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Development of a Barriers Scale to Predict Early Treatment Success for Young Children in Poverty with Behavior Problems

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Parent and child therapy (PCT) programs that teach parents child development and behavior management knowledge and skills have emerged over the past several years as a successful approach for addressing conduct problems in preschool children (Poulou, 2015). An ongoing challenge has been to first engage (Harrison, McKay, & Bannon, 2004) and then maintain (McCabe, 2002) families in treatment for a sufficient length of time to achieve positive outcomes. Only approximately half of families who receive mental health services for their children meet the parents' and therapists' goals for treatment (Nock & Ferriter, 2005), with lower success rates for low-income families (43%; Fox & Holtz, 2009). Efforts to understand why some families are successful and others are not have focused on parent, child, and family demographic characteristics and pretreatment variables such as socioeconomic status (SES), maternal mental health, and child symptom severity (Reyno & McGrath, 2006). Other barriers to treatment (e.g., lack of transportation, child care, history of missed appointments) also have been identified as potential predictors of treatment success (McCabe, 2002).

More recently, the treatment setting (e.g., home vs. office setting) has come under scrutiny (Thomas & Zimmer-Gembeck, 2007) as a possible contributing factor in the success of parent-child therapy programs. In one study comparing a parent-child therapy program in a home versus a clinic setting, only 31% of families from a wide range of socioeconomic levels completed the treatment program (Lanier et al., 2011). This study concluded that both settings achieved positive results, with the office setting producing more-rapid changes in the child and parent outcomes. In a meta-analysis of 24 parent-child therapy studies (Thomas & Zimmer-Gembeck, 2007), 42% did not report success rates (success rate = 100% – attrition %). Of those that did, the range of success rates ranged from 58% to 82%. Of these studies, the treatment setting was not reported but appeared to

be clinic-based. Also, most parent-child therapy studies addressed families who came largely from middle SES levels. For families who live below the federal poverty level and receive parent-child therapy in their homes, the story of success changes. Success rates for these families have been reported to range between 40% and 68% (Carrasco & Fox, 2012; Gresl, Fox, & Fleischmann, 2014). With home-based parent-child therapy requiring more resources to provide than does office-based therapy (e.g., therapists' traveling to and from homes is time consuming and not reimbursable as an outpatient service; homes in unsafe neighborhoods require special therapist safety training and backup support systems), it is important to identify those families who are ready and motivated to benefit from treatment and those who are not.

In an effort to identify families who may struggle to be successful in parent-child therapy, Kazdin, Holland, Crowley, and Breton (1997) developed a model to conceptualize barriers to treatment that divided barriers into four thematic areas: stressors and obstacles that compete with treatment, treatment demands and issues, perceived relevance of treatment, and relationship with the therapist. A scale that formally assesses these areas was developed for both parents and therapists, the Barriers to Treatment Participation Scale (BTPS; Kazdin et al., 1997). The BTPS includes 44 items that address these four themes as well as a separate Critical Events Scale (14 items) to distinguish perceived barriers associated with treatment participation from specific life-changing events (e.g., moving, change of job). Families scoring high on perceived barriers are less likely to experience treatment success, spend fewer weeks in treatment, and have higher rates of cancellation prior to dropping out. Although the BTPS provides useful information regarding prediction of treatment outcomes, an analysis of Kazdin et al.'s (1997) study revealed a number of limitations: (a) It was completed by parents and therapists at the end of treatment and therefore may have been influenced by recall bias and did not afford clinicians the opportunity to address barriers before they interfered with treatment; (b) the length and format for administration were time consuming, thus limiting its application in busy health care and other community-based settings; and (c) the majority of the test sample was Caucasian (63.6%) with reported incomes above the federal poverty level, thus limiting its

generalization to a diverse, low-income, urban population of children and families (Colonna-Pydyn, Gjesfjeld, & Greeno, 2007).

The purpose of the present study was to develop and pilot a new measure to assess barriers to treatment participation in primarily low-income, urban minority parents receiving home-based therapy for their very young child's behavior problems. This scale, the Treatment Barriers Scale (TBS), guided by theory and research on barriers to treatment (Nock & Ferriter, 2005; Snell-Johns, Mendez, & Smith, 2004), was designed to provide a brief assessment of barriers to treatment from the clinician's perspective early in the treatment process. This study determined the preliminary psychometrics of the TBS and its use with low-income families with very young children. The final goal of this study was to determine whether the TBS could predict early success in treatment. Accurate identification of barriers experienced by families early in treatment may advance the understanding of treatment success and subsequently serve as the basis for providing more-effective interventions to retain families until treatment goals are achieved.

Method

Participants

The participants in this study were 330 children from the Midwest who were consecutively referred to a clinic that was specifically developed to address mental health problems in very young children (Fox, Keller, Grede, & Bartosz, 2007) and who met the study's eligibility criteria. Children were referred to the clinic by over 50 community-based sources, including medical providers (e.g., pediatric psychologists, nurses, physicians, and social workers), community-based health and social service agencies (e.g., child protective services, children's hospitals, and preschools), and parents themselves. Eligibility criteria for this study included the following: (a) the child was under 6 years of age; (b) the child did not have significant physical disabilities, serious medical conditions, or symptoms indicative of a pervasive developmental disorder or significant intellectual disability; (c) the child was referred for significant behavior or emotional concerns (e.g., aggression,

oppositional defiance, tantrums, hyperactivity, destructiveness, self-injury, separation anxiety); (d) the family completed an intake evaluation and three treatment sessions; and (e) the child's parent or guardian signed a consent form. If the parent or guardian declined to participate in this research project (this was the case concerning approximately 3% of eligible children), the same treatment program was offered to the family, but their data were not included or analyzed in this study, due to the provisions of the consent form. The average age of the participating children was 3.17 years ($SD = 1.07$); 67% were male. The children's race included 49.4% African American, 21.2% Latino, 17.3% multiracial, and 12.1% Caucasian. Of the sample, 48% had a mild developmental delay and nearly all children met the criteria for a psychiatric disorder, with oppositional defiant disorder being the most common (44.5%). The average age of the primary caretaker was 30.04 years ($SD = 8.51$), and the majority of families were receiving public assistance (87.9%), which required that they meet the federal definition of poverty.

Intervention

Treatment program

The Early Pathways Program (EPP) for young children, a home-based PCT program designed for families in poverty, was used (Fung & Fox, 2014; Harris, Fox, & Love, 2015). EPP includes four main treatment elements: (a) strengthening the parent/child relationship through child-led play; (b) teaching parents to maintain appropriate developmental expectations for their child and to learn cognitive strategies to avoid emotionally and behaviorally overreacting to their child's challenging behaviors in a negative manner; (c) using techniques to strengthen the child's prosocial behaviors such as positive reinforcement, establishing home routines, and giving good instructions; and (d) employing limit-setting strategies to reduce the child's challenging behaviors such as redirection, ignoring, response cost, and time-out. Treatment strategies and their rationale were explained to the parent and directly modeled by the clinician. Parents also practiced each strategy with their child during the treatment sessions and received immediate feedback from the clinician. The treatment program was designed to be completed in eight once-

weekly treatment sessions; however, often more sessions were needed to meet the treatment goals. Treatment sessions were approximately 90 min in length. Past treatment outcomes for EPP have demonstrated decreased frequency of the child's challenging behaviors, increased positive parent-child interactions during play, decreased parental reliance on verbal and corporal punishment for discipline, improved parental expectations, and higher levels of nurturing at posttreatment (Fox & Holtz, 2009; Harris, Fox, & Love, 2015). These results have been shown to be effective across ethnicity, with low-income African American, Caucasian, and Latino families showing similar levels of improvement with treatment (Gresl et al., 2014); with children both with and without mild developmental delays (Holtz, Carrasco, Mattek, & Fox, 2009); and for achieving long-term maintenance of treatment gains at 1-year follow-up (Fung, Fox, & Harris, 2014).

Clinician training

Clinicians were licensed therapists and graduate students in psychology and community counseling programs who received practicum and internship course credit for their participation in this study. All clinicians received extensive training and supervision in four modules: (a) working with diverse families of young children with and without developmental delays who live in poverty and maintaining personal safety in the home setting in often unsafe, urban neighborhoods; (b) clinical skills needed for interacting with children less than 6 years of age and their caregivers; (c) treatment theory, program content, and procedures; and (d) assessment administration and data collection. Clinicians initially shadowed veteran clinicians on home visits and gradually assumed responsibility for more of the sessions until they were competent on the basis of a supervisor-completed fidelity checklist to lead sessions on their own. Each clinician participated in ongoing weekly supervision (group and individual) for assistance on specific issues that arose with families and for feedback on their performance while implementing the treatment program.

Instruments

Intake form

An intake form completed by the intake clinician during the first session included basic demographic data on the caregiver and child, confirmation of family receipt of public assistance and annual household income to establish poverty status, and background information on the referral concern.

Early Childhood Behavior Screen (ECBS)

The ECBS (Holtz & Fox, 2012) is a 20-item self-report instrument developed specifically for very young children (0 to 5 years old) from low-income backgrounds. The ECBS includes 10 positive behavior items (e.g., listens to you, shares toys) and 10 challenging behavior items (e.g., hits others, has temper tantrums) and is written at a 3.9 grade level. The scale instructions asked caregivers to rate each item on the basis of the frequency of their child's behavior over the past week using a 3-point scale (1 = *rarely/never*, 2 = *sometimes*, 3 = *almost always/always*). Total scores on the ECBS's Challenging Behavior Scale (CBS) ranged from 10 to 30, with higher scores indicating a higher frequency of challenging behaviors. Total scores on the ECBS's Positive Behavior Scale (PBS) ranged from 10 to 30, with higher scores indicating a higher frequency of positive behaviors. Field-testing of the ECBS was conducted with a representative, diverse sample of 439 parents from a low-income urban community. Examination of reliability of the ECBS found the CBS (.87) and PBS (.92) obtained good levels of internal consistency. A recent study (Harris, Fox, & Holtz, 2015) with a diverse sample of 428 clinic-referred children and 245 non-clinic-referred children from families in poverty demonstrated a good fit for the original factor structure using confirmatory factor analyses. Sensitivity rates for the cutoff scores ranged from 0.76 to 0.83, and specificity rates ranged from 0.88 to 0.95, meeting Glascoe's (2005) recommendation for screening instruments. Adequate test-retest reliability (0.76) and internal consistency (0.91) for the CBS were reported.

Procedure

Approval for the study was obtained from the authors' Institutional Review Board. Items for the scale were initially developed on the basis of a review of current measures, such as the BTPS (Kazdin et al., 1997), and a review of the theoretical and empirical literature on barriers to treatment (Nock & Ferriter, 2005; Snell-Johns et al., 2004). The language used in the development of the items was written in concise and concrete language so clinicians could complete it quickly and accurately with parents from all educational levels. An effort was also made to include items that would capture the unique barriers experienced by low-income families. After an initial item list was generated, a sample of professionals ranging in age from 22 to 58 ($n = 12$; 2 male) with a wide range of experience (1–35 years) in working with young urban children and their families (e.g., psychologist, counselors, doctoral students) were recruited to rate each item on clarity (e.g., *clear, somewhat clear, unclear*) and relevance (e.g., *relevant, somewhat relevant, not relevant*). Adjustments to the original items were made according to the following criteria: (a) If 80% of the raters considered any item not relevant, it was removed from the measure, and (b) if 80% of the professional raters considered any item unclear, the wording of the item was revised. Of the 23 original items, 17 items were retained for the final scale. During implementation of EPP, clinicians rated each item following the third treatment session on the basis of a 3-point Likert scale (1 = *good*, 2 = *fair*, 3 = *poor*); each of these ratings were provided descriptive statements to ensure clinicians understood the intent of each item (see Figure 1 for the TBS items and rating scale) and thus improve its reliability. The third session of treatment was selected to administer the TBS so that clinicians had the opportunity to become more familiar with the family and observe characteristics that could be potential barriers to treatment (e.g., chaotic home environment, excessive number of people in a small apartment, lack of availability of toys for the child, unmet child health needs). It also allowed the clinician to cover a significant amount of the treatment protocol across the first three sessions to gauge parent motivation, engagement in the sessions, and cooperation with carrying out the treatment procedures.

Child Name: _____ Clinician: _____ Date: _____

Treatment Process Barriers Subscale

1. Caregiver participation in session	Good	Fair	Poor
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Good= listens, learns, does homework; treatment plan filled out 75-100% of the time; engages in conversation about treatment; asks questions; responsive to feedback
 Fair = treatment plan filled out 50-75% of time; parent doesn't ask many questions or readily integrate feedback; reports doing homework but does not track it
 Poor= appears disinterested in treatment; treatment Plan regularly lost or left blank; appears that parent fills-out treatment plan in other room before giving to clinician; sessions feel like "pulling teeth," parent communicates not wanting to be at session

2. Caregiver implementation of treatment	Good	Fair	Poor
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Good = use treatment strategies correctly and consistently
 Fair = problems with consistency; has difficulty implementing techniques correctly (e.g., does not do time-out properly); struggles with remembering to stop and think
 Poor= doesn't understand techniques; can't implement techniques despite ongoing clinician support

3. Caregiver perception of change	Good	Fair	Poor
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Good = accurate as compared to clinician perception; when change occurs, caregiver recognizes it appropriately
 Fair = somewhat accurate as compared to clinician perception; caregiver perceives change but not as much/little as clinician; needs clinician guidance to recognize change
 Poor= inaccurate as compared to clinician perception; caregiver does not recognize change despite clinician guidance, argues against evidence of change

4. Treatment attendance	Good	Fair	Poor
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Good = 100%; caregiver has attended all three sessions without cancellation
 Fair = 66%; one cancelled session due to reasonable excuse (e.g. child sick, family emergency)
 Poor= 0-33%; multiple cancellations; one or more no-shows

Figure 1. The Treatment Barrier Scale (TBS), including subscales, items, and rating definitions. Good = 1; Fair = 2; Poor = 3. TBS total score range: 17–

51. Higher TBS total scores indicate the presence of more barriers.

5. Clinician observation of change	Good	Fair	Poor
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Good = evidence of positive change in child's behavior
 Fair = little or no evidence of positive change in child's behavior
 Poor= child's behaviors get worse

6. Clinician sense of parent motivation	Good	Fair	Poor
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Good = caregiver is working to improve environment for child/family/self, other commitments are scheduled around treatment; caregiver may be making some sacrifices to attend treatment (e.g., adjusting work schedule, keeping child home from daycare/school)
 Fair = caregiver appears unsure if therapy is helpful; other commitments sometimes take priority over treatment; caregiver pressured into therapy by another individual but is trying to engage
 Poor= other commitments consistently take priority over treatment; caregiver communicating that treatment is not helpful; caregiver in treatment to meet demands of other service providers

7. Quality of caregiver/clinician rapport	Good	Fair	Poor
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Good = caregiver appears comfortable talking about child's problem behaviors with clinician; caregiver open to feedback; caregiver appears to trust clinician judgment and knowledge
 Fair = caregiver appears uncomfortable talking about child's problem behaviors; caregiver appears defensive when given feedback; caregiver may question clinician judgment and/or knowledge
 Poor= caregiver presents as closed-off when talking with clinician; caregiver resistant to feedback; caregiver does not trust clinician's judgment/knowledge; overt breach of trust by caregiver has occurred (e.g., lying, manipulating)

Operational Barriers Subscale

8. Home routines	Good	Fair	Poor
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Good = regular home routines apparent; consistent bedtime routine; structured daily activities; predictable daily schedule; regular mealtimes
 Fair = some home routines; bedtime and mealtimes are inconsistent; child sometimes left to fend for self; child is often given snacks in lieu of meals
 Poor= minimal or no routines; chaotic home; child goes to bed when tired; no formal mealtimes

Figure 1. The Treatment Barrier Scale (TBS), including subscales, items, and rating definitions. Good = 1; Fair = 2; Poor = 3. TBS total score range: 17–

51. Higher TBS total scores indicate the presence of more barriers.

9. Basic needs	Good	Fair	Poor
<p>Good = minimal or no concerns; basic needs (shelter, food, clothing, safety) met</p> <p>Fair = moderate concerns; basic needs stressed; caregiver working multiple jobs; adequate food/diapers/clothing/toys a concern</p> <p>Poor= serious concerns; caregiver struggling to meet basic needs of family; threat of eviction; lack of clothes; utilities turned off; significant sanitation concerns</p>			
10. Quality of parental supervision	Good	Fair	Poor
<p>Good = parent keeps child within sight; aware of what child is doing; child safety not at risk</p> <p>Fair = parent sometimes becomes distracted and loses track of child; parent thinks child can take care of self despite getting into trouble at times</p> <p>Poor= child is regularly unsupervised; child safety is at-risk; child may injure others at these times</p>			
11. Multiple caregiver cooperation	Good	Fair	Poor
<p>Good = caregivers mostly agree; disagreements about child rearing are infrequent</p> <p>Fair = occasional disagreements; caregivers sometimes undermine each other in front of the child</p> <p>Poor= overt differences of opinions that are a barrier to treatment progression; clinician spends significant amount of time trying to address impact of disagreements</p>			
12. Support for primary caregiver	Good	Fair	Poor
<p>Good = supportive secondary caregiver; at least one other supportive adult or older child who helps and is engaged in treatment</p> <p>Fair = occasional help; secondary caregiver or other adults somewhat interested in treatment</p> <p>Poor= little to no help; secondary caregiver or other adults uninterested in treatment</p>			
13. Caregiver mental health	Good	Fair	Poor
<p>Good = no concerns; existing mental health problems are stable and do not impact treatment</p> <p>Fair = mental health problems sometimes impact treatment (e.g., mom has difficulty responding accurately or immediately because of mood disorder)</p> <p>Poor= caregiver's mental health is a significant barrier to treatment progression</p>			

Figure 1. The Treatment Barrier Scale (TBS), including subscales, items, and rating definitions. Good = 1; Fair = 2; Poor = 3. TBS total score range: 17–

51. Higher TBS total scores indicate the presence of more barriers.

14. Caregiver physical health	Good	Fair	Poor
Good = no concerns; existing physical health problems are stable and do not impact treatment			
Fair = physical health problems sometimes impact treatment (e.g. mom has difficulty playing with child due to obesity or pregnancy)			
Poor= caregiver's physical health is a significant barrier to treatment progression			

15. Caregiver learning ability	Good	Fair	Poor
Good = understands reason behind techniques; readily picks-up techniques; comes up with solutions to new situations independently			
Fair = understands techniques only at face value; struggles to implement techniques; needs lots of repetition under clinician guidance; cannot adapt techniques to new situations			
Poor= doesn't understand techniques; can't implement techniques despite ongoing clinician support			

16. Caregiver ability to manage stress	Good	Fair	Poor
Good = life-stress experienced by caregiver does not impact treatment; may have multiple life-stressors but copes well and is able to function			
Fair = struggling to manage life stress or is over-stressed; life-stress slightly impacts treatment			
Poor= poor life-stress management or is severely over-stressed; life-stress significantly effects caregiver's ability to function; life-stress significantly impacts treatment			

17. Caregiver treatment focus on child	Good	Fair	Poor
Good = discussion during session is consistently focused on treatment or child's behavior, little discussion of caregiver's personal problems; caregiver concerns surround how to correctly implement treatment strategies			
Fair = discussion is mostly focused on treatment or child's behavior; discussion sometimes is focused on caregiver's personal problems; caregiver occasionally goes off on tangents			
Poor= discussion during session is dominated by caregiver issues; caregiver is very tangential; difficult to keep treatment on track; feels like therapy for caregiver more than for child			

Figure 1. The Treatment Barrier Scale (TBS), including subscales, items, and rating definitions. Good = 1; Fair = 2; Poor = 3. TBS total score range: 17–51. Higher TBS total scores indicate the presence of more barriers.

Results

A principal components factor analysis was used to determine the initial overall factor structure of the items on the Treatment Barrier Scale (TBS). Factors were extracted with eigenvalues greater than 1.0, and a parallel analysis with the Monte Carlo principal components analysis (PCA) program confirmed the overall factor structure for the scale. A scree plot was examined to further confirm the factor structure. Items that obtained factor loadings greater than .40 were

identified for further analyses. Items that “cross-loaded” at .40 or higher on two or more factors were either discarded or assigned to the factor that had the highest loading on the basis of the clinical importance of the item (Tabachnick & Fidell, 2007). A varimax rotation was utilized to determine the most meaningful factor structure. Means, standard deviations, skewness, and kurtosis for the 17 TBS items were computed. The Kaiser–Meyer–Olkin measure of sampling adequacy (KMO = .89) indicated a high degree of common variance among the items, suggesting that the factors resulting from the analysis accounted for a substantial amount of the variance. Bartlett’s test of sphericity was significant, $\chi^2(136) = 2,031.160, p < .001$, indicating that no assumptions were violated. Four factors with eigenvalues greater than 1 were initially extracted. The parallel analysis with the Monte Carlo PCA program resulted in retaining two of the four original factors. A scree plot supported this two-factor structure. The factor analysis was rerun on all of the items extracting only two factors because the remaining two-factor structure provided the best representation of the scale. The two factors demonstrated a moderate correlation with one another ($r = .68$), but given the two-factor structure proposed by the PCA, the parallel analysis, and the scree plot, both factors were retained for further analysis. The 17 items together explained 44.65% of the total variance.

Of the 17 items, seven items loaded on the first factor. This factor had an eigenvalue of 6.25 and explained 37% of the variance. Items included caregiver participation, caregiver implementation of treatment, caregiver perception of change, treatment attendance, clinician observation of change, clinician sense of parent motivation, and the quality of the caregiver and clinician relationship. Given the emphasis on barriers related to the process of treatment, Factor 1 was entitled Treatment Process Barriers. A reliability analysis revealed the internal consistency for this factor was .82. The 10 remaining items loaded on Factor 2, Operational Barriers, which had an eigenvalue of 1.34 and explained 8% of the variance. It comprised items related to caregiver ability to meet child needs in the home environment—items regarding established home routines, basic needs met, quality of caregiver supervision, caregiver cooperation, caregiver support, caregiver mental health, caregiver physical health, caregiver learning ability, caregiver ability to manage stress, and caregiver treatment focus on child. A reliability analysis revealed the internal consistency

for this factor was .80. The factor loadings for each item by subscale are shown in Table 1.

Table 1
Treatment Barriers Scale Items by Factor and Factor Loadings for Each Item

Factor and item	Factor loading
Treatment Process Barriers	
Caregiver participation in session	.814
Caregiver implementation of treatment	.657
Caregiver perception of change	.598
Treatment attendance	.462
Clinician observation of change	.452
Clinician sense of caregiver motivation	.840
Quality of caregiver/clinician rapport	.782
Operational Barriers	
Home routines	.539
Basic needs	.659
Quality of parental supervision	.573
Multiple caregiver cooperation	.509
Support for primary caregiver	.462
Caregiver mental health	.727
Caregiver physical health	.346
Caregiver learning ability	.504
Caregiver ability to manage stress	.683
Caregiver treatment focus on child	.383

A hierarchical logistic regression was performed to assess the extent to which scores on the TBS predicted early treatment success. A reliable change index (Jacobson & Truax, 1991) on the ECBS's Challenging Behavior Scale (CBS) was utilized to operationalize early treatment success such that children who demonstrated reliable change on the ECBS by the third treatment session in comparison to their intake scores were assigned to the successful early treatment group, and children who did not demonstrate reliable change constituted the unsuccessful early treatment group. A change of 5 points was established to meet the reliable change criterion on the basis of a standard deviation of 4.23 and a coefficient alpha of .87 for the CBS (Fung et al., 2014). Of the 330 participants, 207 (62.7%) met the 5-point change by the third session, showing how relatively quickly young children's behaviors can improve when parents follow the treatment program. We used *t* tests to compare continuous variables and chi-square tests to compare categorical variables between groups that experienced early success in treatment and those that did not. The two groups did not differ significantly on children's ages, primary

caretakers' ages, children's gender or race, or the presence of a developmental delay or a psychiatric diagnosis in the children. There was a trend ($p = .055$) for more early successful participants to come from families in poverty (90.3%) than early unsuccessful families (83.6%). There was a significant difference, $t(325) = 7.99, p < .001$, between the two groups on the CBS, with the early successful group scoring higher ($M = 23.98, SD = 3.38$) than did the early unsuccessful group ($M = 20.51, SD = 4.39$). A significant difference, $t(325) = 1.97, p = .05$, was also found on the ECBS's Positive Behavior Scale (PBS), with the early successful group scoring lower ($M = 21.81, SD = 3.16$) than did the early unsuccessful group ($M = 22.50, SD = 3.02$). Finally, the early successful group ($M = 23.61, SD = 5.66$) scored significantly lower on the TBS than did the early unsuccessful group ($M = 25.76, SD = 6.19$), $t(325) = 3.21, p < .001$.

The regression model contained eight independent variables, which were entered into the regression in three blocks. Six variables (child's age, child's race, child's gender, public assistance, presence of a developmental delay, and primary caretaker age) were entered into Block 1 of the regression. Block 2 included the same six variables plus a measure of symptom severity (e.g., CBS score), and Block 3 included the seven variables in Block 2 plus aggregate scores from the TBS. Although the two TBS factors yielded important information to help clinicians identify specifically which facet of treatment barriers may be impacting their case, the scores were theoretically and statistically similar enough (moderately correlated) and internally consistent (.88) to justify being combined into one overall composite score to create a more parsimonious model for analyses. The results of the regression are shown in Table 2. Block 1 was not significant, $\chi^2(8, N = 299) = 6.09, p = .637$, indicating that the families' demographic variables were unable to distinguish between participants who were successful and those who were not. Block 2 was significant, $\chi^2(9, N = 299) = 60.26, p \leq .001$, and correctly classified 72.6% of cases. One of the predictor variables, the CBS score (child symptom frequency), made a unique contribution to the model. This predictor recorded an odds ratio of 1.29, indicating that for every point scored on the CBS, the parent(s) were 1.29 times more likely to demonstrate early success in treatment, controlling for other factors in the model. Block 3 also was significant, $\chi^2(10, N = 299) = 86.31, p \leq .001$, and correctly classified 79.6% of cases. Two of the predictor variables—the ECBS

and TBS scores—made a unique statistically significant contribution to the model. Again, frequency of child symptoms was the strongest predictor of early treatment success, recording an odds ratio of 1.37. This indicated that for every additional point scored on the CBS, the parent(s) were 1.37 times more likely to be doing well in early treatment, controlling for other factors in the model. The TBS score was also a predictor of termination appropriateness, with an odds ratio of .876. This indicated that for every additional point scored on the TBS, the parent(s) were .876 times more likely to be successful, controlling for other factors in the model. We collect the CBS at every session so we do not lose data in cases of early termination.

Table 2
Logistic Regression Analysis of Predictors of Treatment Success

Predictor	df	Wald	p	β	Odds ratio	95% CI	
						Lower	Upper
Block 1							
Child's age	1	.078	.780	.032	1.03	.825	1.29
Child's race							
African American	1	.202	.653	.172	1.19	.561	2.51
Latino	1	.023	.879	-.066	.936	.399	2.20
Multiracial	1	.006	.940	.034	1.03	.430	2.49
Child's gender	1	1.41	.236	-.309	.734	.440	1.22
Developmental delay	1	.028	.867	.050	1.05	.588	1.88
Public assistance	1	3.54	.060	.704	2.02	.971	4.21
Caregiver age	1	.206	.650	-.007	.993	.965	1.02
Block 2							
Child's age	1	2.04	.153	.179	1.20	.936	1.53
Child's race							
African American	1	.881	.348	-.406	.666	.286	1.56
Latino	1	.015	.903	-.059	.943	.366	2.43
Multiracial	1	.067	.796	-.130	.879	.329	2.35
Child's gender	1	.004	.951	-.018	.983	.559	1.73
Developmental delay	1	.292	.589	.181	1.20	.622	2.31
Public assistance	1	1.18	.278	.444	1.56	.699	3.48
Caregiver age	1	.064	.800	-.004	.996	.964	1.03
ECBS CBS	1	43.66	.000*	.253	1.29	1.20	1.39
Block 3							
Child's age	1	2.12	.145	.190	1.21	.937	1.56
Child's race							
African American	1	.026	.871	-.073	.930	.386	2.24
Latino	1	.015	.902	-.061	.940	.352	2.51
Multiracial	1	.000	.998	-.001	.999	.360	2.77
Child's gender	1	.018	.895	.040	1.04	.577	1.88
Developmental delay	1	.000	.991	.004	1.00	.498	2.02
Public assistance	1	1.99	.159	.617	1.85	.786	4.37
Caregiver age	1	.126	.722	-.006	.994	.960	1.03
ECBS CBS	1	51.40	.000*	.313	1.37	1.26	1.49
TBS score	1	22.61	.000*	-.133	.876	.829	.925

Note. ECBS CBS = Challenging Behavior Scale of the Early Childhood Behavior Screen; TBS = Treatment Barriers Scale.

* $p \leq .001$.

We decided to follow the early successful and unsuccessful families until they terminated treatment. Early successful families ($M = 8.81$, $SD = 3.78$) participated in significantly more treatments sessions than unsuccessful families ($M = 7.41$, $SD = 2.97$), $t(328) = 3.71$, $p < .001$. An analysis of covariance was used to assess scores on the CBS between early successful and unsuccessful families at the final treatment session with the pretest scores as the covariate. As expected, the results were significant, $F(1, 3) = 69.35$, $p < .001$, with

the early successful families having lower adjusted posttreatment scores ($M = 16.46$), meaning less-frequent behavior problems, compared to the early unsuccessful families (adjusted posttreatment $M = 21.02$). We also compared Cohen's treatment effect sizes from their pretreatment CBS scores to treatment termination and found the early successful group had a very large treatment effect size (1.71) compared to a more modest effect size for the early unsuccessful group (0.42). However, these data also suggested that at least for some of the early unsuccessful children, they did improve somewhat from treatment.

Discussion

It is the goal of every mental health professional who works with young children with significant behavior problems to reduce them and alleviate their caregiver's stress. There are a number of well-developed, evidenced-based, parent and child therapy (PCT) programs that have a proven record of accomplishing this goal (e.g., Harris, Fox, & Love, 2015). A common element of these programs is the importance of making changes in the parenting knowledge and behavior of caregivers, which in turn will result in the children reducing their challenging behaviors. Unfortunately, for a variety of reasons, many caregivers drop out of treatment before they and their children can receive the full benefits of these programs. Directly addressing factors that interfere with a family's treatment completion could add an important dimension to evidence-based PCT programs. Moreover, if young children with behavior problems are not making progress by the third treatment session, clinicians should begin to question the extent to which caregivers are implementing recommended treatment strategies.

This study was the first step in the development of the Treatment Barriers Scale (TBS), a brief clinician-completed screening tool designed to identify barriers early in treatment for low-income, urban, minority families receiving PCT for their young child's challenging behaviors. The initial analyses of the TBS resulted in two empirically derived factors: Treatment Process Barriers and Operational Barriers. The treatment process factor allows practitioners to screen early in treatment for the caregivers' level of commitment to

the process of therapy, including their motivation to engage in treatment, attendance in treatment sessions, participation in treatment, and implementation of treatment techniques. This factor was the stronger of the two factors. Caregivers scoring high on this factor need to be counseled early in treatment about the necessity of their full engagement for optimal success. Clinicians are encouraged to temporarily suspend treatment for these families and have a candid discussion about the importance of the caregivers' participation and use problem solving to determine whether barriers can be reduced or eliminated. For some families, they may not have fully understood their critical role in treatment success and are not ready to fully participate at the present time. In these cases, we have given permission without judgment for these families to put continued treatment on hold until their family situation has improved (e.g., child recovers from an illness, pregnant mother delivers her baby, family finds more suitable housing, pending court proceedings are concluded). It may be necessary to have repeated discussions, along with a clear termination policy (e.g., treatment will be terminated after three missed unexcused sessions and a letter will be sent to document this termination), for families that consistently demonstrate signs of treatment noncompliance (e.g., not engaged during sessions, high no-show or cancellation rates, failure to implement recommended treatment strategies).

The TBS Operational Barriers factor allows practitioners to identify structural barriers that may be influencing the caregiver's ability to learn and/or focus on treatment, including routines in the home, degree to which basic needs are being met, amount of supervision provided in the home, level of caregiver cooperation, and other caregiver characteristics such as physical and mental health, learning ability, and ability to manage stress. This second factor advises clinicians to recognize these barriers early in treatment to be able to advocate for the family by providing appropriate resources to address these obstacles as quickly as possible (e.g., referring the caregiver to an individual counselor, providing education about food pantries or temporary housing options, connecting the family with child care or school programs—these advocacy services and others would benefit from interdisciplinary collaboration with other professionals such as social workers who have expertise in this area).

Overall, the combined TBS score was found to be predictive of early treatment success.

The finding suggesting that having more-severe challenging behaviors at intake predicted early success in treatment was unexpected and inconsistent with other research (Ruma, Burke, & Thompson, 1996). However, there are several reasons this result may have occurred. First, it may be that less-problematic children are treated more quickly, and once their behaviors are “good enough,” their caregivers drop out of treatment (Kazdin & Wassell, 1999). Alternatively, it may be that parents of children with more-problematic behaviors are in greater distress and as a result may be more motivated to participate in treatment to decrease their child’s challenging behaviors. Also, it is likely that children with severe problem behaviors at pretest were more likely to experience early treatment success as a result of the definition used in this study. Finally, the Early Pathways Program is unique in that it is delivered in the home of the parent rather than in a clinic or a group setting. Thus, the important therapeutic alliance in treatment participation (Robbins, Turner, Alexander, & Perez, 2003) may have been easier to develop and maintain in this one-on-one format in a familiar and comfortable setting for families.

Limitations

There were a number of limitations to this preliminary study on the development of a new scale to measure treatment barriers for a diverse sample of families living in poverty. First, the study sample pool was based on consecutive referrals to a clinic and not obtained through random selection. As a result, a self-selection bias may have impacted the results. Second, although the demographic representation of the sample is consistent with the population served by the clinic in this study (Fung et al., 2014), it is not representative of families from different socioeconomic status (SES) levels, racial groups, child ages, geographic areas, or other potentially contributing factors such as the treatment site (e.g., hospital/clinic vs. home) or treatment program (e.g., Early Pathways Program, Parent-Child Interaction Therapy, Triple P—Positive Parenting Program, Child Parent Psychotherapy). However, given the general nature of the TBS items,

they should have relevance in other treatment settings with different treatment modalities and client populations. More research will be needed to determine whether the TBS has a broader range of applicability than represented in the present study. In order to accomplish this, a representative sample that is stratified by SES, race, child age and gender, and perhaps other factors such as treatment setting would be helpful to determine the extent to which the TBS can be generalized. Third, the findings regarding child symptom frequency may be limited due to the instrument used to measure challenging behavior. Because the ECBS is a self-report measure, parents may tend to overreport their child's challenging behavior to communicate their high frustration levels and need for support. Adding other measures of the child's behavior problems, including clinician ratings of behavior issues and direct observational tools, would begin to address this limitation. Fourth, this study emphasized early treatment success so that clinicians could identify families early in treatment that were not making expected progress and begin to address how to help these families achieve greater success with their children. We also defined early treatment as attending at least three treatment sessions. Future research should also consider families that drop out even before meeting this minimal criterion. Finally, the TBS needs continued development to determine its interrater reliability across clinicians as well as its discriminant, concurrent, and short- and long-term predictive validity. It also would benefit from a confirmatory factor analysis and perhaps be considered as a moderator or mediator in future treatment studies. Despite these limitations, the TBS does appear to have sufficient preliminary psychometric properties to recommend its use in future research and clinical practice.

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