Marquette University
e-Publications@Marquette

Education Faculty Research and Publications | Education, College of

3-1-2007

A Mental Health Clinic for Toddlers with Developmental Delays and Behavior Problems

Robert Fox
Marquette University, robert.fox@marquette.edu

Kathryn M. Keller
Marquette University

Patricia L. Grede
Penfield Children's Center

Ann M. Bartosz
Penfield Children's Center

Accepted version. *Research in Developmental Disabilities*, Vol. 28, No. 2 (March/April 2007): 119-129. DOI.
NOTICE: this is the author's version of a work that was accepted for publication in *Research in Developmental Disabilities*. Changes resulting from the publishing process, such as peer review, editing, corrections, structural formatting, and other quality control mechanisms may not be reflected in this document. Changes may have been made to this work since it was submitted for publication. A definitive version was subsequently published in *Research in Developmental Disabilities*, VOL 28, ISSUE 2, March/April 2007, DOI.

A Mental Health Clinic for Toddlers with Developmental Delays and Behavior Problems

By Robert A. Fox, Kathryn M. Keller, Patricia L. Grede, and Ann M. Bartosz

A mental health clinic was developed for toddlers with developmental disabilities and significant behavior problems from families living in poverty. The clinic was a collaborative effort between a community-based Birth-to-Three agency and a university. The purpose of this clinic was threefold: to provide direct mental health services for these young children, to train graduate students to work with this population, and to begin to contribute to the limited research available in this area. This paper describes the clinical intake procedures and outcomes for the 81 children served by the clinic over a 2-year period. Referral concerns included tantrums, aggression, oppositional behaviors, hyperactivity, and self-injury. The children came from a diverse group of families living in poverty; single mothers with less than a high school education headed most of the households. The clinical intake included direct observations of parent–child interactions, child behavior assessments, and parental interviews and self-report measures. For the present sample, 77% of the children met the criteria for a developmental disability and nearly 70% also met the criteria for a psychiatric disorder. The most common diagnosis was oppositional defiant disorder. Discussion regarding the challenges inherent in working with families of toddlers with developmental delays and psychiatric disorders living in low-income circumstances is included.

1. Introduction

Behavior problems in very young children are common and may persist well into the elementary school years and even beyond (Campbell, 1995). Over time, these behavioral difficulties can escalate in severity and result in a number of psychiatric diagnoses including oppositional defiant disorder, conduct disorder, attention deficit hyperactivity disorder, separation anxiety disorder and pervasive developmental disorder, among others (APA, 2000). While there is some consensus that the prevalence of psychiatric disorders in children is generally between 15 and 20% (Wicks-Nelson & Israel, 2006), we currently do not have similar data available for toddlers. When a diagnosis of developmental delay is added, even less is known about the occurrence of challenging behaviors and related mental health problems in these young children. Feldman, Hancock, Rielly, Minnes, and Cairns (2000) reported that children with developmental disabilities as young as 2 years of age showed an increase risk for behavior problems compared to their same aged peers without developmental delays. Comparing a sample of 3-year-old

children with or without developmental delays, Baker, Blacher, Crnic, and Edelbrock (2002) found that the children with delays were three to four times as likely to score in the clinical range on a child behavior scale. Moreover, available data suggest that psychiatric disorders occur three to six times more often in children with developmental disabilities than in normally developing children (Matson & Barrett, 1993; Tonge, 1999) and are likely to persist over time (Green, O'Reilly, Itchon, & Sigafoos, 2004). The at-risk status for very young children with developmental disabilities and psychiatric disorders is further exacerbated when these children live in poverty (Aber, Jones, & Cohen, 2000). Normally, developing young children from low-income, mother-headed households are at increased risk for developing behavior problems (Olson, Ceballo, & Park, 2002). When considering that parenting stress already is high among mothers of children with developmental delays (Rodriguez & Murphy, 1997), the additional burden of poverty is likely to increase the vulnerability of these children to develop psychiatric disorders.

Families living in these challenging circumstances are clearly in need of mental health services to help them better understand and manage their young children, and to prevent their behaviors from escalating and becoming more intractable over time when they will be more difficult and expensive to treat. For toddlers with developmental delays, Birth-to-Three programs are available in every state and provide a range of services to maximize the child's developmental progress in their early critical years (*Public Law 108-446–Individuals with Disabilities Improvement Act of 2004, Part C – Early Intervention Programs for Infants and Toddlers with Disabilities*). Normally, services include special education, physical, occupational and/or speech therapy, social services, and nursing. However, when considering that the current state of mental health services in this country for children in general is in crisis (Tolan & Dodge, 2005), it should come as no surprise that providing mental health services within Birth-to-Three agencies is not common. In a survey conducted by the U.S. Department of Education (2002), less than 3% of infants and toddlers enrolled in early intervention programs in 2000 received mental health services.

The purpose of this paper is to describe the development of a mental health clinic within a Birth-to-Three agency serving a low-income population of families in a large urban area. This clinic was a collaborative effort between a community-based agency and a university and included the training of graduate students in mental health fields. Its primary mission was to meet the needs of toddlers who were specifically referred for significant behavior problems. Intake data for the children served in this clinic and their families over a 2-year period are presented.

2. Behavior clinic

The behavior clinic (BC) is a mental health service for families of toddlers with developmental delays and behavior problems. The BC was initiated as a partnership between a community-based agency, which provides a comprehensive Birth-to-Three program, and a university located in close proximity to the agency. The community-based agency, located in a large, urban city in the Midwest, annually serves over 1100 children with developmental disabilities, 95% of them come from families that live below the poverty level based on the guidelines established by the U.S. Department of Health and Human Services (HHS, 2005). Professionals in social work, early childhood and special education, occupational and physical therapy, speech and language pathology, and nursing provide a wide array of clinical services. One area that had not been addressed by existing clinical services was a child who presented with significant behavioral and emotional difficulties in addition to their developmental disabilities. The agency staff routinely observed problems such as high activity levels, oppositional and aggressive behaviors, major tantrums, self-abuse, and separation anxiety. Professional concerns were raised regarding how these behaviors could jeopardize the children's early development, interfere with their participation in therapeutic programs, challenge home caregivers who already were facing other daunting issues, and in some cases, lead to child abuse. The BC was established to address this gap in clinical services. A psychology professor from a university directed the BC, and graduate students in counseling and psychology programs staffed the clinic in order to gain supervised, clinical experiences and in some cases, to meet practicum requirements in their respective graduate programs. The Birth-to-Three agency provided a part-time staff member to solicit and monitor referrals and serve as a liaison between the BC and other agency staff. The agency also provided clinic and office space and other infrastructure support (mail, phone, photocopies). Most of the referrals for the BC came from agency staff members who were already working with the children and their families. At times, parents referred their own children or they were referred from other Birth-to-Three agencies in the urban area. All referred families were scheduled for an intake appointment and contacted the day before as a reminder with transportation provided when needed (bus tickets).

2.1. Intake procedures

The BC was originally open for new intakes one morning each week. However, it quickly expanded to a full day each week to meet the rapidly growing demand for its services. Each family referred to the BC participated in a comprehensive 2 h intake evaluation. A minimum of two staff members were present for each intake and included a case manager who assumed

overall responsibility for the family and a child clinician who conducted the child assessment portion of the intake evaluation. Available historical records for the child (e.g., birth and health history, developmental screenings, family information) were reviewed. Normally, only one parent or other caregiver (e.g., grandmother, foster parent) attended the intake evaluation. The intake started with the case manager and child clinician meeting with the parent and child to begin to establish rapport, introduce the clinic, complete required forms (e.g., HIPPA, informed consent) and obtain some basic demographic information about the family. The child clinician encouraged the child to engage in play and recorded the child's response to this invitation. The parent was then instructed to play alone with the child as they do at home to assess the quality of the parent–child interactions. This play session was observed through a one-way mirror and observational data were recorded. Next, the parent was instructed to provide the child with a number of requests (e.g., ''come here, pick up the toy, sit on the chair''), one at a time, to obtain a measure of the child's compliance and the quality of the parental requests and follow through. The parent was then separated from the child for an interview regarding the referral concern, while the child stayed with the child clinician who completed the child assessment portion of the intake. The child portion of the intake assessed the child's emotional reactions to the separation and compliance to simple requests using social, tangible, and edible rewards. In addition, a screening assessment of the child's current developmental level was completed. The parent interview assessed the child's present health, daily routine, and included a thorough review of the referral concern. Information on the child's presenting behavioral and emotional problems was collected in terms of their frequency, severity, background history, environmental triggers, and present strategies used in the home to manage them. In addition, self-report instruments were administered regarding the child's behavior and the parent's behaviors and expectations. Immediately following the intake evaluation, the BC staff members met to review the intake findings, arrive at a psychiatric diagnosis when appropriate, and make recommendations. This information was shared with the parent at a staffing the same day and plans were made to begin to initiate treatment, when indicated, in the family's home.

2.2. Intake measures

A number of direct observations and self-report instruments were used as part of the intake evaluation.

2.2.1. Clinician plays with child

The clinician invited the child to play while the parent was responding in the same room to

questions from the case manager. The child's response to this invitation was recorded using a three-category scale (child responded to invitation right away, child responded with some delay, child did not respond). When the child and parent were separated, the child's responses to this separation was recorded in terms of how long it took the child to be calm and begin to interact with the clinician (less than 1 min, 1–5 min, more than 5 min).

2.2.2. Parent–child assessment

To capture the quality of a parent–child relationship during play, Kelly and Barnard (2000) recommended that the parent and child's behaviors be observed as well as their level of reciprocity. Based on the work of Crawley and Spiker (1983), we rated five dimensions of the child's behavior (positive affect, negative affect, interest in play, initiates interactions, and socially responsive), five dimensions of the parent's behavior (parent directs play, parent lets child direct play, sensitivity to child, expectations for child, and discipline—sets appropriate limits), and one dimension of the child and parent's behavior (reciprocity) using a 5-point frequency scale (1 = never, 2 = seldom, 3 = average, 4 = usually, and 5 = always).

2.2.3. Child's compliance

The child's compliance was separately assessed for the parent and clinician. Following the initial play interaction, parents were told to give their child five simple requests so that we could see how well their children listened to them. An observer recorded the number of parental requests and the child's compliance. We also recorded if the parent obtained the child's attention prior to a request and whether or not the parent complimented the child for compliance. During the child assessment portion of the intake, we were interested in determining the most effective strategies to gain the children's compliance. Children were given a series of five requests (raise your hand, clap your hands, touch the table, pick up the toy, and give me the toy) while seated at a table. If the child complied, social praise was provided. If the child refused to comply, the clinician physically prompted the child. These same five requests were repeated twice with social and tangible rewards (stickers) or social and edible rewards for compliance (crackers or juice), respectively. Once the most effective reward was identified, children were given five more requests with three new ones added (stand up, come here, pick up the toy, give me the toy, and sit on the chair) while engaged in nondirective play with the clinician and reinforced with this reward. This latter component was used to determine what reinforcer would be most adaptable for use in the children's homes as a component of the treatment program. Children's compliance to requests was recorded as well as the clinician's assessment of the child's ability to understand

the requests.

2.2.4. Slosson Intelligence Test for children and adults

The Slosson Intelligence Test (Slosson, 1963) was used to provide a quick screening assessment of the child's current level of cognitive functioning. The Slosson provides a mental age and IQ score for children under five, has strong test–retest reliability (r = .97), and correlates well with longer scales of intelligence (Stanford–Binet, r = .92).

2.2.5. Eyberg child behavior inventory (ECBI)

The ECBI (Eyberg & Pincus, 1999) is a 36-item inventory that measures behavior problems common in children. Parents rate the frequency of each behavior problem on a scale from 1 (never) to 7 (always), resulting in an Intensity Score (range: 36–252). Parents are also asked to identify if each behavior is a current problem with a yes or no response resulting in a total problem score (range: 0–36). The ECBI has been shown to discriminate between problem and nonproblem children. Evidence of reliability of the scale includes coefficient alpha of .95 for the intensity scale and .93 for the problem scale, test–retest correlation coefficients of .80 for the intensity scale and .85 for the problem scale at 12-week testing intervals, and inter-rater reliabilities of .86 for the intensity scale and .79 for the problem scale.

2.2.6. Parent behavior checklist (PBC)—short form

The PBC (Fox, 1994) is a 32-item rating scale designed to measure the behaviors and expectations of parents of young children between the ages of 1 year and 4 years, 11 months. The PBC consists of three scales that were empirically derived through factor analyses: Expectations—12 items that measure parents' developmental expectations (''My child should be able to feed him/herself''); Discipline—10 items that assess parental responses to children's problem behaviors (''I yell at my child for spilling food''); and Nurturing—10 items that measure specific parent behaviors that promote a child's psychological growth (''I read to my child at bedtime''). Items are rated using a 4-point frequency scale (4 = almost always/always, 3 = frequently, 2 = sometimes, and 1 = almost never/never). The range of total scores for each subscale are: Expectations (12–48) with higher scores indicating higher parental expectations, and lower scores indicating lower expectations; Discipline (10–40) with higher scores indicating more frequent use of verbal and corporal punishment (e.g., yelling, spanking) and lower scores indicating less frequent use of punishment; and Nurturing (10–40) with higher scores suggesting more frequent use of positive nurturing activities. From a representative sample of 1140 mothers,

the following internal consistencies using coefficient alpha were reported: Expectations, -.97; Discipline, -.91; and Nurturing, -.82. Test–retest reliabilities for each of the three subscales were: Expectations, -.98; Discipline, -.87; and Nurturing, -.81.

2.2.7. Parent–child relationship scale

This scale provides a global assessment of the overall quality of the parent and child relationship on a scale of 0–100 with five behavioral anchors at 20-point intervals (Fox & Nicholson, 2003). The BC staff completed this scale at the conclusion of the intake evaluation. Depending on the nature of the referral concern, additional assessments were added when warranted (e.g., screening instruments for autistic disorder and attention deficit hyperactivity disorder).

2.2.8. Psychiatric diagnosis

The Kiddie Schedule for Affective Disorders and Schizophrenia for School-Aged Children (K-SADS-PL; Kaufman et al., 1997) was completed to determine whether or not the child met any of the diagnoses included in the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) (APA, 2000). The K-SADS-PL is a semi-structured interview designed to assess current and past episodes of psychopathology in children.

2.3. Graduate student training and supervision

Following a general orientation to the policies and procedures of the Birth-to-Three agency, graduate students received classroom instruction in the BC intake evaluation procedures. Part of this training involves having students observe and rate videotaped parent–child interactions using the rating scales. Next, students observed one or more intake evaluations and once they were comfortable with the intake procedures, they were paired with veteran students to co-participate as case managers and child clinicians. The final training step was for new students to take on the responsibilities of the case manager and child clinician. The clinic director and a doctoral student clinic coordinator directly supervised all intake evaluations. Students received timely feedback on their performance during the intake evaluations and for their written reports; e-mails were frequently used to answer student questions that occurred outside of the clinic day.

3. Intake outcomes

3.1. Children

The intake findings for the first 81 consecutive children referred to the BC over a 2-year period were summarized. Of the 81 children referred, 55 or 68% of the families attended the intake evaluation (32% no-show rate). Families were given up to three opportunities to attend a scheduled intake evaluation. The average age of the referred children was 2.71 years (S.D. = .94) with 65% boys and 35% girls. Of these children, 57% were African–American, 20% were Caucasian, 11% were Latino, and 12% were of mixed ethnicity. Based on a prior evaluation conducted by the Birth-to-Three agency staff, 77% of the children met the criteria for developmental disability, defined as being at least 25% delayed in one or more areas of development. Based on the Slosson Intelligence Test administered during the present intake, an estimate of the children's intelligence quotient (IQ) was obtained by the following formula (mental age/chronological age x 100). The average IQ obtained for the sample was 78.58 (S.D. = 17.51, range = 33–115). The primary reasons for the children being referred were temper tantrums (41%), aggression (24%), oppositional behavior (11%), hyperactivity (9%), and self injurious behavior (7%), with the remainder referred for a variety of issues including property destruction, separation anxiety, autistic like behaviors, and communication difficulties. The historical records indicated that the average birth weight of the children was 6.4 pounds (S.D. = 2.12; range = 1.7–9.9) with 66% being from a full term pregnancy and 34% were premature.

3.2. Parents

The primary caregiver for the referred children was the biological mother (83.6%), 60% of whom were African–American, 23% were Caucasian, 13% were Latino, and 4% were of mixed ethnicity. Most of these mothers were not married (76%) or employed (52%); the mean age of the mothers was 30.4 years (S.D. = 9.2) and the average mother had less than a high school education (*M* = 11.8 years of education; S.D. = 2.1). The percentage of families in the present sample living below the poverty level was 95%, as determined by the 2005 HHS Poverty Guidelines, and it was consistent with the 95% for the Birth-to-Three agency. Secondary caregivers for the children included fathers, although not necessarily the child's biological father and extended family members (grandparents, aunts, and older siblings), 61% of those reported being employed. The average number of children living in the home was 3.0 (S.D. = 2.0; range = 1–13).

3.3. Direct observations

As part of the intake evaluation, we observed how well the children separated from their parents to play with a clinician while the parents were still in the evaluation room and again after their parents left the room; 57% of the children immediately participated in play with the clinician, 30% did so after some delay, and 13% refused to interact. After the caregiver left the evaluation room, 76% of the children were comfortable staying with the clinician within a minute or less, 8% required up to 5 min to be calm and begin to interact, and 16% required more than 5 min to calm and in some cases, would not calm until reunited with their caregivers. Parents and children also were rated on their interactions during play. The rating scores for all of these variables are shown in Table 1. Coefficient alpha was computed to assess the internal consistency of the ratings used to assess the quality of the parent–child interactions. For the five rated dimensions of the child's behavior, coefficient alpha was $r = .85$; for the six parents' ratings including the reciprocity variable, $r = .83$. Total scores were computed separately for the child (the negative affect item scores were reversed for this computation) and parent ratings (see Table 1); the child and parent total scores were highly correlated, $r = .92$. The children's compliance data are also shown in Table 1.When attempting to gain the child's compliance to five requests, parents used the child's name to get their attention an average of 3.46 times (range = 1–5), often provided numerous requests ($M = 14.3$, range = 2–38), and did not consistently compliment their child for being compliant ($M = 3.1$, range = 0–14). Under the social reward only condition, the children did not differ in their compliance to the clinician or parent ($p > .05$). However, when edibles were used, children significantly improved their compliance ($M = 73.12\%$) when compared to the parent condition ($M = 47.08\%$; $t(22) = 3.01$, $p = .006$) and the social reward only condition ($M = 62.72\%$; $t(31) = 1.41$, $p = .03$).

3.4. Self-report measures

Parents completed the ECBI as a measure of their children's problem behaviors and the PBC to assess their expectations, nurturing, and discipline of their children. Raw scores were converted to T-scores and are shown in Table 2. Using the recommended cutoff T-score ≥ 60 for clinical significance on the ECBI (Eyberg & Pincus, 1999), 78.4% of the children met the cutoff on the intensity scale and 68.6% met the cutoff on the problem scale. Using a cutoff score of 1 S.D. for the PBC scores (Fox, 1994), 17% of the parents' expectations for their children were low and 43% were high; 13% had high discipline scores and 19% had low nurturing scores. Significant correlations (all $p < .05$) were found between the PBC's expectations scores and the ECBI's intensity ($r = .49$) and problem scores ($r = .45$). As parents increased their expectations for their

children, they responded with more behavior problems. PBC discipline scores were positively related to expectations scores (r = .41) and negatively correlated with nurturing scores (r = -.55). That is, as parental expectations for their children increased so did their use of verbal and corporal punishment, their use of positive nurturing strategies decreased with an increase in expectations. ECBI problem and intensity scores were highly related (r = .84). Ratings of the clinicians' perceptions of the overall quality of the parent–children relationship are shown in Table 2. Significant negative relationships were found between the clinicians' overall ratings of the parent–child relationships and the parents' discipline scores on the PBC (r = -.41) and the children's intensity (r = -.44) and problem scores (r = -.29) on the ECBI.

3.5. Diagnostic summary

At the conclusion of the intake evaluation, children were given a psychiatric diagnosis if they met the DSM-IV criteria. Children received the following diagnoses: oppositional defiant disorder (48.1%), conduct disorder (9.6%), separation anxiety (9.6%), attention deficit hyperactivity disorder (1.9%), and no diagnosis (30.8%); one child was diagnosed with Asperger's Disorder. In addition, 9.6% of the children received a second diagnosis that included oppositional defiant disorder, attention deficit hyperactivity disorder, conduct disorder, and reactive attachment disorder.

4. Discussion

In the initial sample of children seen at intake, almost 70% met the diagnostic criteria in the DSM-IV for a psychiatric disorder. The majority of these children had disruptive behavior disorders that can be accurately diagnosed with the DSM-IV at younger ages (Keenan & Wakschlag, 2002). Consequently, the majority of children seen at intake did have serious behavior problems that posed significant challenges for their caregivers. Given the known trajectory of behavior problems in very young children (Campbell, 1995), in the absence of intervention, these behaviors are unlikely to resolve on their own for many of these young children.

One challenge in working with children referred to the BC was getting their caregivers to attend the intake evaluations. Nearly one-third of the families referred to the BC never showed up for the intake evaluations despite our scheduling appointments at convenient times, providing transportation when needed, and rescheduling missed appointments. One factor that may have contributed to this no-show rate was the growing popularity of the BC that necessitated the creation of a waiting list. The waiting time to be scheduled for an intake gradually increased over

time. Overall, the average waiting time for the present sample was 62.13 days (S.D. = 42.14). Another factor may have been related to who was making the referral. Often professionals from other disciplines who worked with the family through the Birth-to-Three agency would observe a child's behavior difficulties and make a referral. However, unless the parent also considered the child's behavior to be a ''significant problem,'' they may have been less motivated to seek help. Certainly another factor that contributed to this no-show rate was the inherent difficulties faced daily by these families living in poverty. Often, parents were struggling with meeting their families' basic needs, participating in a welfare return to work program that would not permit absences for clinic appointments, seeking medical services for a childhood illness, experiencing transportation problems, and a host of other issues. Often because of these and other pressing concerns, their young children's behavior problems became a lower priority. Finally, behavior problems in toddlers even when significant, do not pose as great a challenge to parents as when the children get older. Consequently, parents may not be as apt to consider a toddler's behavior problem as serious and in need of professional attention.

In general, we found the parents that participated in the intake evaluations had positive relationships with their children. While there were individual differences between families in their parent–child interactions during our play observations, which are consistent with other research (Crawley & Spiker, 1983), most parents' interactions with their children were positive and reciprocal. The children were engaged in the play, enjoyed it, and were responsive to their parents. Parents tended to lead the play activities rather than allow their children to take the lead. This could be related to their being observed but also could reflect more limited nondirective play skills by the parents. Clinicians also rated the average parent–child relationship as healthy. Parents did struggle with getting their children to comply with their requests (47% compliance). While part of this may be due to the developmental level of the children, often parents did not get their child's attention before making a request, gave multiple requests, and frequently did not provide the child with any recognition for complying with a request.

Parents were concerned about their children's challenging behaviors and their long-term implications. Many parents shared stories of relatives' or friends' children who started out with similar behavior problems when they were very young and who got into increasingly more trouble as they matured. Our typical parent was a single mom, with less than a high school education, an average of three children, and living below the poverty level. On the PBC, parents' average scores were in the normal range for expectations, nurturing, and discipline (Fox, 1994). This was somewhat surprising given that the majority of children obtained behavior intensity and problem scores on the ECBI in the clinically significant range and nearly 70% met the criteria for a

psychiatric disorder. While the PBC was shown in one study not to be affected by a socially desirable response set (Peters & Fox, 1993), it seems likely that these parents were guarded in their responses to items that directly assessed their own parenting behaviors. Most parents knew of families who had been reported for child abuse and consequently may have been wary of divulging information about themselves to professionals that they were meeting for the first time. In contrast, they were not at all reluctant to share information about their children's behavior and in some cases even exaggerate the problems they were encountering. Many of our parents did have high expectations for their children when compared to children of the same chronological age without developmental delays. Also, parent expectations were positively related to the frequency and intensity of their children's behavior problems, the increased parental use of corporal and verbal punishment, and the decreased use of positive nurturing strategies. These findings have direct implications for treatment programs for these children. That is, parents' expectations need to be brought more in line with the children's present developmental level, nurturing should increase and alternatives to corporal and verbal punishment for discipline have to be learned and used.

Following the BC's intake evaluation, over 90% of families whose children received a psychiatric diagnosis elected to participate in the clinic's treatment program that was provided in the families' homes. The treatment program builds on the intake findings and includes two major components: (1) strengthening the parent–child relationship through nondirective, child-led play (McDiarmid & Bagner, 2005) and (2) teaching the children new prosocial behaviors through nurturing activities including positive reinforcement and reducing challenging behaviors by providing reasonable consequences for them (Fox & Nicholson, 2003). We presently are collecting outcome data to assess the effectiveness of this home-based intervention program for these families.

Acknowledgements

This research was supported in part by grants from the Assurant Health Foundation, Charles D. Jacobus Family Foundation, Exchange Club, Greater Milwaukee Foundation, and United Way.

References

Aber, J. L., Jones, S., & Cohen, J. (2000). The impact of poverty on the mental health and development of very young children. In C. H. Zeanah (Ed.), Handbook of infant mental health (2nd ed.). New York: Guilford Press.

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

Baker, B. L., Blacher, J., Crnic, K. A., & Edelbrock, C. (2002). Behavior problems and parenting stress in families of threeyear-old children with and without developmental delays. American Journal on Mental Retardation, 107, 433–444.

Campbell, S. B. (1995). Behavior problems in preschool children: A review of recent research. Journal of Child Psychology & Psychiatry, 36, 113–149.

Crawley, S. B., & Spiker, D. (1983). Mother–child interactions involving two-year-olds with Down syndrome: A look at individual differences. Child Development, 54, 1312–1323.

Eyberg, S. *M*., & Pincus, D. (1999). Eyberg child behavior inventory and the Sutter–Eyberg student behavior inventory-revised. Lutz, FL: Psychological Assessment Resources Inc.

Feldman, *M*. A., Hancock, C. L., Rielly, N., Minnes, *P*., & Cairns, C. (2000). Behavior problems in young children with or at risk for developmental delay. Journal of Child and Family Studies, 9, 247–261.

Fox, *R*. A. (1994). Parent behavior checklist. Austin, TX: ProEd (Currently available from the author, Marquette University, School of Education, *P*.O. Box 1881, Milwaukee, WI 53201-1881; e-mail: robert.fox@marquette.edu).

Fox, *R*. A., & Nicholson, B. C. (2003). Parenting young children: A facilitator's guide. Longmont, CO: Sopris West.

Green, V. A., O'Reilly, *M*. O., Itchon, J., & Sigafoos, J. (2004). Persistence of early aberrant behavior in children with developmental disabilities. Research in Developmental Disabilities, 26, 47–55.

Kaufman, J., Birmaher, B., Brent, D., Rao, U., Ryan, N., Flynn, C., et al. (1997). The revised schedule for affective disorders and Schizophrenia for school aged children: Present and lifetime version: Preliminary reliability and validity data. Journal of the American Academy of Child and Adolescent Psychiatry, 36, 980–988.

Keenan, K., & Wakschlag, L. S. (2002). Can a valid diagnosis of disruptive behavior disorder be made in preschool children? American Journal of Psychiatry, 159, 351–358.

Kelly, J. F., & Barnard, K. E. (2000). Assessment of parent–child interactions: Implications for early intervention. In J. *P*. Shonkoff, & S. J. Meisels (Eds.), Handbook of early childhood intervention (2nd ed., pp. 258–289). New York, NY: Cambridge University Press.

Matson, J. L., & Barrett, *R*. *P*. (Eds.). (1993). Psychopathology in the mentally retarded (2nd ed.). Boston: Allyn & Bacon.

McDiarmid, *M*. D., & Bagner, D. *M*. (2005). Parent–child interaction therapy for children with

disruptive behavior and developmental disabilities. Education & Treatment of Children, 28, 130–141.

Olson, S. L., Ceballo, *R*., & Park, C. (2002). Early problem behavior among children from low-income, mother-headed families: A multiple risk perspective. Journal of Clinical Child and Adolescent Psychology, 31, 419–430.

Peters, C. L., & Fox, *R*. A. (1993). Parenting inventory: Validity and social desirability. Psychological Reports, 72, 683–689.

Rodriguez, C. *M*., & Murphy, L. E. (1997). Parenting stress and abuse potential in mothers of children with developmental disabilities. Child Maltreatment, 2, 245–251.

Slosson, R. L. (1963). Slosson intelligence test for children and adults. New York: Slosson Educational Publications.

Tolan, *P*. H., & Dodge, K. A. (2005). Children's mental health as a primary care and concern: A system for comprehensive support and service. American Psychologist, 60, 601–614.

Tonge, B. J. (1999). Psychopathology of children with developmental disabilities. In N. Bouras (Ed.), Psychiatric and behavioural disorders in developmental disabilities and mental retardation. Great Britain: Cambridge University Press.

U.S. Department of Education. (2002). Percentage of infants and toddlers receiving early intervention services, by type of service, 1994–2000. Washington, D.C.: U.S. Department of Education, Office of Special Education, Data Analysis System.

U.S. Department of Health and Human Services. (2005). The poverty guidelines updated periodically in the Federal Register by the U.S. Department of Health and Human Services under the authority of 42 U.S.C. 9902(2). Federal Register, 70, 8373–8375.

Wicks-Nelson, *R*., & Israel, A. C. (2006). Behavior disorders of childhood (6th ed.). Upper Saddle River, NJ: Pearson Education Inc.

Table 1: Observational data on parents and children during play interactions and compliance trials

Observational variances	Mean	S.D.	Range
Child interaction variables			
Positive affect	2.95	1.24	1-5
Negative affect	1.38	0.59	1-3
Interest in play	4.10	1.02	2-5
Initiates interactions	3.00	1.18	1-5
Socially responsive	3.70	1.03	2-5
Total interaction scores[a]	12.55	3.78	7-19
Parent interaction variables			
Parent leads	3.14	0.96	2-5
Child leads	2.24	0.77	1-4
Sensitivity	3.00	1.17	1-5
Expectations	3.00	1.17	1-5
Discipline	2.67	1.19	1-5
Reciprocity	3.20	0.95	2-5
Total interaction scores[a]	16.25	4.52	10-24
Compliance to requests			
Compliance to parent	47.08	30.76	0-100
Compliance with clinician			
Social only	62.72	31.88	0-100
Social and tangible	63.11	32.31	0-100
Social and edible	73.12	28.85	0-100
Best	72.81	27.57	20-100

[a] Total interaction scores combine the separate ratings for the child and parent interaction variables, respectively.

Table 2: *T*-scores from self-report measures completed by the parents during the intake evaluation

Self-report measure	Mean	S.D.	Range
Eyberg child behavior inventory			
Intensity	68.39	11.01	41-90
Problem	65.22	10.75	41-88
Parent behavior checklist			
Expectations	53.34	13.10	25-76
Discipline	46.09	9.91	30-68
Nurturing	52.04	13.68	24-80
Parent-child relationship scale	51.12	15.76	10-80