed in order to provide an alternative evidence-based treatment to children who had been sexually abused. In particular, it was developed in an urban, low socioeconomic, and ethnically diverse community, and specific considerations were placed on developing methods that were culturally acceptable and congruent with this population (Misurell & Springer, 2011). This group therapy model integrates components from TF-CBT (Cohen et al., 2006), such as psychoeducation about abuse, social skill development, and gradual exposure, with play therapy techniques, particularly the use of DAGs. Non-offending caregivers participate in concurrent group sessions, receiving parallel education, support, and treatment. Preliminary research has indicated that GB-

CBT is effective at reducing internalizing symptoms, externalizing symptoms, and sexually inappropriate behaviors, as well as increasing children's knowledge of abuse and personal safety skills (Misurell et al., 2011; Springer et al., in press).

Given the diversity in CSA client presentations and treatment approaches, there is the possibility that particular treatments may be more effective for some children than others. Therefore, it is important to identify moderators and predictors of treatment outcome in order to enhance the ability to match clients with the treatment that would be most effective for them (Saywitz et al., 2000; Silverman et al., 2008). Moderators are variables measured prior to the beginning of a study that are differentially associated with outcome for the treatment compared to control groups, indicated by a significant interaction effect (Kraemer, Wilson, Fairburn, & Agras, 2002). Predictors are associated with outcome equally across treatment and control groups or may be tested within the treatment group only (Hinshaw, 2002). Researchers have suggested a number of client factors that may impact CSA treatment outcomes, including demographic factors (e.g., gender, ethnicity, age of patient), abuse factors (e.g., type and duration of abuse, intrafamilial versus extrafamilial abuse, use of force), and psychological sequelae of abuse (Cohen, Mannarino, Berliner, & Deblinger, 2000; Harvey & Taylor, 2010; Hetzel-Riggin et al., 2007; Silverman et al., 2008; Skowron & Reinemann, 2005). However, because CSA treatment efficacy research is relatively new, few such studies have assessed the impact of moderators and predictors on CSA treatment (Hetzel-Riggin et al., 2007).

Deblinger, McLeer, and Henry (1990) studied the influence of age, time lapse since the last abusive episode, relationship to abuser, duration of abuse, and type of

sexual abuse (i.e., genital-genital penetration, genital-oral contact, direct genital touching, digital-genital penetration, inappropriate sexual touching and/or sexualized kissing with clothes on) on TF-CBT outcomes. In a sample of 19 female sexual abuse victims ages 3-16 (M = 7.79 years) who met criteria for PTSD, Deblinger and her colleagues found that only type of abuse showed a trend toward influencing outcomes scores on internalizing symptoms and externalizing behavioral problems. More specifically, the research found that those who experienced more invasive types of abuse such as genital penetration or oral sex showed more improvement after treatment than those who suffered from fondling and/or kissing. In a later study comparing TF-CBT and client-centered therapy, Cohen et al. (2004) found that gender, race, ethnicity, and age did not moderate treatment outcomes among a sample of 229 CSA victims ages 8-14 (M = 10.76 years) with PTSD symptoms.

Large meta-analyses are also useful at discovering predictors of treatment program success across many interventions. Such studies in the area of child trauma and abuse have identified a number of moderating variables of treatment outcome (Harvey & Taylor, 2010; Hetzel-Riggin, Brausch, & Montgomery, 2007; Sanchez-Meca, Rosa-Alcazar, & Lopez-Soler, 2011; Trask, Walsh, & DiLillo, 2011). While Hetzel-Riggins et al. (2007) and Sanchez-Meca et al. (2011) found similar findings to Cohen and her colleagues (2004) that age and gender were not significant moderators of treatment efficacy, analyses indicated that intrafamilial abuse was associated with poorer outcomes. Harvey and Taylor (2010) found that children, ages 7-12, had better global outcomes than younger children, while Trask et al. (2011) found that males and older children benefited

more from treatment. Thus, the extant literature on moderating factors that may impact the effectiveness of treatments for CSA remains limited and unclear.

Thus, to date, the few studies assessing moderating variables of TF-CBT among children with post-traumatic symptoms have not identified any factors, besides the possibility of the invasiveness of abuse, that predict treatment outcome. More general meta-analytic studies of interventions for CSA have implicated age, gender, and intrafamilial abuse as predictors of treatment outcome. The current study aims to clarify factors that influence CSA treatment effects by evaluating predictors of GB-CBT treatment outcome. The current sample included 89 child sexual abuse victims, ages 6-10, who completed the GB-CBT group treatment at an urban community-based hospital clinic specializing in child abuse and neglect. Choice of predictor variables for the present study was based on a review of prior literature. The following hypotheses were tested:

(1) It was expected that children will benefit from GB-CBT, regardless of whether they present with risk factors for the development of more severe symptomatology. Even though children with greater risk factors may present with more complicated trauma histories and symptom presentations, making it difficult to treat in a time-limited, structured group format, GB-CBT has been shown to be an effective treatment program that can improve various symptoms. The following risk factors were examined in relation to treatment outcomes: (a) the degree of invasiveness of the abuse, (b) the frequency of instances of CSA, (c) the use of force in the perpetuation of abuse, (d) the type of relationship to the perpetrator (i.e., actual relationship, intrafamilial

versus extrafamilial), and (e) the experience of multiple forms of abuse (i.e., other instances of sexual abuse, physical abuse, neglect, exposure to substance abuse, and exposure to domestic violence).

(2) Just as the limited research to date has not shown demographic differences in treatment outcome besides some indicators for age and gender, it was expected that GB-CBT also would not evidence any treatment outcome differences as a result of demographics. The following demographic factors were considered: (a) age, (b) gender, (c) ethnicity, and (d) household income.

These questions were investigated in terms of predicting GB-CBT treatment outcomes, as indicated by improvement in internalizing and externalizing symptoms, reductions in sexually inappropriate behaviors, and increases in knowledge of abuse and personal safety skills.

Method

Participants

Children were drawn from a pool of individuals participating in a larger treatment efficacy study on GB-CBT at the Metropolitan Regional Diagnostic and Treatment Center (RDTC) at Newark Beth Israel Medical Center, an urban community-based hospital clinic specializing in child abuse and neglect. Participants were included if they met the following criteria: (1) the child was between the ages of six and ten years; (2) the child disclosed an incident(s) of sexual abuse that was substantiated by mental health and/or legal investigation; (3) the child and caregiver completed pre- and post-treatment assessment measures; and (4) the child attended a minimum of eight out of twelve group

therapy sessions. Children were excluded from the study if they met the following criteria: (1) the child had significant cognitive impairment, was actively psychotic, and/or had such severe behavioral difficulties that it would interfere with his or her ability to participate in group treatment; and/or (2) the child missed more than four group sessions. These criteria are similar to inclusion and exclusion requirements in other studies assessing TF-CBT for CSA (e.g., Cohen & Mannarino, 1998; Cohen et al., 2006; Deblinger et al., 2001).

A total of 89 participants (54 female, 35 male), ages 6-10 years (M = 8.0, SD = 1.49), were included in the study. They were primarily African-American (78.7%) and Latino (12.4%), and the remainder of the sample was Caucasian (4.5%) and biracial (4.5%). In terms of socioeconomic status, 52 (58.5%) of the families involved in the study earned less than $30,000 annually. Furthermore, 28 (31.5%) earned household incomes of less than $15,000. In terms of caregivers' educational level, 71 (80%) did not earn a college degree, 13 (15%) graduated college, and two (2%) completed graduate school or higher level professional training.

Measures

Regional Diagnostic and Treatment Center (RDTC) Psychosocial Protocol

Prior to being referred to the GB-CBT group treatment program, children, their caretakers and child protection caseworkers, were interviewed by experienced mental health clinicians and supervised graduate students using the RDTC Psychosocial Protocol (Baker, Moreno, & Winston, 2009), an extensive psychosocial abuse evaluation. This semi-structured interview assesses children's mental status, symptoms, and treatment needs, as well as important factors related to abuse history, including type and frequency

of sexual abuse, relationship and gender of the perpetrator, familial reactions to disclosure and other post-abuse events, pre-existing and subsequent symptomatology, and school difficulties. For the purposes of the present study, the data collected during these evaluations were coded along 15 dimensions that characterized the participants and their families. These variables were selected based on characteristics that could potentially impact CSA treatment outcome as identified by the published literature, including demographic information, abuse details, and abuse history. A list of the coded background variables can be found in Table 1.

Child-Completed Outcome Measures

Children's Knowledge of Abuse Questionnaire (C-KAQ). The Children's Knowledge of Abuse Questionnaire (C-KAQ; Tutty, 1992, 1994, 1997) is a 33-item self-report measure assessing children's knowledge of abuse-related situations, age-appropriate sexual behavior, private parts, and personal safety skills. Children are asked to respond true or false to questions assessing these areas to yield a total score (C-KAQ-Total), as well as two subscales: Inappropriate Touch and Appropriate Touch; only the total score was utilized in the analyses. Norms for the C-KAQ were developed based on a representative sample of children ages 6-12 and the measure has a high internal consistency of $\alpha = .90$ (Tutty, 1992, 1994, 1997).

Personal Safety Questionnaire (PSQ). The Personal Safety Questionnaire (PSQ; Wurtele, Gillispie, Currier, & Franklin, 1992; Wurtele, Marrs, & Miller-Perrin, 1987) is an 11-item questionnaire that asks children questions to assess their knowledge of abuse-related situations, age-appropriate sexual behavior, private parts, and personal safety skills. The PSQ was included in this study in addition to the C-KAQ due to its ease and

brevity in assessing such knowledge in younger children. The measure yields one overall score that ranges from 0-11, with a higher score indicating more knowledge. Internal consistency is sufficient at $\alpha = .83$ (Wurtele et al., 1987)

Caregiver-Completed Outcome Measures

Child Behavior Checklist (CBCL). The Child Behavior Checklist (CBCL) for Ages 6-18 (Achenbach, 1991) consists of 116 items that assess caregivers' perceptions of children's psychological functioning. Caregivers complete the measure by rating their child on a three-point Likert scale that ranges from *not true* (0) to *very true* (2). The scales that were utilized in this analysis were the Total Problems scale, which assesses children's overall behavioral problems; the Externalizing Problems scale, which evaluates children's behavioral difficulties; and the Internalizing Problems scale, which identifies children's emotional difficulties. *T*-scores above a clinical cutoff of 63 indicate clinically significant problems. The CBCL was standardized with a large, diverse sample of 2,600 clinical and non-clinical children, and the scales used in this study have excellent internal reliability scores ranging from $\alpha = .88$ to $\alpha = .96$ (Achenbach, 1991)

Child Sexual Behavior Inventory (CSBI). The Child Sexual Behavior Inventory (CSBI; Friedrich, 1997) is a 38-item measure designed to assess age-inappropriate sexualized behavior among children ages 2-12, particularly among those who have been sexually abused (Friedrich et al., 1992). Caregivers complete the measure by rating their child's behavior on a four-point Likert scale ranging from *never* (0) to *at least once a week* (3). While the CSBI is organized into a total score and two subscales (developmentally related sexual behaviors, and sexual abuse specific items), only the CSBI total scale was utilized in this study's analyses. The measure was standardized with

a large, diverse sample of 1,114 children, and has demonstrated sufficient internal consistency at $\alpha = .72$ (Friedrich, 1997; Friedrich, et al., 1992)

Social Skills Rating System (SSRS). The Elementary School Version (kindergarten through sixth grade) of the Social Skills Rating System-parent form (SSRS-PF; Gresham & Elliott, 1990) is a 55-item measure that assesses caregivers' perceptions of their children's social competencies, social skills deficits, and problematic behaviors. Only the Total Problems scale, which evaluates children's overall difficulties with internalizing and externalizing symptoms, was utilized in this study. Caregivers complete the SSRS-PF by rating the frequency of certain behaviors on a three-point Likert scale, ranging from *never* (0) to *very often* (2). The SSRS-PF was standardized using a large sample of parents (1,023), and the Total Problems scale has been shown to have high internal consistency ($\alpha = .94$) (Gresham & Elliott, 1990).

Procedure

Following approval from the Institutional Review Board (IRB) at Newark Beth Israel Medical Center, children and their caregivers who had been evaluated at the RDTC because of allegations of CSA were referred to the GB-CBT treatment program and given the option to participate in a larger research study assessing the efficacy of the GB-CBT group program (Misurell et al., 2011). Consenting participants were screened prior to treatment by a member of the research team, consisting of the director of the research program and doctoral-level graduate students. The pre-treatment screening consisted of background information interviews with the children's caretakers to obtain demographic information and current and prior allegations of abuse, as well as the questionnaires described above; the child-completed questionnaires were verbally administered. At the

conclusion of treatment, all measures were re-administered to the children and their caretakers. Both testing periods required approximately 45-90 minutes to complete.

All participants were treated with GB-CBT, a 12-week group therapy program. Each session lasted an hour and half, and was led by the director of the group treatment program and several graduate students. The therapy program included sessions on social skill development, emotional expression, anger management, relaxation, gradual exposure to the trauma and psychoeducation to challenge cognitive distortions associated with CSA, and personal safety skills. These modules were taught via didactic instruction, role-playing, and DAGs. Non-offending caregivers also partook in group therapy sessions, in which they were provided psychoeducation about CSA and healthy sexuality, healthy coping skills, behavior management, gradual exposure to their children's traumas, and support in coping with the CSA. For a more detailed description of the GB-CBT model, see Springer and Misurell (2010).

In order to obtain additional background information for this study, a retrospective chart review of participants' psychosocial evaluations and reports from the child protective service agency, police departments, legal offices, and hospital emergency departments was conducted following IRB approval. Important factors related to abuse history, including type and frequency of sexual abuse, relationship of the perpetrator, and the use of force were coded in order to be analyzed in relation to treatment outcome data from eight cohorts of GB-CBT. A list of the coded background variables can be found in Table 1.

Statistical Analyses

Analyses were conducted for continuous and categorical predictor variables. Linear regression analyses were used to assess whether age, and number of other forms of abuse predicted treatment outcome on the CBCL, SSRS, CSBI, C-KAQ, and PSQ, controlling for pre-treatment scores. Analyses of covariance (ANCOVAs) were conducted to determine whether demographic factors (i.e., gender, ethnicity, and household income) and abuse factors (i.e., most intrusive type of abuse, relationship to perpetrator, frequency of abuse, use of force, experience of other forms of abuse) predicted treatment outcomes scores on the CBCL, SSRS, CSBI, C-KAQ, and PSQ. A separate model was conducted for each of the predictor variables, and post-hoc analyses were assessed by using the Least Significant Difference (LSD) procedure. For all the analyses, a higher minimum significance level ($p < .01$) was chosen to reduce the possibility of Type I errors due to the large number of analyses conducted (Cohen, Cohen, West, & Aiken, 2003). In order to prevent potential floor effects, study participants were eliminated by variable from the statistical analyses if they had Time 1 *t*-scores of 50 or below on any CBCL or CSBI scales and a Time 1 *t*-score of 100 or below on the SSRS. Additionally, in order to guard against potential ceiling effects, participants were excluded from the analysis by variable if they had a 10 or above on the PSQ or a 28 or above on the C-KAQ. Each cut point for the standardized measures (CBCL, SSRS, and CSBI) was based on the reported average, non-clinical score, as listed in each measure's instruction manual. Cut scores for non-standardized measures (PSQ and C-KAQ) were set at approximately 80% of the measures maximum score at Time 1. Cutoff scores were used to increase the likelihood of detecting changes on outcome measures.

Results

A total of 89 participants from eight cohorts of GB-CBT were included in this study. However, the actual number of participants differed across variables as a result of the procedures to protect against floor and ceiling effects. Participants ranged from being included in predictor analyses of only one outcome measure to all seven measures (M = 4.48; SD = 1.77). One-way analyses of variance (ANOVAs) with pre-treatment scores selected as a covariate did not indicate any significant differences in treatment outcomes across cohorts. As such, the data from all cohorts were pooled together for the subsequent data analyses. The means and standard deviations for the sample on each of the predictor variables are presented in Table 1. Before analyses evaluating the predictive effects of each of the factors were conducted, outliers were identified by computing standard scores and identifying participants beyond three standard deviations. The results of these analyses revealed no outliers, and all of the cases were retained for further analysis.

The effect of GB-CBT on participants' outcome measures was calculated using paired sample t-tests. Table 2 shows that participants had significantly improved scores on each of the measures from Time 1 to Time 2 after completing the GB-CBT treatment program.

Separate linear regression analyses were used to examine whether age and number of other forms of abuse influenced participants' responsiveness to treatment as measured by the CBCL, SSRS, CSBI, C-KAQ, and PSQ. Results of these analyses are summarized in Tables 3-9. None of the findings were significant, indicating that these variables do not appear to affect treatment outcomes.

Analyses of covariance (ANCOVAs) were conducted to determine whether demographic factors (i.e., gender, ethnicity, and household income) and abuse factors (i.e., most intrusive type of abuse, relationship to perpetrator, frequency of abuse, use of force, experience of other forms of abuse) predicted treatment outcome scores on each of the measures. Pre-treatment scores were used as a covariate in these analyses. Results of these analyses are summarized in Tables 10-16. Two variables were found to be related to treatment outcomes for the participants. First, there was a significant effect of household income on CBCL internalizing outcomes after controlling for pre-treatment CBCL internalizing scores, $F(3,44) = 5.556$, $p = .003$. The effect size, computed with partial eta squared, was .275, which is considered a large effect (Cohen et al., 2003). Post-hoc comparisons using the Least Significance Difference (LSD) procedure revealed that having an income of $31,000-60,000 resulted in significantly lower post-treatment internalizing levels ($M = 46.85$, $SD = 11.298$) compared to those with an income of $16,000-$30,000 ($M = 61.00$, $SD = 8.019$, $p = .000$), and those with an income of $60,000 or more ($M = 61.71$, $SD = 15.316$, $p = .010$).

Second, there was a significant effect of type of force by the perpetrator on the PSQ outcomes after controlling for pre-treatment PSQ scores, $F(3,40) = 4.696$, $p = 0.007$. The effect size, computed by partial eta squared, was .260, which is considered a large effect (Cohen et al., 2003). Post-hoc comparisons revealed that CSA that was perpetrated via physical force resulted in significantly higher PSQ post-treatment scores ($M = 10.5$, $SD = .65$), indicating greater knowledge of personal safety skills compared to those who experienced CSA that was perpetrated without any overt use of force ($M = 9.14$, $SD = .949$, $p = .001$).

Discussion

The purpose of this study was to evaluate whether there are any demographic or abuse factors that affect participants' responsiveness to GB-CBT. Results yielded relatively little in terms of variables associated with treatment response, indicating that GB-CBT is an effective treatment for its participants who present with varied abuse histories and symptomatology. Thus, while the hypothesis that children will benefit from GB-CBT, regardless of demographic factors (i.e., gender, age, and ethnicity) and abuse factors (i.e., type and frequency of abuse, relationship to the perpetrator, and experience of other forms of abuse), was supported, data indicated that the level of household income resulted in differences in post-treatment internalizing symptoms, and that the type of force used to perpetuate the abuse impacted the acquisition of personal safety skills. Consistent with prior research, it is not surprising that the majority of the findings in this investigation showed that demographic and abuse factors do not predict differential treatment outcomes. While the failure to find any significant differences may be due to low power and follow-up studies are needed, past research on TF-CBT has also indicated that various demographic and abuse variables do not differentiate treatment outcomes (Cohen et al., 2004; Deblinger et al., 1990; Hetzel-Riggins et al., 2007).

It is noteworthy, however, that results indicated that participants with a household income of $31,000-60,000 resulted in less improvement in internalizing symptoms than those individuals with less and more financial resources. At first glance, it is surprising that this middle income level evidences poorer symptom improvement. This finding may be arbitrary, as a result of the way socioeconomic status was measured in this study, especially since there are so many other factors to consider (e.g., the number of people in

the household, where a participant is living). Yet, in comparison to those participants living in wealthier households, research has shown that certain demographic characteristics, including socio-economic status, is associated with poorer overall outcome in treatment as a result of fewer resources to support therapy attendance or therapists' low expectations for the efficacy of therapy (Newman, Stiles, Janeck, & Woody, 2006). While individuals with a mid-range income level have more money than their poorer treatment participants, these poorer individuals may do better in treatment for a variety of reasons. Caregivers receive government support, so they have more time to devote to their children. They may be more vulnerable to losing their children, so they are more motivated in maximizing the benefits of treatment. Study personnel may have consciously or unconsciously attended to those children with the fewest resources compared to those who had the financial resources to get to treatment.

It was also found that when CSA was perpetuated by physical force as opposed to the lack of any overt use of force, children evidenced greater knowledge of self-protection skills at the end of treatment. The effect size for this finding was .260, which is considered a large effect (Cohen et al., 2003). Yet, as Vacha-Haase and Thompson (2004) point out, benchmarks are not always helpful in interpreting effect sizes, and the context of the study affect the interpretation of the effect size. In this study, while the participants whose abuse experiences were perpetuated by physical force showed more improvement in their knowledge of personal safety than those whose abuse experiences were not enabled by any overt use of force, both groups evidenced satisfactory levels of knowledge at the end of the treatment. The lack of overt force may be considered a less severe form of CSA, and there is a tendency for the nature of abuse to reflect

participants' treatment responsiveness (i.e., if they suffered less, they show less improvement). Thus, these findings may reflect the tendency for participants who experienced less severe sexual abuse to be suffering fewer symptoms at baseline, or in this case, know more about self-protection, thus resulting in a less overall improvement (Deblinger et al., 1990).

Study Limitations

Although the study's findings provide more information about the efficacy of GB-CBT, limitations must also be mentioned. For instance, much of the information reflected in the predictor variables was collected retrospectively by coding participants' psychosocial evaluations and reports from the child protective service agency, police departments, legal offices, and hospital emergency departments. While the coding process was conducted to ensure complete accuracy, it necessitated relying on others to collect accurate information. Moreover, there were inherent limitations of what was available to code, thereby affecting the information available to study. Relatedly, it is possible that there may be other factors that differentiate treatment outcome, such as parental or family functioning or individual cognitive schemas; such information was not available to evaluate in this study. Additionally, an outcome measure explicitly measuring trauma and PTSD was not utilized. When evaluating GB-CBT, data on this subject has been collected using the Trauma Symptom Checklist for Children (TSCC; Briere & Lanktree, 1995), a 54-item self-report measure designed to assess behavioral and emotional symptoms that are associated with experiencing trauma. However, for the purposes of this study, the sample size of the TSCC was insufficient to analyze the data and make any conclusive findings regarding the particular predictor variables under

investigation. This limitation was a result of the more limited age range, in comparison to the other outcome measures used. In the future, however, it will be important to analyze the hypothesized predictor variables in relation to the TSCC or another explicit measure of trauma.

Future Directions

Overall, this study indicates that GB-CBT is an effective treatment for children who have experienced sexual abuse, and there is little that differentiates participants' responsiveness to the treatment. Research on GB-CBT has indicated that it is a promising treatment that warrants further investigation. More rigorously controlled studies evaluating longer-term follow-up data using comparison groups and randomization of participants will aide in a better understanding of the utility of GB-CBT. Additionally, Springer and Misurell (2010) and Misurell and Springer (2011) hypothesized that GB-CBT offers unique theoretical underpinnings and cultural sensitivities that make it effective in an urban, underprivileged, and ethnically diverse setting. In the future, it will be helpful to test these hypotheses in studies of factors that may mediate GB-CBT treatment outcomes. GB-CBT's unique and cost-effective approach to treating CSA makes it worthy of more extensive study and development.

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Table 1

Demographic and Abuse Factors (N=89)

Demographic Factors	
Age	
Range	6-10 years
Mean (*SD*)	8.0 (1.49)
Gender, *n* (%)	
Female	54 (60.7)
Male	35 (39.3)
Ethnicity, *n* (%)	
African-American	70 (78.7)
Latino	11 (12.4)
Caucasian	4 (4.5)
Biracial	4 (4.5)
Household income, *n* (%)	
Less than $15,000	28 (31.5)
$16-30,000	24 (27)
$31-60,000	19 (21.3)
$60,000 +	12 (13.4)
Abuse Factors	
Most intrusive type of sexual abuse, *n* (%)	
Genital-genital penetration	32 (42.7)
Digital-genital penetration	9 (10.1)

Table 1 - continued

Oral-genital contact	19 (21.3)
Fondling	20 (22.5)
Other (i.e., over the clothes contact, exposure of private parts, exposure to pornography)	9 (10.1)
Relationship of Perpetrator to Victim, *n* (%)	
Intrafamilial	64 (71.9)
Extrafamilial	25 (28.1)
Biological Parent	4 (4.5)
Stepparent/paramour	11 (12.4)
Sibling	18 (20.2)
Other relative (older child)	17 (19.1)
Other relative (adult)	11 (12.4)
Familiar adult, non-relative	6 (6.7)
Familiar child/adolescent, non-relative	22 (24.7)
Frequency of Abuse, *n* (%)	
Once	32 (36.0)
More than once	57 (64.0)
Use of Force, *n* (%)	
Physical force	20 (22.5)
Threatened with physical or emotional harm	16 (18.0)

Table 1 - continued

Grooming/reward	13 (14.6)
No overt strategy	25 (28.1)
Unknown	15 (16.9)
Past History of Abuse, *n* (%)	
Physical Abuse	
Yes	16 (18.0)
No	73 (82.0)
Neglect	
Yes	17 (19.1)
No	72 (80.1)
Exposure to Substance Use	
Yes	12 (13.5)
No	77 (86.5)
Exposure to Domestic Violence	
Yes	11 (12.1)
No	78 (87.6)
Past Sexual Abuse	
Yes	11 (12.1)
No	78 (87.6)
Total number of other forms of abuse	
Range	0 – 4
Mean (*SD*)	0.74 (1.02)

Table 2

Results of paired sample t-test analyses evaluating the effect of GB-CBT on post-treatment outcome measures compared to pre-treatment scores

Scale	Time 1	Time 2	Difference	*r*	*t*	*p, d*
CBCL Internalizing Scale	*M* = 62.59 *SD*=7.795 *N* =51	*M* = 54.76 *SD* = 11.627 *N* = 51	*M* = 7.824 *SD* =9.824 *N* =51	.549	5.687	*p* =.000** *d* = .796
CBCL Externalizing Scale	*M* =61.53 *SD*=8.079 *N* =64	*M* = 57.94 *SD* =10.019 *N* = 64	*M* =3.594 *SD* =8.338 *N* =64	.594	3.448	*p* = .001* *d* = .431
CBCL Total Problems Scale	*M* = 62.31 *SD* =8.596 *N* =61	*M* =56.52 *SD* =11.344 *N* = 61	*M* =5.787 *SD* =8.046 *N* =61	.707	5.617	*p*=.000** *d* =.719
SSRS	*M* = 103.65 *SD* =16.187 *N* =81	*M* =97.51 *SD* =14.247 *N* = 81	*M* = 6.148 *SD* = 13.440 *N* =81	.617	4.117	*p* =.000** *d* = .457
CSBI	*M* = 66.37 *SD* =16.769 *N* =38	*M* = 57.00 *SD* =15.168 *N* = 38	*M* = 9.368 *SD* =17.769 *N* =38	.384	3.250	*p* =.002* *d* = .527
C-KAQ	*M* = 21.44 *SD* =4.143 *N* =71	*M* = 25.03 *SD* =4.475 *N* = 71	*M* = -3.592 *SD* =3.725 *N* =71	.629	-8.125	*p* =.000** *d* = .964
PSQ	*M* = 8.07 *SD* =1.090 *N* =58	*M* =9.81 *SD* =1.177 *N* = 58	*M* = -1.741 *SD* =1.236 *N* =58	.407	-10.727	*p* =.000** *d* = 1.409

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

Table 3

Results of the linear regression analyses of the predictive effect of continuous variables on post-treatment scores of the CBCL Internalizing Scale after controlling for pre-treatment scores

Predictor Variable	*B*	SE *B*	B	R^2	*p*
Age	-.825	.970	-.102	.311	.399
Number of other forms of abuse	-1.241	1.540	-.097	.310	.424

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

Table 4

Results of the linear regression analyses of the predictive effect of continuous variables on post-treatment scores of the CBCL Externalizing Scale after controlling for pre-treatment scores

Predictor Variable	*B*	SE *B*	β	R^2	*p*
Age	-.546	.712	-.079	.359	.446
Number of other forms of abuse	.427	1.028	.043	.354	.680

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

Table 5

Results of the linear regression analyses of the predictive effect of continuous variables on post-treatment scores of the CBCL Total Problems Scale after controlling for pre-treatment scores

Predictor Variable	*B*	SE *B*	β	R^2	*p*
Age	-.347	.713	-.045	.502	.628
Number of other forms of abuse	-.164	1.036	-.015	.500	.875

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

Table 6

Results of the linear regression analyses of the predictive effect of continuous variables on post-treatment scores of the SSRS after controlling for pre-treatment scores

Predictor Variable	*B*	SE *B*	β	R^2	*p*
Age	-.150	.864	-.016	.380	.863
Number of other forms of abuse	-.226	1.236	-.016	.380	.856

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

Table 7

Results of the linear regression analyses of the predictive effect of continuous variables on post-treatment scores of the CSBI after controlling for pre-treatment scores

Predictor Variable	*B*	SE *B*	β	R^2	*p*
Age	-.800	1.532	-.081	.154	.605
Number of other forms of abuse	-2.520	2.596	-.151	.170	.338

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

Table 8

Results of the linear regression analyses of the predictive effect of continuous variables on post-treatment scores of the C-KAQ after controlling for pre-treatment scores

Predictor Variable	*B*	SE *B*	β	R^2	*p*
Age	-.116	.292	-.038	.397	.693
Number of other forms of abuse	-.048	.431	-.011	.396	.912

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

Table 9

Results of the linear regression analyses of the predictive effect of continuous variables on post-treatment scores of the PSQ after controlling for pre-treatment scores

Predictor Variable	*B*	SE *B*	β	R^2	*p*
Age	-.079	.099	-.099	.175	.426
Number of other forms of abuse	.048	.138	.045	.168	.726

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

Table 10

Results of ANCOVA analyses of the predictive effect of categorical variables on post-treatment scores of the CBCL Internalizing Scale after controlling for pre-treatment scores

Predictor Variable	*F*	df	*p*	η_p^2
Gender	.321	1	.574	.007
Ethnicity	.450	3	.719	.028
Socioeconomic Status	5.556	3	.003**	.275
Most Intrusive Type of Abuse	.695	4	.599	.058
Intrafamilial v. extrafamilial	.151	1	.699	.003
Relationship of Perpetrator	.159	6	.986	.022
Frequency of Abuse	1.520	1	.224	.031
Use of Force	.445	3	.722	.036
Past History of Physical Abuse	1.608	1	.211	.032
Past History of Neglect	.220	1	.642	.005
Exposure to Substance Use	.292	1	.592	.006
Exposure to Domestic Violence	.000	1	.991	.000
Other Sexual Abuse	6.476	1	.014	.119

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

Table 11

Results of ANCOVA analyses of the predictive effect of categorical variables on post-treatment scores of the CBCL Externalizing Scale after controlling for pre-treatment scores

Predictor Variable	*F*	df	*p*	η_p^2
Gender	.141	1	.709	.002
Ethnicity	.028	3	.994	.001
Socioeconomic Status	1.273	3	.292	.064
Most Intrusive Type of Abuse	.049	4	.995	.003
Intrafamilial v. extrafamilial	2.276	1	.137	.036
Relationship of Perpetrator	1.274	6	.284	.120
Frequency of Abuse	.377	1	.541	.006
Use of Force	.105	3	.957	.006
Past History of Physical Abuse	.352	1	.555	.006
Past History of Neglect	.025	1	.874	.000
Exposure to Substance Use	.032	1	.858	.001
Exposure to Domestic Violence	.325	1	.571	.005
Other Sexual Abuse	.128	1	.721	.002

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

Table 12

Results of ANCOVA analyses of the predictive effect of categorical variables on post-treatment scores of the CBCL Total Problems Scale after controlling for pre-treatment scores

Predictor Variable	*F*	df	*p*	η_p^2
Gender	.048	1	.828	.001
Ethnicity	.537	3	.659	.028
Socioeconomic Status	3.171	3	.032	.152
Most Intrusive Type of Abuse	.028	4	.998	.002
Intrafamilial v. extrafamilial	1.953	1	.168	.033
Relationship of Perpetrator	.575	6	.748	.061
Frequency of Abuse	1.682	1	.200	.028
Use of Force	.225	3	.879	.014
Past History of Physical Abuse	1.685	1	.199	.028
Past History of Neglect	.018	1	.895	.000
Exposure to Substance Use	.032	1	.858	.001
Exposure to Domestic Violence	.036	1	.850	.001
Other Sexual Abuse	2.340	1	.131	.039

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

Table 13

Results of ANCOVA analyses of the predictive effect of categorical variables on post-treatment scores of the SSRS after controlling for pre-treatment scores

Predictor Variable	*F*	df	*p*	η_p^2
Gender	.024	1	.877	.000
Ethnicity	.757	3	.522	.029
Socioeconomic Status	1.080	3	.369	.081
Most Intrusive Type of Abuse	.245	4	.912	.013
Intrafamilial v. extrafamilial	2.051	1	.156	.026
Relationship of Perpetrator	1.014	6	.423	.077
Frequency of Abuse	.619	1	.434	.008
Use of Force	.687	3	.566	.057
Past History of Physical Abuse	.085	1	.772	.001
Past History of Neglect	1.268	1	.264	.016
Exposure to Substance Use	.001	1	.979	.000
Exposure to Domestic Violence	3.292	1	.073	.040
Other Sexual Abuse	.352	1	.555	.004

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

Table 14

Results of ANCOVA analyses of the predictive effect of categorical variables on post-treatment scores of the CSBI after controlling for pre-treatment scores

Predictor Variable	*F*	df	*p*	η_p^2
Gender	.069	1	.794	.002
Ethnicity	1.532	3	.224	.122
Socioeconomic Status	2.205	3	.107	.171
Most Intrusive Type of Abuse	1.244	4	.312	.135
Intrafamilial v. extrafamilial	.436	1	.513	.012
Relationship of Perpetrator	.828	6	.558	.142
Frequency of Abuse	2.187	1	.148	.059
Use of Force	.185	3	.906	.019
Past History of Physical Abuse	2.032	1	.163	.055
Past History of Neglect	1.359	1	.252	.037
Exposure to Substance Use	1.384	1	.247	.038
Exposure to Domestic Violence	.147	1	.704	.004
Other Sexual Abuse	.127	1	.724	.004

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

Table 15

Results of ANCOVA analyses of the predictive effect of categorical variables on post-treatment scores of the C-KAQ after controlling for pre-treatment scores

Predictor Variable	*F*	df	*p*	η_p^2
Gender	.089	1	.766	.001
Ethnicity	.973	3	.411	.042
Socioeconomic Status	.184	3	.907	.009
Most Intrusive Type of Abuse	.156	4	.959	.010
Intrafamilial v. extrafamilial	.322	1	.572	.005
Relationship of Perpetrator	.800	6	.574	.071
Frequency of Abuse	.511	1	.477	.007
Use of Force	.630	3	.599	.034
Past History of Physical Abuse	.002	1	.962	.000
Past History of Neglect	.002	1	.965	.000
Exposure to Substance Use	1.181	1	.281	.017
Exposure to Domestic Violence	.148	1	.701	.002
Other Sexual Abuse	.720	1	.399	.010

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

Table 16

Results of ANCOVA analyses of the predictive effect of categorical variables on post-treatment scores of the PSQ after controlling for pre-treatment scores

Predictor Variable	*F*	df	*p*	η_p^2
Gender	1.556	1	.218	.028
Ethnicity	1.982	3	.128	.101
Socioeconomic Status	1.417	3	.249	.081
Most Intrusive Type of Abuse	.414	4	.798	.031
Intrafamilial v. extrafamilial	2.392	1	.128	.042
Relationship of Perpetrator	.687	6	.661	.076
Frequency of Abuse	.556	1	.459	.010
Use of Force	4.696	3	.007*	.260
Past History of Physical Abuse	1.041	1	.312	.019
Past History of Neglect	.206	1	.652	.004
Exposure to Substance Use	.315	1	.577	.006
Exposure to Domestic Violence	.387	1	.536	.007
Other Sexual Abuse	.818	1	.370	.015

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