UCLA
UCLA Previously Published Works

Title

Predictors of Treatment Engagement in Ethnically Diverse, Urban Children Receiving Treatment for Trauma Exposure

Permalink

https://escholarship.org/uc/item/390686kb

Journal

Journal of Traumatic Stress, 27(1)

ISSN

0894-9867

Authors

Fraynt, Rebecca
Ross, Leslie
Baker, Bruce L
et al.

Publication Date

2014-02-01

DOI

10.1002/jts.21889

Peer reviewed

Predictors of Treatment Engagement in Ethnically Diverse, Urban Children Receiving Treatment for Trauma Exposure

Rebecca Fraynt,[1] Leslie Ross,[2] Bruce L. Baker,[1] Ida Rystad,[2] Janet Lee,[2] and Ernestine C. Briggs[3]

[1]Department of Psychology, University of California, Los Angeles, Los Angeles, California, USA
[2]Children's Institute, Incorporated, Los Angeles, CA, USA
[3]Department of Psychiatry, Duke University, Durham, North Carolina, USA

Keeping traditionally underrepresented children and their families engaged in treatment until completion is a major challenge for many community-based mental health clinics. The current study used data collected as part of the National Child Traumatic Stress Network Core Data Set to examine whether racial/ethnic disparities exist in treatment duration and completion in children seeking treatment for trauma exposure. We then explored whether disparities persist after accounting for other variables associated with children's social contexts and the treatment setting. The sample included 562 ethnically diverse children receiving services from a child abuse prevention and treatment agency in Southern California. The results indicated that African American children had significantly shorter trauma-informed treatment duration and higher rates of premature termination than Spanish-speaking Latino children. These disparities persisted even with other variables associated with treatment duration and completion (e.g., child's age, level of functional impairment, and receipt of group and field services) in the model. Implications and future directions for research and practice are discussed.

Millions of children in the United States are exposed to trauma every year, including child abuse, neglect, and exposure to domestic violence (Fantuzzo & Mohr, 1999; Mulvilhill, 2005; Watts-English, Fortson, Gibler, Hooper, & De Bellis, 2006). Trauma exposure is associated with various negative psychiatric outcomes, such as PTSD, depression, substance abuse, and chronic illnesses (Mulvihill, 2005; Watts-English et al., 2006). There is empirical support for the efficacy of a number of trauma-focused interventions that aim to limit or prevent negative psychiatric outcomes for children, including trauma-focused cognitive-behavioral therapy, cognitive-behavioral intervention for trauma in schools, child-parent psychotherapy, and eye-movement desensitization and reprocessing therapy (Silverman et al., 2008).

Although our knowledge about treatments for childhood trauma exposure has increased, the literature has limitations pertinent to ethnic/racial disparities in rates of treatment engagement. Randomized controlled trials (RCTs) of treatments for childhood traumatic stress rarely analyze data for children who have dropped out of treatment (Silverman et al., 2008). Treatment dropout is one aspect of the broader concept of treatment engagement, which can be defined as behaviors that demonstrate clients' involvement in the treatment process. These behaviors include regular attendance at therapy sessions, appropriate self-disclosure to the therapist, willingness to consider the therapist's suggestions, and applying lessons learned from treatment to one's everyday life (Dreischner, Lammers, & van der Staak, 2004). Among those studies that have examined treatment engagement and dropout, within and outside the field of childhood traumatic stress, the definition of premature termination varies considerably across studies (Kazdin & Mazurick, 1994; Wierzbicki & Pekarik, 1993). Wierzbicki and Pekarik (1993) therefore recommend that researchers use multiple measures of premature termination.

Some treatment attendance is clearly necessary to achieve positive therapy outcomes, and a number of researchers have tried to quantify the number of therapy sessions necessary for clinically significant change to occur (Hansen, Lambert & Forman, 2002; Lambert, Hansen & Finch, 2001; Lanktree & Briere, 1995). Anderson and Lambert (2001) found that, on average, clients in an outpatient clinic needed 11 sessions of therapy to demonstrate clinically significant improvement. Clients with more severe problems needed 19 sessions. Lambert et al. (2001)

studied a sample of over 10,000 clients participating in various forms of outpatient treatment and found that 21–45 sessions of therapy were necessary to achieve optimal levels of clinical improvement. In a study examining clinical outcomes among children receiving treatment for sexual abuse, Lanktree and Briere (1995) found that children continued to improve even after a year of treatment. Researchers have also argued that clients with more severe symptoms need more treatment (Anderson & Lambert, 2001). Given estimates that 30% to 60% of children drop out of therapy (Kazdin, 1996; Wierzbicki & Pekarik, 1993), and that a significant number of them leave treatment after the first session (McKay, Nudelman, McCadam, & Gonzales, 1996), it is important to examine whether there are reliable predictors of treatment dropout.

Although treatment dropout is a problem for individuals from all cultural backgrounds, there is well-documented evidence that clients from racial/ethnic minorities are less likely to initially access mental health services and more likely to drop out of treatment than White Americans (Atdjian & Vega, 2005; Kazdin & Mazurick, 1994). RCTs of interventions for childhood traumatic stress, however, rarely compare treatment outcomes between racial/ethnic minority groups (Silverman et al., 2008). This is problematic given that different ethnic/racial groups may experience different barriers to treatment (Rodríguez, Valentine, Son, & Muhammad, 2009). The present study attempted to address some of these gaps in the literature by comparing two different measures of treatment engagement, total number of sessions attended, and therapist-rated reasons for discharge in African American, English-speaking Latino, and Spanish-speaking Latino children receiving trauma-informed treatments.

As recommended by Betancourt and Lopez (1993), this study then went on to see if a number of factors associated with children's social contexts and the treatment center itself may account for differences in treatment engagement across ethnic/racial groups. We identified a number of variables that previous researchers had hypothesized might contribute to treatment dropout, including child age (Bui & Takeuchi, 1992; New & Berliner, 2000), child gender (Staudt, 2003), single-parent household status (Kazdin & Wassell, 1999; Kendall & Sugarman, 1997), severity of symptoms (Kazdin, 1996; Kendall & Sugarman, 1997; Miller, Southam-Gerow & Allin, 2008), number of traumas (Walrath, Ybarra, Sheehan, Holden & Burns, 2006), type of trauma (New & Berliner, 2000; Staudt, 2003), presence of multiple disorders (Costello, Pescosolido, Angold, & Burns, 1998; Vega, Kolody, Aguilar-Gaxiola, & Catalano, 1999), receipt of group treatment (McKay, Harrison, Gonzales, Kim & Quintana, 2002; Meezan & O'Keefe, 1998), receipt of services outside the office (Slesnick & Prestopnik, 2004), and mandated versus voluntary referrals (Koverola, Murtaugh, Connors, Reeves & Papas, 2007; Miller et al., 2008).

The present study addressed two questions: Are there differences in treatment engagement between African American, Spanish-speaking Latino, and English-speaking Latino children participating in trauma-focused interventions? If there are differences in engagement among these groups, can they be explained further by other child, family, presenting clinical problem, and treatment characteristics?

Method

Participants

Participants were children receiving trauma-focused treatment in a mental health agency in Southern California. Measures from the Core Data Set (CDS) were completed for all children receiving trauma-informed services as part of the agency's participation in the National Child Traumatic Stress Network (NCTSN). Children were between the ages of 2 and 18 years and completed the CDS protocol between February 2, 2005 and June 12, 2009. CDS measures were administered after clinicians obtained consent and generally within a month of beginning services unless children did not initially receive trauma-informed treatment or clinical issues prevented formal assessment within the first month. CDS data were used to measure the study's predictor variables.

Researchers at the agency obtained approval for this project from the Institutional Review Boards (IRBs) at the Children's Institute, Incorporated (CII) and Duke University Health System. In addition, the agency entered into a data use agreement that described the terms of use for the coded data entered into the CDS. Additional IRB approval was obtained from the CII IRB and the University of California, Los Angeles to examine billing records of children previously discharged from the agency. Billing records were used to measure the study's outcome variable, treatment engagement.

The following inclusion criteria were used to select cases from the CDS database: (a) the child identified as Latino or African American (but not both); (b) the child had experienced at least one suspected traumatic event; (c) the child had only received outpatient services; and (d) if two or more siblings were in treatment, the child with the most data was kept in the data set. If both siblings had complete data, the eliminated sibling was determined by coin toss. As of September 30, 2009, the site-specific dataset included 754 children who were no longer receiving trauma-focused services and had enough data to code their billing records. Of these 754 subjects, 56 did not identify as African American or Latino; 10 identified as both African American and Latino; 13 had received inpatient services; 76 had a sibling in the dataset; and 37 reported no trauma exposure or all data on trauma exposure were missing. The final sample included 562 participants. Females comprised 49.3% of the sample ($n = 277$), and the average age was 12.0 years ($SD = 3.5$). Children experienced an average of 3.83 traumas ($SD = 2.31$) at intake. Table 1 presents the ethnic/racial subgroups on each of the predictor variables.

Measures

Clinicians obtained information about the child's age, gender, primary home language, and number of adults in the home

Table 1

Predictor Variables in English-Speaking Latinos, Spanish-Speaking Latinos, and African Americans

Predictor	ESL		SSL		AA	
	n or M	% or SD	n or M	% or SD	n or M	% or SD
Age (years)	11.51	3.46	12.29	3.38	11.61	3.62
Male	67	53.2	165	50.2	53	49.5
Clinical problems	5.08	2.96	4.60	2.90	5.39	3.29
Externalizing problems	97	77.0	201	61.1	77	72.0
Internalizing problems	111	88.1	298	90.6	92	86.0
Functional impairment	3.16	2.08	2.74	1.98	3.30	2.45
Total traumas	4.06	2.37	3.63	2.19	4.17	2.52
Sexual abuse	29	23.0	61	18.5	21	19.6
Physical abuse	34	27.0	80	24.3	36	33.6
UCLA PTSD-RI	23.26	14.04	23.54	14.70	24.60	15.32
Adults in home	2.06	1.17	2.13	1.14	1.75	0.79
Self-referred	29	23.0	69	21.0	18	16.8
School-referred	51	40.5	143	43.5	23	21.5
Mandated	24	19.0	34	10.3	43	40.2
Individual sessions[a]	.60	.30	.59	.31	.58	.31
Family sessions[a]	.25	.23	.25	.25	.31	.30
Group sessions[a]	.15	.26	.16	.26	.11	.23
Received field services	84	66.7	217	66.0	70	65.4

Note. UCLA-PTSD-RI = UCLA PTSD Reaction Index; ESL = English-speaking Latinos ($n = 126$), SSL = Spanish-speaking Latinos ($n = 329$), AA = African Americans ($n = 107$).
[a]Data are proportions.

at intake. If a child's language information was missing from the CDS, this information was obtained from billing records. The clinician asked the parent or child (if the child was 11 years or older) to select one of two options for ethnicity: Hispanic or Latino or Not Hispanic or Latino. The parent or child then chose as many of five racial categories as applied: White, African American, Asian American, American Indian, and Hawaiian/Pacific Islander.

Clinicians rated children's functional impairments using the Indicators of Severity of Problems Form, part of the clinical assessment for all children participating in CDS. The clinician indicated whether each of 14 domains (e.g., behavioral problems at home) was *Not a problem*, *Somewhat/sometimes a problem*, *Very much/often a problem*, or *Unknown*. Total number of functional impairments was defined as the number of domains rated as *Somewhat/sometimes a problem* or *Very much/often a problem.*

Clinicians filled out an evaluation form for each child assessing 20 different clinical problems based on intake information. The clinician rated each problem as *Not a problem*, *Probable*, or *Definite*. Total clinical problems were defined as the total number of problems rated as *Probable* or *Definite*. Problems were classified as internalizing (i.e., depression, PTSD, generalized anxiety disorder, acute stress disorder, panic disorder, separation disorder, phobia, and obsessive compulsive disorder) externalizing (i.e., oppositional defiant disorder, general behavior problems, ADHD, sexual behavior problems, substance abuse,

and conduct disorder), or other (i.e., traumatic/complicated grief, attachment problems, suicidality, somatization, dissociation, and sleep disorder).

Children's PTSD symptoms were measured using the UCLA PTSD Reaction Index (UCLA PTSD RI; Steinberg, Brymer, Decker & Pynoos, 2004). The UCLA PTSD RI is a 22-item measure assessing symptoms for PTSD according to the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed., *DSM-IV*; American Psychiatric Association, 2000). Children rate how frequently they have experienced symptoms in the past month on a 5-point Likert scale with $0 = None$ and $4 = Most$. Scores of 38 or above are considered to be clinically significant. Rodriguez, Steinberg, Saltzman, and Pynoos (2001) demonstrated that the scale has good internal reliability, with a Cronbach's α of .92.

Clinicians filled out the General Trauma Information Form as part of the initial assessment for all children participating in CDS. This measure was adapted from the UCLA PTSD-RI screener for the CDS. Clinicians indicated whether the client had, was suspected to have, or had not experienced 20 different traumas. Total trauma exposure was defined as the sum of all traumas to which the child had been exposed or was suspected to have been exposed.

Information about children's treatment modality was available from billing records. Percentage of individual sessions was calculated by dividing the number of individual sessions by total sessions attended. This procedure was also used to calculate

percentage of family and group sessions. The first author and two coders were responsible for counting and classifying sessions. Coders one and two had a Pearson correlation of .99 on their classification of all session types with the first author (based on randomly selected samples of 27 and 31 cases, respectively).

Referral source was noted in children's billing records. Children referred by themselves, family, or friends were categorized as voluntary. Children referred by their school were classified as school-referred, and children referred by the Department of Child and Family Services, the court, or county were categorized as mandatory.

Therapists marked whether each treatment session occurred in the office or field (any location outside the office) in children's billing records. Children were categorized based on whether all their sessions occurred in the office, or whether any treatment had occurred in the field.

Treatment engagement was defined in two ways. Total sessions (Wierzbicki & Pekarik, 1993) included all individual, family, and group therapy psychiatry and psychological assessment appointments at which the child was present. Children in this sample attended an average of 34 sessions ($SD = 32.8$). The first author and two coders were responsible for counting sessions from children's billing records. Both coders attained a Pearson correlation of .99 on their count of total sessions with the first author (based on randomly selected samples of 28 and 31 cases, respectively).

Wierzbicki and Pekarik (1993) also encourage researchers to examine therapists' ratings of treatment completion. Therapists provided one of seven reasons for discharge in children's billing records. Clients marked as successfully completing treatment or completing their follow-up and assessment were labeled, Successful completion ($n = 213$, 37.9%). Clients marked as dropped due to poor attendance and client left against program advice were labeled, Dropped out ($n = 163$, 29.0%). Clients marked as moved out of area or change in placement were labeled, Involuntarily left treatment ($n = 58$, 10.3%). Clients marked as Other or who had missing data were not included in analyses of this variable ($n = 128$, 22.8%).

Data Analysis

To test the first question, we ran a negative binomial regression using race and ethnicity as the predictor variable and total attended sessions as the outcome variable. Negative binomial regression was chosen over linear regression because total sessions attended is a count variable and its distribution does not approach normality (Coxe, West, & Aiken, 2009). We then ran a multinomial logistic regression with discharge reason as the outcome variable and race and ethnicity as the predictor variable.

To answer the second study question, we ran the same analyses as for the first question but also included child, family, presenting issue, and treatment variables. Because of the large number of predictors, we ran univariate analyses to determine which of the predictor variables attained at least a .05 significance level with each outcome variable. Predictors that attained a p value of .05 or less were put into a candidate model. Variables that attained at least a p value of .10 in the candidate model were included in the final model.

Results

Prior to determining whether racial/ethnic background was significantly related to treatment engagement, we ran an analysis of variance (ANOVA) to determine whether there was a significant relationship between total sessions and discharge reason. The overall ANOVA was significant, $F(2, 431) = 29.10$, $p < .001$. Successful completers ($M = 49.23$, $SD = 37.68$) attended more sessions than dropouts ($M = 23.51$, $SD = 23.59$; Tukey's (honest significant difference test (HSD), $p < .001$) and children who involuntarily left treatment ($M = 31.66$, $SD = 36.65$; Tukey's HSD, $p = .001$). There was no significant difference in total attended sessions between dropouts and children who involuntarily left treatment (Tukey's HSD, $p = .239$). Table 2 summarizes the means and frequencies of each ethnic/racial group on each outcome.

Our first question asked about engagement across ethnic/racial groups. To answer this question, we ran a negative binomial regression using total attended sessions as the outcome.

Table 2

Treatment Engagement Outcomes by Ethnic/Racial Group

Variable	ESL		SSL		AA	
	n or *M*	% or *SD*	*n* or *M*	% or *SD*	*n* or *M*	% or *SD*
Total attended sessions	35.98	36.73	35.92	32.61	25.87	26.93
Reason for discharge						
Successful completion	40	31.7	147	44.7	26	24.3
Dropped out	35	27.8	94	28.6	34	31.8
Involuntarily left treatment	19	15.1	21	6.4	18	16.8
Missing, unknown, or other	32	25.4	67	20.4	29	27.1

Note. ESL = English-speaking Latinos ($n = 126$); SSL = Spanish-speaking Latinos ($n = 329$); AA = African American ($n = 107$).

Table 3

Multinomial Logistic Regression for Reason for Discharge Using Race and Ethnicity as the Predictor Variable

AAs and Successful completion of treatment as reference groups

Predictor	*B*	*SE B*	Wald's χ^2	*OR*
Dropped out vs. successful completion				
ESLs	−0.40	0.35	1.33	0.67
SSLs	−0.72	0.29	6.00*	0.49
Left treatment involuntarily vs. Successful completion				
ESLs	−0.38	0.41	0.83	0.69
SSLs	−1.58	0.39	16.78***	0.21

ESLs and successful completion of treatment as reference groups

Predictor	*B*	*SE B*	Wald's χ^2	*OR*
Dropped out vs. successful completion				
SSLs	−0.31	0.27	1.39	0.73
Left treatment involuntarily vs. Successful completion				
SSLs	−1.20	0.36	10.93**	0.30

Note. n = 434. All *degrees of freedom* for Wald's χ^2 = 1. *OR* = odds ratio; ESL = English-speaking Latinos; SSL = Spanish-speaking Latinos.
*$p \le .05$. ***$p \le .001$.

The model was significant $\chi^2(2, N = 562) = 8.47$, $p = .015$. English-speaking Latinos attended an average of 1.39 times more sessions than African Americans, $B = 0.33$, $SE_B = 0.13$, Wald $\chi^2 (1, N = 562) = 6.09$, $p = .014$. Spanish-speaking Latinos also attended an average of 1.39 times more sessions than African Americans, $B = 0.33$, $SEB = 0.11$, Wald $\chi^2(1, N = 562) = 8.40$, $p = .004$. There was no significant difference between English-speaking and Spanish-speaking Latinos, $B = 0$, $SE_B = 0.11$, Wald $\chi^2(1, N = 562) = 0$, $p = .988$. The marginal mean for total attended sessions was 35.98 among English-speaking Latinos, 35.92 among Spanish-speaking Latinos, and 25.87 among African Americans.

Table 3 shows the results of the multinomial logistic regression using reason for discharge as the outcome variable. The model was significant, −2 log likelihood = 29.05, $\chi^2(4, n = 434) = 22.66$, $p < .001$. African Americans were 1.51 times more likely to drop out of treatment and 1.79 times more likely to involuntarily leave treatment than Spanish-speaking Latinos. These differences were statistically significant. English-speaking Latinos were 1.70 times more likely to involuntarily leave treatment than Spanish-speaking Latinos. This was also significant, but there was no significant difference between English and Spanish-speaking Latinos on likelihood of dropping out. There were also no significant differences between African Americans and English-speaking Latinos on discharge reason. The hit rate for the final model (i.e., ability to correctly predict individuals' outcome) was 50.9%. This was an increase from 40.0% if the model were to classify individuals by chance.

Our second question asked about other client and treatment factors that might account for the racial/ethnic group differences. The candidate model for total sessions included: race and ethnicity, age, gender, total clinical problems, level of functional impairment, history of sexual/physical abuse, UCLA PTSD-RI total score, percentage of family sessions, percentage of group sessions, and receipt of field services. The final model included race and ethnicity, age, level of functional impairment, percentage of family sessions, percentage of group sessions, and receipt of field services. Table 4 shows the results of the final negative binomial regression. The model was significant $\chi^2(7, N = 562) = 58.82$, $p < .001$. Even with other variables in the model, race and ethnicity continued to be a significant predictor of total sessions.

All the predictor variables in the final model were significant. Children attended an average of 1.05 times more sessions for every year decrease in age and an average of 1.06 times more sessions for every additional area of functional impairment. Children who received no family treatment attended an average of 1.52 times more sessions than children who received only family treatment. Children who received only group treatment attended an average of 1.72 times more sessions than children who received no group treatment. Children who received field services attended 1.40 times as many sessions as children who received only office services. The estimated marginal mean for total sessions for children who received all office treatment was 24.43. It was 34.14 for children who received field treatment.

The candidate model for reason for discharge included: race and ethnicity, age, externalizing problems, internalizing problems, functional impairment, percentage of group sessions, and field services. The final model included all of the above variables except externalizing problems. Tables 5 and 6 present the results of the final multinomial logistic regression. The model was significant, −2 Log Likelihood = 765.30, $\chi^2(14, n = 430) = 71.94$, $p < .001$.

Even with other factors in the model, race and ethnicity continued to be a significant predictor of discharge reason. Age, functional impairment, internalizing problems, and percentage of group treatment were also significant predictors. Children were 1.13 times more likely to drop out of treatment and 1.34

Table 4

Negative Binomial Regression for Total Attended Sessions With the Overall Sample

Variable	*B*	*SE B*	Wald χ^2
ESLs	0.28	0.14	4.38*
SSLs	0.35	0.12	8.78**
Age	−0.05	0.01	10.24***
Total impairment	0.06	0.02	7.36**
% Family sessions	−0.42	0.20	4.68*
% Group sessions	0.54	0.21	6.90**
Field services	0.34	0.10	12.28***

Note. N = 562. ESL = English-speaking Latinos; SSL = Spanish-speaking Latinos. All degrees of freedom for Wald's χ^2 = 1.
*$p \le .05$. **$p \le .01$. ***$p \le .001$.

Table 5

Multinomial Logistic Regression for Discharge Reason With African Americans and Successful Completion of Treatment as Reference Groups

Predictor	B	SE B	Wald's χ^2	OR
Dropped out				
ESL	−0.41	0.36	1.28	0.67
SSL	−0.80	0.30	6.96**	0.45
Age	0.08	0.03	5.62*	1.08
Internalizing problems	−0.86	0.39	4.83*	0.42
Total impairment	0.13	0.06	5.25*	1.13
% Group sessions	−0.15	0.43	0.12	0.86
Field services	−0.40	0.23	3.18	0.67
Left involuntarily				
ESL	−0.33	0.44	0.57	0.72
SSL	−1.43	0.41	12.08***	0.24
Age	−0.03	0.05	0.41	0.97
Internalizing problems	−0.94	0.50	3.51	0.39
Total impairment	0.29	0.08	15.05***	1.34
% Group sessions	−1.80	0.83	4.70*	0.17
Field services	0.60	0.38	2.44	1.82

Note. $n = 430$. All degrees of freedom for Wald's $\chi^2 = 1$. OR = odds ratio; ESL = English-speaking Latinos; SSL = Spanish-speaking Latinos.
*$p \leq .05$. **$p \leq .01$. ***$p \leq .001$.

times more likely to involuntarily leave treatment for every additional area of functional impairment. Children were 1.08 times more likely to drop out of treatment for every additional year of age, and children without internalizing problems were 2.38 times more likely to drop out of treatment than children with internalizing problems. Neither age nor internalizing problems, however, were significantly associated with the likelihood of children involuntarily leaving services. Children who received no group treatment were 5.88 times more likely to involuntarily leave treatment than children who received only group treatment. Percentage of group treatment did not significantly differentiate between dropouts and successful completers. The final model's overall hit rate was 56.0%, compared to 39.9% if the model were to categorize individuals based on chance.

Table 6

Multinomial Logistic Regression for Discharge Reason With English-Speaking Latinos and Successful Completion of Treatment as Reference Groups

Predictor	B	SE B	Wald's χ^2	OR
Dropped out				
SSL	−0.40	0.28	2.05	0.67
Left involuntarily				
SSL	−1.09	0.38	8.26**	0.34

Note. $n = 430$. All degrees of freedom for Wald's $\chi^2 = 1$. OR = odds ratio; SSL = Spanish-speaking Latinos.
**$p \leq .01$.

Discussion

This sample was comprised of ethnically diverse, urban children receiving trauma-informed treatment. Although overall session attendance was high, therapists only rated 37.9% of children as successfully completing treatment and ethnic/racial disparities in engagement were found. Spanish-speaking Latino clients were most engaged in treatment (attending an average of 36 sessions), and African American clients were least engaged (attending an average of 25 sessions). Even when predictive models accounted for other factors, ethnic/racial differences in treatment engagement remained significant. Age, functional impairment, and receipt of group and field services also predicted engagement.

Although clients' high rates of treatment attendance in this sample was encouraging, it is important to note that some researchers have found that clients may need up to 45 sessions to achieve optimal clinical outcomes (Lambert et al., 2001). In addition, Lanktree and Briere (1995) found that traumatized children continued to improve even after a year of treatment. Therefore, these findings are clinically significant, particularly when considering that children in this sample had been exposed to an average of approximately three traumas.

Our results were consistent with Bui and Takeuchi's (1992) finding that African Americans attend fewer treatment sessions than other ethnic/racial groups, as well as a study by Pumariega, Glover, Holzer, and Nguyen (1998) that indicated that immigrant Latinos attend more treatment sessions than nonimmigrant Latinos. Our results contrasted with studies that found no ethnic/racial differences in treatment engagement (McKay, Pennington, Lynn, & McCadam, 2001; New & Berliner, 2000). It is important to note that studies that did not find significant differences tended to have small overall samples or small samples of Latinos and African Americans (McKay et al., 2001; New & Berliner, 2000).

Race and ethnicity continued to be a significant predictor of treatment engagement even when predictive models controlled for other variables. This may be because we were unable to measure more proximal predictors, including ethnic/cultural match between clients and therapists (Halliday-Boykins, Schoenwald & Letourneau, 2005; Sue, 1998), acculturation (Rodriguez, Mira, Paez & Myers, 2007), and cultural mistrust (Whaley, 2001).

Both ethnic and cultural match between clients and therapists, as well as acculturation, could explain the greater treatment engagement of Spanish-speaking Latino children in this sample. Because of their language preference, Spanish-speaking Latinos may be more likely to get a therapist of the same cultural background, which is associated with greater treatment engagement (Halliday-Boykins et al., 2005; Sue, 1998). Spanish-speaking Latinos may also be less acculturated than the other two ethnic or racial groups (Marin & Gamba, 1996), which is associated with higher levels of familial emotional and tangible support (Rodriguez et al., 2007) and cohesiveness (Miranda, Estrada & Firpo-Jimenez, 2000).

Finally, African American families may be less engaged in treatment because they have less trust in the mental health system (Whaley, 2001) or have had more negative experiences with treatment providers (Drake et al., 2011). Cultural mistrust may thus be an adaptive response to discrimination, but may also prevent African American families from receiving services (Whaley, 2001).

Age, functional impairment, group treatment, and field services also predicted treatment engagement. Younger children, children who received more group sessions, and children who received field services were more likely to engage in treatment. Children with more functional impairments attended more therapy sessions, but were also more likely to be rated as involuntarily leaving or dropping out of treatment. This may indicate that there is a mismatch between therapists' and clients' perceptions of treatment outcomes, or that children with high functional impairment needed more intensive forms of treatment than those offered in an outpatient setting.

This study has a number of limitations. First, we were unable to report data on children's treatment outcomes, making us unable to establish a correlation between treatment engagement and outcomes. Second, we were only able to track sessions attended by the target child, as clinicians only tracked sessions with the identified patient for billing purposes. We are therefore underestimating the number of clinical contacts that therapists have with clients' families. Finally, we were unable to categorize the child's treatment model.

It would be important to replicate this study while including factors such as ethnic-cultural match between clients and therapists, type of treatment, cultural mistrust (Whaley, 2001), client experiences of discrimination by treatment providers (Dana, 2002), acculturation (Gil, Wagner & Vega, 2000), socioeconomic status (Betancourt & Lopez, 1993), and the therapeutic alliance (Staudt, 2007). Future research should also examine the association between treatment engagement and outcomes.

Our findings have implications for clinical practice. First, offering group and field services may be an effective way of engaging children in trauma-informed therapies. Second, it is important that clinicians and researchers continue to explore ways to engage African American children, adolescents, and children with more severe problems in treatment.

References

American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed., text rev.). Washington, DC: Author.

Anderson, E. M., & Lambert, M. J. (2001). A survival analysis of clinically significant change in outpatient psychotherapy. *Journal of Clinical Psychology*, *57*, 875–888. doi:10.1002/jclp.1056

Atdjian, S., & Vega, W. A. (2005). Disparities in mental health treatment in US racial and ethnic minority groups: Implications for psychiatrists. *Psychiatric Services*, *56*, 1600–1602. doi:10.1176/appi.ps.56.12.1600

Betancourt, H., & Lopez, S. R. (1993). The study of culture, ethnicity, and race in American Psychology. *American Psychologist*, *48*, 629–637. doi:10.1037/0003-066X.48.6.629

Bui, K-V., & Takeuchi, D. T. (1992). Ethnic minority adolescents and the use of community mental health care services. *American Journal of Community Psychology*, *4*, 403–417. doi:10.1007/BF00937752

Costello, E. J., Pescosolido, B. A., Angold, A., & Burns, B. J. (1998). A family network-based model of access to child mental health services. *Research in Community and Mental Health*, *9*, 165–190.

Coxe, S., West, S. G., & Aiken, L. S. (2009). The analysis of count data: A gentle introduction to Poisson regression and its alternatives. *Journal of Personality Assessment*, *91*, 121–136. doi:10.1080/00223890802634175

Dana, R. H. (2002). Mental health services for African Americans: A cultural/racial perspective. *Cultural Diversity and Ethnic Minority Psychology*, *8*, 3–18. doi:10.1037/1099-9809.8.1.3

Drake, B., Jolley, J. M., Lanier, P., Fluke, J, Barth, R. P., & Jonson-Reid, M. (2011). Racial bias in child protection? A comparison of competing explanations using national data. *Pediatrics*, *127*, 471–478. doi:10.1542/peds.2010-1710

Dreischner, K. H., Lammers, S. M. M., & van der Staak, C. P. F. (2004). Treatment motivation: An attempt for clarification of an ambiguous concept. *Clinical Psychology Review*, *23*, 1115–1137. doi:10.1016/j.cpr.2003.09.003

Fantuzzo, J. W., & Mohr, W. K. (1999). Prevalence and effects of child exposure to domestic violence. *The future of children*, 21–32. doi:10.2307/1602779

Gil, A. G., Wagner, E. F., & Vega, W. A. (2000). Acculturation, familism, and alcohol use among Latino adolescent males: Longitudinal relations. *Journal of Community Psychology*, *28*, 443–458. doi:10.1002/1520-6629(200007)28:4<443::AID-JCOP6>3.0.CO;2-A

Halliday-Boykins, C. A., Schoenwald, S. K., & Letourneau, E. J. (2005). Caregiver-therapist ethnic similarity predicts youth outcomes from an empirically-based treatment. *Journal of Consulting and Clinical Psychology*, *73*, 808–818. doi:10.1037/0022-006X.73.5.808

Hansen, N. B., Lambert, M. J., & Forman, E. M. (2002). The psychotherapy dose-response effect and its implications for treatment delivery services. *Clinical Psychology: Science and Practice*, *9*, 329–343. doi:10.1093/clipsy.9.3.329

Kazdin, A. E. (1996). Dropping out of child psychotherapy: Issues for research and implications for practice. *Clinical Child Psychology and Psychiatry*, *1*, 133–156. doi:10.1177/1359104596011012

Kazdin, A. E., & Mazurick, J. L. (1994). Dropping out of child psychotherapy: Distinguishing early and late dropouts over the course of treatment. *Journal of Consulting and Clinical Psychology*, *62*, 1069–1074. doi:10.1037/0022-006X.62.5.1069

Kazdin, A. E., & Wassell, G. (1999). Barriers to treatment participation and therapeutic change among children referred for conduct disorder. *Journal of Clinical Child Psychology*, *28*, 160–172. doi:10.1207/s15374424jccp2802_4

Kendall, P. C., & Sugarman, A. (1997). Attrition in the treatment of childhood anxiety disorders. *Journal of Consulting and Clinical Psychology*, *5*, 883–888. doi:10.1037/0022-006X.65.5.883

Koverola, C., Murtaugh, C. A., Connors, K. M., Reeves, G., & Papas, M. A. (2007). Children exposed to intra-familial violence: Predictors of attrition and retention in treatment. *Journal of Aggression, Maltreatment & Trauma*, *14*, 19–42. doi:10.1300/J146v14n04_02

Lambert, M. J., Hansen, N. B., & Finch, A. E. (2001). Patient-focused research: Using patient outcome data to enhance treatment effects. *Journal of Consulting and Clinical Psychology*, *69*, 159–172. doi:10.1037/0022-006X.69.2.159

Lanktree, C. B., & Briere, J. (1995). Outcome of therapy for sexually abused children: A repeated measures study. *Child Abuse & Neglect*, *19*, 1145–1155. doi:10.1016/0145-2134(95)00075-J

Marin, G., & Gamba, R. J. (1996). A new measurement of acculturation for Hispanics: The Bidimensional Acculturation Scale for Hispanics (BAS). *Hispanic Journal of Behavior Sciences*, *18*, 297–316. doi:10.1177/07399863960183002

McKay, M. M., Harrison, M. E., Gonzales, J., Kim, L., & Quintana, E. (2002). Multiple-family groups for urban children with conduct difficulties and their families. *Psychiatric Services*, *53*, 1467–1468. doi:10.1176/appi.ps.53.11.1467

McKay, M. M., Nudelman, R., McCadam, K., & Gonzales, J. (1996). Evaluating a social work engagement approach to involving inner-city children and their families in mental health care. *Research on Social Work Practice*, *6*, 462–472. doi:10.1177/104973159600600404

McKay, M. M., Pennington, J., Lynn, C. J., & McCadam, K. (2001). Understanding urban child mental health service use: Two studies of child, family, and environmental correlates. *Journal of Behavioral Health Sciences Research*, *28*, 475–483. doi:10.1007/BF02287777

Meezan, W., & O'Keefe, M. (1998). Evaluating the effectiveness of multifamily group therapy in child abuse and neglect. *Research on Social Work Practice*, *8*, 330–353. doi:10.1177/104973159800800306

Miller, L. M., Southam-Gerow, M. A., & Allin, R. B. (2008). Who stays in treatment? Child and family predictors of youth client retention in a public mental health agency. *Child Youth Care Forum*, *37*, 153–170. doi:10.1007/s10566-008-9058-2

Miranda, A. O., Estrada, D., & Firpo-Jimenez, M. (2000). Differences in family cohesion, adaptability, and environment among Latino families in dissimilar stages of acculturation. *The Family Journal*, *8*, 341–350. doi:10.1177/1066480700084003

Mulvihill, D. (2005). The health impact of childhood trauma: An interdisciplinary review, 1997–2003. *Issues in Comprehensive Pediatric Nursing*, *28*, 115–136. doi:10.1080/01460860590950890

New, M., & Berliner, L. (2000). Mental health service utilization by victims of crime. *Journal of Traumatic Stress*, *13*, 693–707. doi:10.1023/A:1007818402277

Pumariega, A. J., Glover, S., Holzer, C. E., & Nguyen, H. (1998). Utilization of mental health services in a tri-ethnic sample of adolescents. *Community Mental Health Journal*, *34*, 145–156. doi:10.1023/A:1018788901831

Rodriguez, N., Mira, C., Paez, N. D., & Myers, H. F. (2007). Exploring the complexities of familism and acculturation: Central constructs for people of Mexican origin. *American Journal of Community Psychology*, *39*, 61–77. doi:10.1007/s10464-007-9090-7

Rodriguez, N., Steinberg, A. M., Saltzman, W., & Pynoos, R. S. (2001). *UCLA PTSD Reaction Index: Psychometric analysis. In Proceedings of the International Society for Traumatic Stress Studies*. Northbrook, IL: International Society for Traumatic Stress Studies.

Rodríguez, M., Valentine, J. M., Son, J. B., & Muhammad, M. J. (2009). Intimate partner violence and barriers to mental health care for ethnically diverse populations of women. *Trauma Violence Abuse*, *10*, 358–374. doi:10.1177/1524838009339756

Silverman, W. K., Ortiz, C. D., Viswevaran, C., Burns, B. J., Kolko, D. J., Putnam, F. W., & Amaya-Jackson, L. (2008). Evidence-based psychological treatments for children and adolescents exposed to traumatic events. *Journal of Child & Adolescent Psychology*, *37*, 156–183. doi:10.1080/15374410701818293

Slesnick, N., & Prestopnik, J. L. (2004). Office versus home-based family therapy for runaway, alcohol abusing adolescents: Examination of factors associated with treatment attendance. *Alcohol Treatment Quarterly*, *22*, 3–19. doi:10.1300/J020v22n02_02

Staudt, M. M. (2003). Mental health services utilization by maltreated children: Research findings and recommendations. *Child Maltreatment*, *8*, 195–203. doi:10.1177/1077559503254138

Staudt, M. (2007). Treatment engagement with caregivers of at-risk children: Gaps in research and conceptualization. *Journal of Child and Family Studies*, *16*, 183–196. doi:10.1007/s10826-006-9077-2

Steinberg, A. M., Brymer, M. J., Decker, K. B., & Pynoos, R. B. (2004). The University of California, Los Angeles, Post-traumatic stress disorder reaction index. *Current Psychiatry Reports*, *6*, 96–100. doi:10.1007/s11920-004-0048-2

Sue, S. (1998). In search of cultural competence in psychotherapy and counseling. *American Psychologist*, *53*, 440–448. doi:10.1037/0003-066X.53.4.440

Vega, W. A., Kolody, B., Aguilar-Gaxiola, S., & Catalano, R. (1999). Gaps in service utilization by Mexican Americans with mental health problems. *American Journal of Psychiatry*, *156*, 928–934.

Walrath, C. M., Ybarra, M. L., Sheehan, A. K., Holden, E. W., & Burns, B. J. (2006). Impact of maltreatment on children served in community mental health programs. *Journal of Emotional and Behavioral Disorders*, *14*, 143–156. doi:10.1177/10634266060140030201

Watts-English, T., Fortson, B. L., Gibler, N., Hooper, S. R., & De Bellis, M. D. (2006). The psychobiology of maltreatment in childhood. *Journal of Social Issues*, *62*, 717–736. doi:10.1111/j.1540-4560.2006.00484.x

Whaley, A. L. (2001). Cultural mistrust: An important psychological construct for diagnosis and treatment of African Americans. *Professional Psychology: Research and Practice*, *32*, 555–562.

Wierzbicki, M., & Pekarik, G. (1993). A meta-analysis of psychotherapy dropout. *Professional Psychology: Research and Practice*, *24*, 190–195. doi:10.1037/0735-7028.24.2.190