

Parental engagement and barriers to participation in a community-based preventive intervention.

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Abstract:

This study examined parent characteristics and barriers to participation in a community-based preventive intervention with a sample of 201 parents from low-income and predominantly ethnic minority backgrounds. Person-centered analyses revealed five subgroups of parents who demonstrated variability in their parent characteristics, which included psychological resources and level of parental involvement in education. Group membership was associated with differences in school involvement and use of the psychoeducational intervention at home, after accounting for the number of barriers to engagement. For the intervention attendance variable, greater number of barriers was associated with decreased attendance only for parents in the resilient subgroup and the psychologically distressed subgroup. Attendance remained constant across levels of barriers for the other three subgroups of parents. The results of the study inform theory and practice regarding how to tailor preventive interventions to accommodate subgroups of parents within populations that experience barriers to accessing mental health services.

Keywords: barriers-to-treatment | preventive intervention | school readiness

Article:

Introduction

In both clinical and community settings, interventions featuring parenting components have struggled to engage and retain families who have been referred for services (Coatsworth et al. 2006; Heinrichs et al. 2005; Kazdin 1993). A limited number of investigations have documented parental characteristics and access barriers that may limit parental engagement in such interventions (Kazdin and Wassell 2000; Spoth et al. 1996). Research has shown that low-income, ethnic minority families have been found to have higher unmet needs for services (Yeh

et al. 2003) and lower rates of outpatient service utilization (Garland et al. 2005) than other populations. Therefore, the study of barriers to engagement in treatment and preventive interventions is essential to address the needs of underserved groups of parents (Snell-Johns et al. 2004).

Barriers to family-based services have frequently been conceptualized in the literature as either structural (e.g., child care, transportation, time constraints) or attitudinal (e.g., perceptions of treatment, beliefs about mental health services or researchers; Kerkorian et al. 2006). Kazdin et al. proposed a conceptual model, the barriers-to-treatment model, which includes both structural barriers and attitudinal barriers (perceptions of the treatment's relevance and demandingness), as well as poor relationships or alliances with service providers (Kazdin 2000; Kazdin et al. 1997; Kazdin and Wassell 1999, 2000). Definitions of barriers in other studies are frequently consistent with the barriers-to-treatment model (e.g., MacNaughton and Rodrigue 2001), although research teams often focus more on either attitudinal barriers (Brannan 2003; McKay et al. 1996; Morrissey-Kane and Prinz 1999) or structural barriers (Perrino et al. 2001).

Broader views of barriers include higher-level systemic factors that may also impact engagement in mental health services, in addition to structural and attitudinal barriers. For example, Snell-Johns et al. (2004) utilized a social-ecological model to conceptualize access barriers that have been associated with traditionally underserved families. Based on the tenets of developmental ecological theory and ecological-transactional models (e.g., Bronfenbrenner 1979; Cicchetti and Lynch 1993; Mendez et al. 2004), barriers to service utilization are present in multiple, nested levels of families' ecologies that include the individual (ontogenetic), the setting (e.g., home, school; microsystem), the community (exosystem), and culture (macrosystem). Other researchers' broader conceptualizations of barriers include family and other social influence factors (Spoth et al. 1996), systems barriers (e.g., difficulty getting appointments) and stigma (Bussing et al. 2003; Frazier et al. 2007), and language/cultural barriers and stressful life events (Perrino et al. 2001).

Interestingly, of all these factors at multiple levels of parents' ecologies, structural barriers may be the most salient (Lamb-Parker et al. 2001; Spoth et al. 1996). Among mothers of preschool children who attend Head Start programs, the two most frequently cited barriers to involvement in Head Start were "having a baby or toddler at home" and "having a schedule that conflicted with Head Start activities" (Lamb-Parker et al. 2001). Time constraints and length of meetings were among the most highly cited reasons by parents for nonparticipation in the evaluation of a parenting intervention (Spoth et al. 1996). It is important to consider both structural and attitudinal variables, as different accommodations may be required to overcome the different types of barriers to engagement in a parenting program.

Presently, a shortcoming of the barriers literature lies in its near-exclusive application of variable-oriented analytic techniques to research questions surrounding the engagement and retention of families in intervention services. Variable-oriented approaches—studies that

examine relationships between specific traits or attributes—assume that barriers and other traits of the parent operate independently and without integration into a larger context of trait patterns and environments (Atkins 2005). In addition, variable-oriented approaches assume that samples are relatively homogeneous and that relationships between variables are uniform across the sample. In this way, variable-oriented approaches often fail to account for the diversity inherent in even well-defined populations (von Eye and Bergman 2003).

A common example of variable-oriented approaches in barriers research is the reporting of the relationship between certain barriers or other characteristics and lowered treatment engagement, acceptability, or outcome (Kazdin et al. 1997; Kazdin and Wassell 1999, 2000; Miller and Prinz 2003). Low socioeconomic status, single-parent families, difficult living circumstances, stress, family dysfunction, and ethnic minority group membership are among the characteristics most frequently found to be predictive of treatment attrition (Kazdin et al. 1997). Barriers more closely related to service delivery that predict drop-out include structural barriers and parental perceptions of treatment (Kazdin et al. 1997). Although these studies provide important evidence for a link between barriers and engagement, variables are usually studied one or two at a time, without consideration of multiple factors (Kazdin et al. 1997). Yet, no single barrier or characteristic has been identified that is either necessary or sufficient for lack of engagement (Coatsworth et al. 2006; Kazdin et al. 1993). Indeed, some variables have been found to be associated with attrition in some samples, but not others, suggesting that heterogeneity in individual or contextual factors may obscure the identification of reliable predictors (Kazdin et al. 1993). These findings raise the possibility that person-oriented approaches may be more effective in revealing configurations of risk factors and parenting competencies that may relate to engagement.

Person-oriented analyses, in which the main unit of analysis is the whole individual, seek to group together individuals with similar patterns of traits, rather than assume homogeneity across the sample. Because person-oriented approaches investigate patterns of traits and do not rely on any single, isolated feature, they are compatible with multiple domain models (Greenberg et al. 2001). As ethnic minority (Helms et al. 2005) and low-income (Hoff et al. 2002) groups have often been discussed as possessing monolithic traits, person-oriented approaches are especially indicated when attempting to understand barriers as they are embedded in parents' unique contexts.

It is recognized that parental characteristics (e.g., depression) frequently contribute to parents' perception of barriers (Kazdin and Wassell 2000). However, parental characteristics are generally not classified as barriers in and of themselves (Kazdin et al. 1997; Kazdin and Whitley 2003), but have been hypothesized to interact with barriers to influence therapeutic change (Kazdin and Wassell 1999). To date, there have been no studies that examine structural barriers in combination with profiles of parenting characteristics as predictors of parental engagement in community-based interventions. Kazdin and Wassell (2000) found that higher levels of parental psychopathology, along with lower quality of life, predicted greater parental perception of

barriers. An intervention targeting parental stress over the course of child treatment was found to reduce the barriers that parents experienced during treatment (Kazdin and Whitley 2003). However, another study found that lower levels of caregiver strain were associated with less child involvement in the mental health system (Brannan et al. 2003). Parental locus of control has also been indicated as an important characteristic to consider. Parents with an external locus of control tend to perceive that they are not able to effect change in their children. Thus, they cannot participate effectively in their children's treatment, leading to limited engagement in interventions (Morrissey-Kane and Prinz 1999).

The current study makes a unique contribution to this growing literature by examining if specific parenting profiles predict engagement in a preventive intervention after accounting for the influence of barriers. The preventive intervention that was implemented was a psychoeducational, community-based intervention called The Companion Curriculum, targeting low-income, predominantly ethnic minority families of preschool children. We constructed profiles of parenting characteristics using measures of parental psychological resources (i.e., depressive symptoms, internal locus of control) and parenting practices relevant to the intervention (i.e., reading and doing home-based educational activities with their child prior to intervention delivery). Next, these profiles were examined in relation to parental engagement in the preventive intervention, while accounting for endorsement of various structural barriers. Engagement was measured using parents' cumulative attendance at the intervention, end-of-year levels of school-involvement, and parents' report of their home-based use of intervention activities. In this study, we hypothesized that parenting characteristics would be differentially associated with engagement in the intervention, after accounting for differences in parents' experience of barriers.

Method

Participants

Data were collected from four cohorts of families participating in TCC delivered via a partnership with Head Start early intervention preschool programs. Participants (N = 201 children) comprised the treatment condition, with at least one family member participating and completing study measures. Control group participants were not included in this analysis. One cohort participated each year for 9 months, and a new Head Start center participated each year for 4 years. Specific Head Start centers were randomly selected from two agencies that provided services to primarily ethnic minority children. The first three cohorts were drawn from an agency serving primarily African American children in a small Southeastern city, and the fourth cohort was drawn from an agency in the Northeast also serving primarily African American children in a small city. The fourth cohort was designed as a replication study based on intervention delivery

that occurred within the first agency, in order to examine generalizability of the intervention procedures across Head Start agencies. Both settings were similar in size of program and student-teacher ratio, as they maintained enrollments of at least 100 children.

Respondents were typically the child's mother (nearly 95%), although adoptive mothers (1%), biological fathers (1%), stepmothers (.5%), sisters or stepsisters (1%), foster mothers (.5%), and grandmothers (1%) were also represented. The majority of the families were African American (81.0%), although Caucasian (9.9%), Hispanic (5.8%), Asian (1.7%), and Multiracial (1.7%) parents were also represented. Marital status of the families was as follows: never married (58.7%), married (23.4%), separated (5.0%), divorced (6.5%), widowed (1.0%), or not reported (5.5%). Additionally, parents' reported employment status included: full-time employment (46.3%), part-time employment (15.4%), looking for work (12.4%), not employed outside the home (21.9%), and not reported (4%). Most parents graduated from high school (39.8%), and a relatively high percentage of parents in this low-income sample also completed some college (39.3%). Mean family income was 15,272(SD =12,331). Cohorts did not differ significantly in terms of education level, $\chi^2(18) = 23.64, p > .05$, employment status, $\chi^2(12) = 15.73, p > .05$, marital status, $\chi^2(12) = 14.53, p > .05$, or income level, $F(2, 115) = 1.29, p > .05$.

Intervention Description

TCC parenting intervention consists of nine monthly center-based parent workshops on children's school readiness and parent involvement in preschool education. Implementation of the intervention workshops included a variety of methods to advertise upcoming workshop meetings (e.g., flyers posted at the Head Start centers, notices sent home with children). Initial advertisement of the program to parents was made at center-wide mandatory registration meetings. Advertisements of upcoming meetings were prepared monthly by university researchers, and then regularly mailed or sent home to parents with the assistance of Head Start staff (e.g., beginning 1 week before each upcoming meeting). A permanent banner was posted in the entry to the preschool to advertise the program to families. In addition, teachers, family service workers, and administrators regularly communicated with parents about the program and encouraged them to attend meetings.

Researchers worked closely with each center's administrators, teachers, and parents to determine a workshop meeting time. During registration meetings at the beginning of each school year, parents were polled about their preferences for scheduling workshop meetings. Furthermore, given the large number of families at each center (e.g., >100 families), the selection of workshop meeting times was also based on the staff's knowledge of the families' schedules and other commitments. These strategies were implemented to best select a meeting time that would be convenient for the majority of parents at a given center. Thus, parents were invited to attend workshops held at the Head Start centers in the evening, a practice consistent with other

scheduled parent events. Workshops were typically held on the same evening in a designated week (e.g., the second Wednesday of the month), with exceptions made for rescheduling due to holidays and school vacations. Moreover, advanced planning of workshop meetings included provision of child care and an evening meal in anticipation of these possible barriers preventing attendance. Transportation was offered as a resource, and teachers were trained in strategies for engaging parents in the intervention activities. Parents were notified about child care, meals, transportation and meeting theme via the monthly flyer. All workshop meeting activities took place at the center, with meeting presentations and meals occurring in a large “common room” and child care being provided in separate classrooms.

The general focus of the preventive intervention was to promote home-school connection between families of low-income preschoolers and preschool staff. Workshops provided parents with psychoeducation on school readiness activities (e.g., early numeracy, emergent literacy, and socioemotional development) and materials for engaging in home-based educational activities. Each workshop meeting was jointly facilitated by university researchers and Head Start teachers, and parents were presented with information on a different aspect of school readiness each month. A list of all nine school readiness themes and accompanying materials is presented in Table 1. Attending parents also received a bag containing a school readiness activity that corresponded with the monthly theme. Activity bags and informational handouts on the monthly theme were distributed the following week if parents did not attend the monthly workshop, along with a “sorry we missed you” reminder card for the next meeting. Therefore, families who did not participate in the workshop component of the intervention nonetheless had opportunities to utilize the content of the intervention. In total, all parents received identical intervention materials (i.e., informational handouts and activity bags). Parents who attended workshop meetings received an oral presentation of the monthly theme, whereas parents not in attendance relied on the psychoeducational handouts for their presentation of program material. A complete description of the intervention is available from the first author.

Table 1

The companion curriculum (TCC) intervention content and materials

Month	Theme	Child development topic	Materials distributed
September	Introducing play	Social competence/peer play Parent-child warmth learning through play	Puppets, play doh
October	Talking about	Emotion recognition	Feelings puzzle, feelings faces

Month	Theme	Child development topic	Materials distributed
	feelings	Emotion expression Emotion regulation	game
November	Learning new words	Vocabulary building shapes, colors	Color board with shapes, feel it game bag
December	Storytelling	Oral language development narratives	Story books, writing paper, construction paper, crayons
January	Alphabet connection	Phonemic awareness Letter recognition	Alphabet magnetic letters, alphabet poster, writing paper
February	Numbers and counting	Number recognition, sequencing, addition, subtraction, sorting, matching	Number match-me cards or counting bears
March	Reading together	Parent–child joint reading Creativity and imagination Concepts of print	Books, local library information
April	Building an “I CAN” attitude	Self esteem Family history	Art supplies for family project, family photo albums
May	Exploring your world/transition	Concepts of early science; transition to kindergarten and parent involvement	Personal flower garden, growth chart and ruler, summer activities calendar

Procedure

Informed consent was obtained from all participants during parent orientation meetings or through forms sent home with children attending the program. Consent forms described the project, participants’ rights, and investigator contact information. Parents were interviewed by trained assessors at the beginning and end of the academic year. Interviewers received a two-hour standardized training in the structured parent interview from certified data collectors provided by the federally-funded Head Start Quality Research Consortium. Interviewers were

graduate students with at least 1 year of assessment coursework, two completed interview role plays, and one scoring protocol before being certified assessors. Data from parent interviewers were checked for each interview by the data collection supervisor as well as randomly by the laboratory supervisor, and corrections were made to interviewers who made errors on their protocol. Errors were infrequent and corrected in all cases by recoding a parent's response or clarifying the response with the interviewer or parent. The structured interview consisted primarily of Likert scales. Specific variables were computed and entered after data entry.

For this study, parents reported their level of psychological resources (i.e., depressive symptomatology, locus of control) and engagement in educational activities with their child at home (i.e., parent-child reading, global home involvement) and school. Parent characteristics reported in the fall interview were used in the analyses. The end-of-year interview included questions about parents' engagement in the intervention—specifically, use of workshop-based materials and activities at home with their preschool child and parents' perceived barriers to participating or attending the intervention workshops. Family attendance was recorded from objective attendance forms collected at each monthly workshop.

Measures

Parental psychological resources. Parents' levels of depressive symptomatology were assessed using a shortened version of the Center for Epidemiological Studies Depression Scale (CES-D; Radloff 1977). The CES-D has been shown to discriminate between in-patient and general population samples and among levels of severity within patient groups, and it correlates with other self-report measures of depression. The version used in this study has been shortened from the original version (Ross et al. 1983), and has been used with national samples of Head Start parents (Administration on Children, Youth, and Families (ACYF) 2006). The revised version consists of 12 indicators of depressive symptomatology including mood, sleep and eating, and energy level over the past week. Responses are rated on a 4-point Likert scale, where 0 represents "Hardly or Never" and 3 represents "Most or All of the Time." Scores from the 12 items are summed, with higher scores indicating a report of more severe depressive symptomatology (possible range: 0–36). To assist in the interpretation of depression severity, the continuous variable is often grouped as follows: 0–4 = Not Depressed, 5–9 = Mildly Depressed, 10–14 = Moderately Depressed, and >15 = Severely Depressed (ACYF 2006). Internal consistency for this version of the CES-D is high, as demonstrated with Cronbach alpha estimates from samples of Head Start parents: 162 parents .83, 250 parents .85, 299 parents .87, and 262 parents .86 (ACYF 2006). The present sample demonstrated mild depressive symptoms on average ($M = 7.04$, $SD = 5.93$).

Internal locus of control was measured using the Pearlin Mastery Scale (Pearlin and Schooler 1978). Parents responded to seven items assessing the degree to which they feel they have

control over their own lives and their self confidence in their abilities to solve life's problems. Parents rated their agreement with locus of control statement on a 4-point Likert scale, where 1 represents "strongly disagree" and 4 represents "strongly agree." The possible range of scores was 7–28, with higher scores indicating internal locus of control. The Cronbach's alpha for this measure with national samples of low-income families of preschool children ranged from .76 to .78 (ACF 2006). Overall this sample reported an average level of internal locus of control ($M = 16.07$, $SD = 3.26$).

Educational involvement. Two variables measured parental engagement in home-based educational activities with their child. Parents reported frequency of reading to their child in the last week. This four-point scale ranged from 1 = "not at all" to 4 = "every day." A number of studies, including the National Household Education Survey (Wright et al. 1994) and the Early Childhood Longitudinal Studies, have used this item to predict emergent literacy outcomes (West et al. 2001). Families reported reading to their child nearly three or more times in the previous week ($M = 2.78$, $SD = 0.85$).

The home involvement subscale of the Family Involvement Questionnaire (FIQ; Fantuzzo et al. 2000) was also used to measure home-based educational activities, while the school-based involvement scale was used to measure caregiver participation in activities in the classroom or organized by the school ($M = 44.66$, $SD = 10.61$ and $M = 44.04$, $SD = 8.96$, respectively). Parents rate items on the FIQ using a 4-point Likert scale from 1 = "rarely" to 4 = "always." Factor analytic studies and internal consistency estimates for these scales (Cronbach's alpha above .80) support the psychometric utility of the FIQ with this population.

Intervention outcomes. Three end-of-year intervention outcomes included the school involvement scale of the FIQ, engagement in home-based intervention activities, and number of workshops attended. Parents rated how frequently they worked on intervention educational activities at home with their children using a rating of 1 = "less than once a month" and 4 = "three or more times a week," with parents reporting they typically worked on intervention activities once a week ($M = 3.04$, $SD = 0.81$). Additionally, family attendance was taken at each monthly parent workshop meeting, with a possible range of attending 0–9 meetings ($M = 1.88$, $SD = 1.98$).

Intervention barriers. Parents were asked whether specific barriers prevented them from attending at least one of the nine parent workshops. The specific barriers consisted of: not interested in program, child care, work schedule conflict, too crowded, church activities, transportation, night classes, program not relevant, too tired, not aware of the program, or "other" barriers not captured by the previous categories. Parents' responses were coded as 0 (No, it was not a barrier to attending any of the parent workshops) or 1 (Yes, it was a barrier to attending at least one of the workshops). A total score for number of barriers was computed by summing the responses, with a possible range of 0–11 ($M = 1.41$, $SD = 0.66$). The percentage of respondents endorsing each barrier is described in Table 2. The most frequently endorsed

barriers included work schedule conflict (51.30%), other (29.53%), and transportation (13.99%). The most frequent barriers included in the “other” category were idiosyncratic (10.88%), such as forgetting or helping another child in the family, illness/health reasons (10.36%), and other activities or plans (5.18%).

Table 2

Frequencies and percentages of types of barriers reported for the sample

Type of barrier	Frequency	Percentage (%)
Not interested	3	1.55
Child care	22	11.40
Work schedule conflict	99	51.30
Too crowded	2	1.04
Church activities	9	4.66
Transportation	27	13.99
Night classes	22	11.40
Program not relevant	0	0
Too tired	24	12.44
Not aware of program	4	2.07
Other	57	29.53

Note. Listwise $N = 193$. The “other” category contained a variety of reasons including health concerns, family problems, forgetting about the meeting, helping another child with homework, and having a handicapped child

Results

Analytic Strategy

Cluster analytic techniques are a recommended strategy for understanding patterns of adaptation across individuals within certain at-risk groups (e.g., Cairns et al. 1998; Cicchetti and Rogosch 1999). We used Ward's minimum variance clustering to create profiles of parent characteristics that reflect the diversity of low-income families. Next, profiles were compared to outcomes reflecting engagement in the intervention using a multivariate analysis of covariance. The MANCOVA procedure tested the hypothesis that profiles of parent characteristics would distinguish parent intervention engagement after accounting for the influence of barriers impacting intervention participation. Specifically, it was hypothesized that parent profiles characterized by adaptive psychological resources and high levels of home-based educational activities would show higher end-of-year levels of home-based intervention engagement, school involvement, and workshop attendance. Use of MANCOVA was not permitted for the workshop attendance variable due to violation of the homogeneity of regression assumption, as indicated by a significant interaction between the covariate (number of barriers) and the independent variable (parent group). Instead, this significant interaction was interpreted and intervention attendance was dropped from the analyses (Tabachnick and Fidell 2006). We also report the intercorrelations among the parent characteristics at baseline, and correlations between the parent characteristics and intervention constructs (i.e., engagement and barriers to engagement).

Variable-Centered Analyses

Table 3 reports the bivariate correlations among all parent characteristics and intervention variables. Specifically, we were interested in the relations involving baseline levels of parents' psychological resources and educational activities at home, end-of-year engagement in the intervention, and barriers to engagement. In comparing the parent characteristics at baseline, a moderately strong negative correlation between depressive symptoms and internal locus of control was observed ($r = -.42, p < .01$). Also, parents' self-reported locus of control was positively correlated with reading at home ($r = .18, p < .05$) and home involvement in educational activities ($r = .25, p < .01$). No other relations involving depression or locus of control were significant.

Table 3

Bivariate intercorrelations

Variable	2	3	4	5	6	7	8
<i>Psychological resources</i>							
1. Depressive symptoms	-0.42**	-0.12	-0.11	-0.12	-0.04	-0.09	0.05
2. Internal locus of control		0.18*	0.25**	0.05	0.11	0.05	-0.10
<i>Home-based activities</i>							
3. Reading			0.41**	0.12	0.23**	0.09	-0.19**
4. Home involvement				0.13	0.29**	0.38**	-0.23**
<i>Outcomes</i>							
5. Workshop attendance					-0.04	0.45**	-0.25**
6. Home-use of intervention materials						0.18*	-0.07
7. School involvement							-0.26**
8. Barriers							

Note. Listwise N = 189

* $p < .05$; ** $p < .01$

Next, we examined relations between baseline parent characteristics and engagement outcomes. Home involvement as measured in the fall was positively correlated with self-reported use of the intervention activities ($r = .29$, $p < .01$) and with end-of-year school involvement ($r = .38$, $p < .01$). Reading at home as measured in the fall also positively correlated with home-use of intervention activities ($r = .23$, $p < .01$). Correlations between baseline parent characteristics and barriers to engagement also revealed negative associations between total number of barriers and reading at home ($r = -.19$, $p < .01$) as well as home involvement ($r = -.23$, $p < .01$).

Finally, we examined the intercorrelations among the end-of-year intervention engagement outcomes. Results showed that school involvement positively correlated with intervention workshop attendance ($r = .45, p < .01$) and home-use of intervention activities ($r = .18, p < .05$). Monthly workshop attendance was not significantly correlated with home-use of intervention activities. Moreover, as expected, the total numbers of barriers to intervention participation negatively correlated with workshop attendance ($r = -.25, p < .01$) and school involvement ($r = -.26, p < .01$). Barriers were not significantly correlated with self-reported use of intervention materials in the home.

Person-Oriented Analyses

Six profiles were obtained for the 201 participants using the parental attributes of depressive symptoms, internal locus of control, reading to their child, and engagement in home-based educational activities (Table 4). This cluster solution maximized the R^2 statistic, while minimizing error variance due to combination of dissimilar clusters of parents. Interpretation and profile names were derived by inspection of the mean scores for each profile's attribute in relation to the overall sample mean for that attribute.

Table 4

Means and standard deviations by parent profile group

Variable	Average Resources/ Inactive ($n = 26.37\%$)	Resilient/ Highly Active ($n = 28.86\%$)	Resilient/ Average Activity ($n = 14.43\%$)	Distressed/ Average Activity ($n = 18.91\%$)	Distressed/ Inactive ($n = 9.95\%$)	Cluster 6 ($n = 1.49\%$)
<i>Psychological resources</i>						
Depressive symptoms	5.23 (3.56)	4.59 (4.07)	2.34 (1.88)	11.26 (2.84)	18.85 (4.08)	2.00 (1.00)
Internal locus of control	15.77 (2.69)	17.34 (3.09)	17.55 (2.71)	15.37 (2.97)	12.45 (3.55)	16.00 (1.73)
<i>Home-based activities</i>						
Reading	2.45 (0.95)	3.28 (0.70)	2.72 (0.84)	2.84 (0.59)	2.35 (0.67)	2.00 (1.00)

Variable	Average Resources/ Inactive (n = 26.37%)	Resilient/ Highly Active (n = 28.86%)	Resilient/ Average Activity (n = 14.43%)	Distressed/ Average Activity (n = 18.91%)	Distressed/ Inactive (n = 9.95%)	Cluster 6 (n = 1.49%)
Home involvement	34.21 (3.37)	56.72 (5.39)	44.86 (2.17)	47.16 (4.59)	37.35 (5.00)	10.00 (0.00)
<i>Outcomes</i>						
Workshop attendance	1.92 (1.94)	2.22 (2.41)	1.86 (1.85)	1.82 (1.86)	1.20 (1.06)	0.67 (1.15)
Home-use of intervention materials	2.90 (0.78)	3.27 (0.77)	3.04 (0.79)	3.22 (0.71)	2.35 (0.86)	2.67 (1.15)
School involvement	41.06 (9.13)	48.02 (8.91)	42.41 (8.97)	44.47 (8.70)	40.95 (5.11)	48.00 (7.81)
Barriers	1.55 (0.61)	1.25 (0.58)	1.34 (0.55)	1.35 (0.79)	1.70 (0.80)	1.33 (0.58)

Note. The Depressive symptoms sample $M = 7.04$ ($SD = 5.93$). Internal locus of control sample $M = 16.07$ ($SD = 3.26$). Reading sample $M = 2.78$ ($SD = 0.85$). Home involvement sample $M = 44.66$ ($SD = 10.61$). Workshop attendance sample $M = 1.88$ ($SD = 1.98$). Home use of intervention materials sample $M = 3.04$ ($SD = 0.81$). School involvement sample $M = 44.04$ ($SD = 8.96$). Barriers sample $M = 1.41$ ($SD = 0.66$)

The most adaptive profile was Cluster 2 ($n = 58$; 28.86%). This profile, named Resilient/Highly Active, contained parents demonstrating above average levels of internal locus of control, reading with their child and home involvement, and below average levels of depressive symptoms. Cluster 1 and Cluster 3 primarily differed in their frequency of home activities. Cluster 3 ($n = 29$; 14.43%) was named Resilient/Average Activity. Low home involvement characterized Cluster 1 ($n = 53$; 26.37%), and therefore was labeled Average Resources/Inactive.

Parents in the remaining two clusters evidenced less adaptive profiles in one or more areas of psychological resources and home activities. The parents in Cluster 5 ($n = 20$; 9.95%), named Distressed/Inactive, reported a severe level of depressive symptoms, low internal locus of control, and engaging in few home activities. In contrast, parents in Cluster 4 ($n = 38$; 18.91%), Distressed/Active, reported a moderate level of depressive symptoms, yet indicated average levels of internal control, reading, and home involvement. A sixth outlier cluster ($n = 3$; 1.49%)

was not examined or interpreted in subsequent analyses. Figure 1 displays the five distinct profiles across the range of attributes for this economically disadvantaged sample of parents.

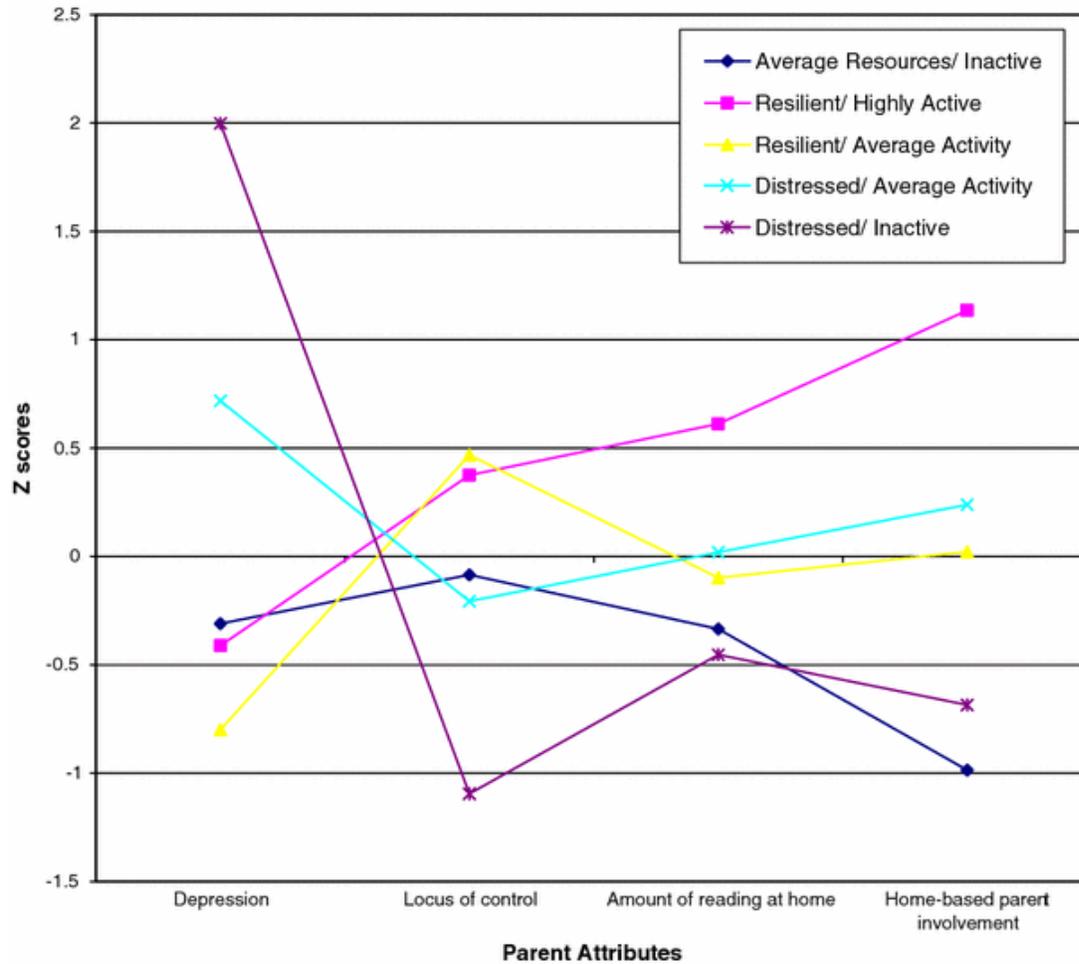


Fig. 1

Standardized scores of parenting characteristics by profile

Chi-square analyses indicated that profiles did not differ in terms of level of parental education, $\chi^2(24) = 24.22, p > .05$, or employment status, $\chi^2(16) = 24.18, p > .05$. However, there were significant inter-profile differences with regard to the number of barriers that parents endorsed, $F(4, 189) = 2.62, p < .05$. Thus, number of barriers endorsed was entered as covariate in subsequent analyses. Post-hoc analyses indicated that the Resilient/Highly Active group reported fewer barriers than the Distressed/Inactive group, but this did not achieve significance at the .05 level using Tukey's HSD statistic ($p = .066$). Table 5 shows the mean number and types of barriers reported by each profile. For the entire sample, the number of barriers endorsed ranged from 0 to 4 ($M = 1.41, SD = .66$).

Table 5

Types of barriers reported by parents in five profiles

Type of barrier	Average Resources/ Inactive	Resilient/ Highly Active	Resilient/ Average Activity	Distressed/ Average Activity	Distressed/ Inactive
	<i>n</i> = 51	<i>n</i> = 57	<i>n</i> = 29	<i>n</i> = 36	<i>n</i> = 20
Not interested	3.92%	0%	0%	2.78%	0%
Child care	7.84%	8.77%	10.34%	13.89%	25.00%
Work schedule conflict	60.78%	45.61%	51.72%	52.78%	40.00%
Too crowded	0%	1.75%	3.45%	0%	0%
Church activities	9.8%	3.51%	0%	5.56%	0%
Transportation	19.61%	14.04%	3.45%	22.22%	0%
Night classes	5.88%	14.04%	6.90%	13.89%	20.00%
Program not relevant	0%	0%	0%	0%	0%
Too tired	13.73%	10.53%	10.34%	11.11%	20.00%
Not aware of program	0%	0%	3.45%	2.78%	10.00%
Other	31.37%	26.32%	41.38%	11.11%	50.00%
Mean number of barriers (SD)	1.55 (.61)	1.24 (.58)	1.34 (.55)	1.35 (.79)	1.70 (.80)

Between-Group Comparisons

Assumptions for use of the MANCOVA procedure were initially tested. The assumption of homogeneity of regression requires that the covariate and each dependent variable be similarly related across levels of the independent variable (i.e., that there is no interaction between the independent variable and covariate; Tabachnick and Fidell 2006). This assumption was upheld for all dependent variables, with the exception of workshop attendance. For workshop attendance, a significant covariate X independent variable interaction was found, indicating a violation of the homogeneity of regression assumption. This interaction was interpreted and workshop attendance was not included in the MANCOVA, per the recommendation of Tabachnick and Fidell (2006). This significant interaction indicated that number of barriers moderated workshop attendance by parent group, $F(4, 184) = 3.10, p < .05, \omega^2 = 0.04$. Specifically, increased number of barriers had a negative impact only for the Resilient/Highly Active group's workshop attendance, $B = -1.96, SE B = -.50, t(185) = -4.42, p < .001$, and the Distressed/Active group's workshop attendance, $B = -.86, SE B = -.37, t(185) = -2.12, p < .05$. Regression slopes for the other three groups were not significantly different from zero (all p values $> .90$).

MANCOVA was conducted to examine differences among the profile groups on the two remaining intervention engagement variables: engagement in home-based intervention activities and parental school involvement. Group membership served as the independent variable, with number of barriers as the covariate. The omnibus test was significant, Wilks' $\lambda = .84, F(8, 364) = 4.16, p < .001$. Analyses revealed significant main effects of parent group on both school involvement and engagement in home-based intervention activities, $F(4, 183) = 3.97, p < .05, \omega^2 = 0.08$, and $F(4, 183) = 5.14, p < .05, \omega^2 = .05$, respectively. Finally, there was a main effect of barriers on school involvement, $F(1, 183) = 8.37, p < .05, \omega^2 = 0.03$. For every additional barrier endorsed, parental school involvement T scores decreased by 2.73 points ($b = -.20, t = -2.88, p < .01$).

All possible pairwise comparisons of the parenting profiles were conducted for the school involvement and home-based engagement outcome variables. Independent-samples t tests compared the groups' estimated marginal means (adjusted for the covariate). The Bonferroni correction was used to control Type I error. Results indicated that the Distressed/Inactive group engaged in significantly fewer home-based intervention activities, compared to both the Resilient/Highly Active group, $t(183) = 4.17, p < .05$ and the Distressed/Active group, $t(183) = 3.75, p < .05$. The Resilient/Highly Active group also reported significantly higher levels of school involvement, compared to the Average Resources/Inactive group, $t(183) = 3.68, p < .05$.

Discussion

This study examined how parent characteristics predict engagement in a community-based preventive intervention seeking to promote home-school connection with low-income parents after accounting for barriers to treatment. The use of person-centered analyses demonstrate significant within-group variability in a sample of low-income parents, a group often characterized as possessing fairly uniform attributes (Hoff et al. 2002). Moreover, both variable and person-centered methods show that parenting characteristics can play an important role in determining the success of engaging hard-to-reach populations in prevention programs.

The overwhelming majority of families in this study were aware of the program, and also reported having interest in receiving services; however, on average, parents reported at least one barrier that impeded participation. The most prevalent barrier was a work schedule conflict, experienced by close to one-third of participants. In contrast with samples of economically-advantaged parents, low-income caregivers are less likely to have control over work schedules, or may be employed at more than one setting, leaving less time for parent involvement. A second issue involving the work conflict barrier is how schools can and should select meeting times that accommodate the needs of a large group of parents. In our 4 year project, we found that surveys did not consistently reveal one “best day and time” for parents, whereas this situation might be possible for smaller programs. Therefore, particularly in large programs, staff are encouraged to develop multiple strategies to accommodate work schedules, and also consider variation in day and time of day. Of course, truly implementing such an approach could create a new potential barrier, namely staff availability; however, the alternative is that large numbers of parents, although interested, will not be in a position to access services due to work commitments.

Enrollment in classes, child care issues, and transportation needs were other structural barriers that were experienced by our participants. Notably, although transportation and child care were offered as part of the program, significant numbers of families did not view these efforts to reduce barriers as sufficient. We did not survey parents about their use of resources; however, it may be that parents were concerned about the qualifications of the care provided (e.g., aides and not teachers), or they were reluctant to bring young children to evening events after many hours at the center. Future work can concentrate more on how to help parents and intervention staff work together to reduce barriers that are more modifiable. More importantly, this research reveals that offering a resource (e.g., transportation or child care) does not guarantee that parents will utilize the service, perhaps due to the extra effort or reluctance to ask for assistance.

An interesting barrier that was revealed in the study was the attractiveness of competing evening events, such as night classes or other meetings. In particular, a small, but significant, portion of parents reported participation in church activities. Indeed, anecdotes from parents suggested that multiple evenings were often spent with a church community and therefore, scheduling anything in the evenings would serve as a barrier for these families. Importantly, because the church setting likely serves as a source of religious and social support for families, it appears that some barriers to participation are serving important and positive roles in the lives of families who are frequently described in the literature using deficit-focused, rather than strength-based, terms.

Perhaps collaboration among organizations (e.g., offering school readiness information within a church social group) is an underutilized strategy for reducing barriers.

In addition to revealing the barriers experienced by a large sample of parents of preschool children, an important contribution of this research involves the use of person-centered methods. Using cluster analysis, parenting profiles were obtained that reflect differential contributions across the domains of parental psychological resources and parent involvement behavior. Generally, the person-centered approach revealed three profiles of adaptive parent involvement (Resilient/Highly Active, Distressed/Active, and Resilient/Average), whereas the remaining two profiles contained parents demonstrating distressed or below average functioning (Distressed/Inactive, Average Resources/Inactive). The Resilient/Highly Active group consisted of parents with the highest levels of educational involvement, locus of control, and low levels of depression as compared with other parents in the sample. The Resilient/Average and Distressed/Active groups attest to the finding that levels of psychological resources are not necessarily related in a linear fashion to parents' educational engagement with their children. Because these two groups of parents have apparent strengths and are not challenged across both domains, we would expect these parents to be responsive to preventive intervention programs.

In contrast, the Average Resources/Inactive group was characterized by levels of home-based educational activities approximately a standard deviation below the sample average. The Distressed/Inactive group had similarly limited educational activities, in combination with severe levels of depressive symptoms and low internal locus of control. Comparisons of the Distressed/Active and Distressed/Inactive groups revealed two divergent pathways that parental depression can take in lives of low-income preschool children. Although maternal depression has been linked to cognitive and behavior problems for preschool children (e.g., NICHD Early Child Care Research Network 1999; Petterson and Albers 2001), the Distressed/Active parents were able to sustain their educational involvement, a key parenting practice for children enrolled in preschool. These distinctions are important to recognize, as parents with depression may present to community-based programs with different needs regarding their parenting skills.

We uncovered an interesting relation involving barriers and parenting characteristics by determining that barriers differentially impact parent engagement in treatment. Specifically, the number of barriers experienced altered the relationship between group membership and intervention attendance for the Resilient/Active and Distressed/Active groups. For the other three groups of parents, attendance remains constant across levels of barriers (see Fig. 2). With respect to constant attendance despite increasing barriers, this finding suggests that low psychological resources and/or home involvement may ultimately play a larger role than barriers in determining parents' attendance patterns. The findings of the study confirm that parent involvement remains a largely stable phenomenon across the preschool period, suggesting that even more intense efforts will be needed to modify educational involvement for those parents in the inactive groups. However, for the Resilient/Active and Distressed/Active groups, attendance decreases significantly as the number of barriers increases. A possible explanation is that

resilient parents are more likely to be involved in a variety of activities in the community, and so barriers to participation in this particular program would have a dramatic impact on attendance. In contrast, participation for those in the Distressed/Active group requires overcoming lower levels of self-efficacy and significant levels of depression.

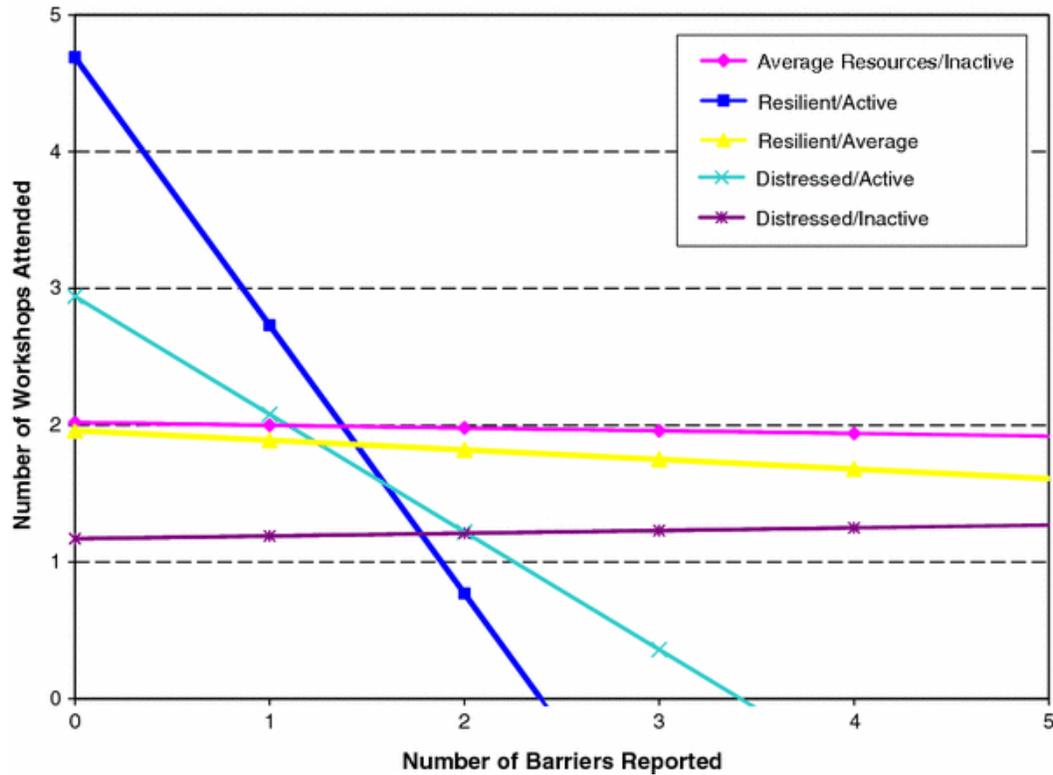


Fig. 2

Relationship between barriers and attendance by group. Notes. Lines represent regression lines for each subgroup. B values were significantly different from zero for the Resilient/Active, $B = -1.96$, $b = -.63$, $t(185) = -4.42$, $p < .001$, and Distressed/Active groups, $B = -.86$, $b = -.27$, $t(185) = -2.12$, $p < .05$

This interesting moderation effect suggests that barrier-reduction efforts undertaken by Head Start programs may be most effective in improving attendance for parents in these two groups only. However, it is also a possibility that because the Resilient/Active and Distressed/Active groups had higher initial attendance rates, their attendance had farther to fall when barriers were higher. More emphasis on how barriers serve to moderate program participation would give greater insight into possible alternative explanations. A final note regarding barrier-reduction strategies is that significant numbers of parents in the Distressed/Inactive group reported child care needs (25%), fatigue (20%), and night classes as barriers (20%)—clear validity of this group as being overtaxed and in need of careful attention from Head Start family partners, and not necessarily recommendations for more services. We also believe that parents in this group may

have more health related concerns, as 50% endorsed the “other” category of barriers, which often contained health problems.

In sum, the findings inform theory regarding engagement in preventive intervention among at-risk groups. We believe that community-based interventions can be more efficacious if particular barriers are addressed at the onset of a new program. Moreover, due to the heterogeneity within an at-risk population, barriers will not have an equal impact on specific individuals. Therefore, developmental-ecological perspectives that consider the transaction between individuals and their ecologies (e.g., Bronfenbrenner 1979; Snell-Johns et al. 2004) are best suited to determine how barriers will impede parent participation and/or behavior change. We believe our study is the first to definitively show that parent involvement during preschool is facilitated by both adaptive parenting characteristics and low levels of barriers experienced by an at-risk group.

In terms of understanding the resilience or distress of particular profiles, variable-centered analyses were useful in confirming the validity of the cluster membership and hypothesized relations between cluster membership and treatment outcomes. In terms of educational involvement at home, the Distressed/Inactive group engaged in significantly fewer home-based intervention activities compared to parents in the Resilient/Highly Active and the Distressed/Active clusters, after controlling for barriers. The Resilient/Highly Active group also reported significantly higher levels of school involvement compared to the Average Resources/Inactive group. Although The Companion Curriculum parenting intervention was designed to increase home and school involvement for the entire sample, these results illustrate that specific parenting characteristics interact with barriers to affect treatment outcomes. In other words, particular parents are especially well-equipped to seek out and respond to preventive interventions, which may go hand-in-hand with parents’ beliefs about the utility or importance of parent involvement during preschool.

To advance this literature, and our capacity to offer effective, empirically-based treatments for traditionally underserved populations, much more attention to recruitment and enrollment procedures should occur. We also concur with the recommendation offered by Heinrichs et al. 2005 regarding asking parents about reasons for agreeing to participate in a program (e.g., pro-intervention attitudes), as well as perceived barriers to participation. Parents also may differ from researchers or Head Start staff in terms of what constitutes a barrier, particularly when a barrier exists but is not viewed by parents as affecting participation. For example, Lamb-Parker et al. (2001) found in a study of Head Start parents that a number of families reported experiencing barriers to parent involvement (e.g., younger child at home), but they did not identify these factors or perceive them as true barriers. Acculturation to mainstream American culture has also been found to relate to individuals’ perception of barriers to involvement. Unexpectedly, parents who identified more with mainstream American culture reported a greater number of barriers than did parents who endorsed lower levels of acculturation, possibly due to different expectations about the quality of services or beliefs that reporting barriers is akin to complaining (Yeh et al. 2003). In order to truly address the needs of underserved parents, it may be beneficial

for researchers and administrators to both inquire about the presence of barriers and then consider if and how these barriers impact service utilization (Yeh et al. 2003).

In our study, we contend that attitudinal barriers such as satisfaction with the program content or lack of awareness were not compelling reasons to explain a lack of help-seeking behavior. However, it may be that low-income families do not perceive preventive intervention as necessary for their children, particularly if there are no pressing cognitive or behavioral concerns. Some anecdotal evidence from our project suggests that some parents perceived the school readiness content as appropriate for when their children entered formal schooling (e.g., after the transition to kindergarten). Indeed, the transition to kindergarten meeting held by Head Start programs in the spring is one of the most popular meetings of the academic year. Therefore, efforts to reach parents must seek a greater understanding of how parents seek help for their child, and attempt to match program goals with effective needs assessments that can reveal which parents will be most responsive to particular types of community-based programs.

Ultimately, the lower levels of involvement by low-income and other hard-to-reach populations is a situation that requires significant attention. Future work can build upon this study, while also addressing investigative limitations associated with this work. Specifically, some Likert scales measuring parent involvement (e.g., daily reading) and treatment engagement (frequency of usage at home) are narrow assessments of parenting behavior. Use of better measures or observational data would help truly determine how effective intervention procedures are at producing behavior change, as opposed to reliance on self report measures or attendance data. Moreover, the clusters obtained using the person-centered approach require replication with new samples of low-income parents, in order to determine generalizability outside this population of Head Start families. Experimenting with the format of delivery is also an interesting future direction; perhaps given the high numbers of work conflict barriers, attendance at school events are no longer feasible delivery mechanisms and alternatives like sending interventions into the home setting must be considered and evaluated. In this study, we acknowledge that our efforts to reduce barriers to attendance may actually have created two forms of this intervention, a home-based and school-based program, which may in part explain the low levels of school attendance by many parents who reported using the program at home. Lastly, we also acknowledge the possibility of a threat to internal validity, such as a history effect, and recommend future studies seek to study variation in barrier reduction efforts using randomized designs to offer more definitive conclusions.

In conclusion, we believe the results of our study have implications for implementing preventive interventions within community contexts and the broader challenge of how to engage at-risk populations in interventions. Empirically-derived person-centered profiles differentiated intervention outcomes (e.g., home-based intervention activities and school involvement). Of particular interest are the parents in the Distressed/Active cluster, a subgroup of depressed parents apparently capable of modulating their depressive symptomatology when engaging with their children (Campbell et al. 1995), supporting previous research suggesting that depressed

mothers may especially benefit from intervention engagement (Baydar et al. 2003). Overall, our findings support the call for broader conceptualizations of barriers (e.g., Spoth et al. 1996), as well as screenings by programs to identify and address parents' barriers to engagement. The perspective taken within this research is also consistent with other comprehensive reviews of children's mental health that view the gap between families and service providers as being nested in a social ecology and community (e.g., Snell-Johns et al. 2004; U.S. Public Health Service 2000). Engaging in continued study of these social systems will produce new knowledge that can inform the challenging issue of parental engagement in preventive programs.

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