

Behavior Support Interventions Implemented by Families of Young Children: Examination of Contextual Fit

Tara W. McLaughlin, MEd¹, Maria K. Denney, PhD¹,
Patricia A. Snyder, PhD¹, and Jill L. Welsh¹

Abstract

Families are increasingly involved in the implementation of behavior support interventions to promote positive behaviors of young children in everyday family settings. Contextual fit, described as congruence between the behavior support intervention and the values, skills, resources, and routines of those who will implement the intervention, has been associated with the effectiveness and sustainability of the intervention. We analyzed studies published in the *Journal of Positive Behavior Interventions* from 1999 to 2009 in which families of young children ages 3 through 8 years implemented behavior support interventions. As part of this review, we examined information reported about contextual fit. Eighteen studies met the inclusion criteria and were coded using an investigator-developed protocol. Findings revealed that researchers generally reported information about collaborative partnerships with families. Information about family ecology, cultural and linguistic background, family perspectives about the intervention, and family quality of life were not reported in the majority of studies reviewed. Recommendations related to future reporting practices and research focused on contextual fit are discussed.

Keywords

young children, positive behavior support, family support, contextual fit

Family-centered, positive behavior support (PBS) has been designed to improve the quality of life for families and their children. For families of young children, PBS can be accomplished through prevention of challenging behaviors, intervention for problem behaviors, promotion of positive behaviors, and fostering healthy social-emotional development (Dunlap et al., 2006; Powell, Dunlap, & Fox, 2006). Challenging behavior in young children has been associated with poor child and family outcomes. When young children exhibit challenging behavior, they are more likely to experience punitive interactions with caregivers and peer rejection (Dunlap et al., 2006; Fox & Smith, 2007). Young children with disabilities might experience additional difficulties with challenging behavior because of poor communication or social skills. For these children, challenging behavior might lead to decreased social competence, increased social isolation, and removal from early childhood education and care settings (Perry, Dunne, McFadden, & Campbell, 2008). Long-term challenging behavior has been linked with decreased academic performance, increased rates of high school dropout, and juvenile delinquency (Huffman, Mehlinger, & Kerivan, 2001). Moreover, parents of young children with disabilities

who exhibit challenging behavior have reported increased family stress and parental depression (Bailey, Golden, Roberts, & Ford, 2007).

A growing body of evidence suggests PBS interventions can be used to support young children in school, home, and community settings (Conroy, Dunlap, Clark, & Alter, 2005). Some PBS research has focused on interventions implemented by family members in “typical” family settings or contexts, often referred to as family-centered, positive behavior support (e.g., Lucyshyn et al., 2007; Moes & Frea, 2000; Vaughn, Wilson, & Dunlap, 2002). Within family-centered PBS, researchers have emphasized the need to design interventions that are technically sound and contextually appropriate (Lucyshyn, Kayser, Irvin, & Blumberg, 2002). Commonly referred to as contextual fit, researchers

¹University of Florida, Gainesville, FL, USA

Corresponding Author:

Tara W. McLaughlin, P.O. Box 117050, Gainesville, FL 32611-7050, USA
Email: taraway@ufl.edu

Action Editor: Joshua Harrower

have acknowledged that positive and durable child and family outcomes are most likely achieved when the fit between the behavior support intervention and family variables is considered (Albin, Lucyshyn, Horner, & Flannery, 1996). Crone and Horner (2003) described contextual fit as the congruence between the behavior support intervention and the values, skills, resources, and routines of those who will implement the intervention. Contextual fit might influence the extent to which families (a) implement the behavior support intervention with fidelity; (b) report the behavior support intervention is acceptable, feasible to implement, and effective; (c) generalize and sustain the intervention; and (d) participate in future interventions and services.

Family-centered PBS practices have drawn from PBS and family-centered early intervention practices that honor the central role of the family in the child's development and in intervention planning, implementation, and evaluation (cf. Lucyshyn, Horner, Dunlap, Albin, & Ben, 2002; McWilliam, Snyder, Harbin, Porter, & Munn, 2000). These practices have emphasized the role of family members as experts about their child and their family ecology (Dunlap, Newton, Fox, Benito, & Vaughn, 2001). Family ecology refers to information about families' lifestyles and contexts including their needs, priorities, goals, values, strengths, resources, and supports. Building on information about family ecology, family-centered PBS has recognized the diversity of families and the importance of collaborative partnerships with each family to develop, deliver, and evaluate behavior support interventions (Chen, Downing, & Peckham-Hardin, 2002; Vaughn, Dunlap, Fox, Clarke, & Bucy, 1997).

Family-centered PBS practices also have emphasized the goodness-of-fit concept articulated by Bailey et al. (1986) that focused on the match between the family and the intervention. These authors noted early intervention should be individualized to be congruent with the characteristics of the child, the family, and the demands of the environment. They proposed a process of assessment and evaluation to enhance goodness of fit in early intervention practices. In addition, contextual fit in family-based contexts has focused on consideration of family activity settings as logical contexts for intervention (Gallimore, Goldenberg, & Weisner, 1993). Family activity settings represent the daily and weekly routines of family life and reflect the unique ways in which families organize their lives (Gallimore et al., 1993).

Two defining principles of PBS related to examining the intervention, which have also influenced family-centered PBS, include (a) the focus on meaningful lifestyle outcomes including changes in quality of life for the child and family and (b) the social validity of the PBS intervention (Carr et al., 2002). Smith-Bird and Turnbull (2005) described the importance of measuring and assessing changes in family quality of life as a key outcome related to implementation

of a behavior support intervention. In addition, PBS has a long history of measuring and assessing the social validity of interventions (cf. Wolf, 1978). Since 1978, the concept of social validity has evolved and focused on gathering a range of consumer perspectives about the intervention, including acceptability, feasibility, effectiveness, sustainability, and satisfaction. Moreover, the assessment of social validity continues to be an integral aspect of PBS and family-centered PBS research (Dunlap, Carr, Horner, Zarcone, & Schwartz, 2008).

The purpose of the present systematic review of the literature was to examine studies published in the *Journal of Positive Behavior Interventions (JPBI)* in which parents or familial caregivers implemented positive behavior support interventions with their young children. We selected *JPBI* for this review because it is the research journal for the Association for Positive Behavior Support (APBS) community. As such, *JPBI* publishes research that reflects principles and recommended practices associated with PBS. APBS has led the field in defining key principles and promoting the use of family-centered interventions with contextual fit. All existing volumes of *JPBI* (1999–2009) were examined to investigate the extent to which family-centered interventions for young children with contextual fit have appeared in the APBS research journal.

As part of our systematic review, we analyzed how variables related to contextual fit were reflected in the design, implementation, and evaluation of the behavior support interventions. Contextual fit was specified as including (a) acknowledgement of the cultural and linguistic background of families; (b) collaborative partnership with families for assessment, planning, implementation, and evaluation of the behavior support intervention; (c) consideration of family ecology; (d) selection of family activity settings as contexts for intervention; (e) parents' or familial caregivers' perspectives about acceptability, feasibility, effectiveness, sustainability, and satisfaction; and (f) family quality of life. To guide this systematic review of the literature, we posed the following research questions:

- Within *JPBI*, how many behavior support studies used parents or familial caregivers as the primary intervention agent with their young child 3 to 8 years of age?
- What were the characteristics of the children, parents, or familial caregivers involved in these studies?
- What were the conditions and components of the behavior support intervention?
- What were the child and family outcomes when parents or familial caregivers implemented the behavior support intervention?
- Did studies report information about aspects of contextual fit as part of the intervention or the outcomes?

Table 1. Key Coding Categories by Section on Coding Protocol

Participant characteristics (88)	Section		
	Conditions and components		
	Child-focused interventions (56)	Family implementation supports (44)	Outcomes (30)
Child	Intervention focus (5)	Intervention focus (2)	Child outcomes (10)
Gender (2)	Setting	Setting	Quality of life ^a (20)
Age (1)	Location (6)	Location (6)	
Type of challenging behavior (13)	Activity settings ^a (2)	Family selection of settings ^a (1)	
Disability (12)	Assessment	Assessment and planning	
Race/ethnicity ^a (9)	Functional behavior assessment (2)	Need assessment conducted ^a (1)	
Home language ^a (9)	Family involvement FBA ^a (1)	Family involvement planning ^a (1)	
Family member	Family ecology assessment ^a (2)	Home language considered ^a (3)	
Role (6)	Planning	Intervention type	
Marital status (8)	Behavior support plan (2)	Initial instruction (9)	
Race/ethnicity ^a (9)	Family involvement in BSP ^a (1)	Follow-up supports (10)	
Home language ^a (9)	Family ecology considered ^a (3)	Evaluation	
Age (1)	Intervention type	Family perspectives ^a (11)	
Income/SES (1)	Behavior support strategies (8)		
Occupation (1)	Multicomponent approaches (3)		
Level of education (7)	Evaluation		
	Intervention fidelity (8)		
	Family perspectives ^a (13)		

Note. FBA = functional behavior assessment; BSP = behavior support plans; SES = socioeconomic status.

a. Contextual fit indicators integrated within each section.

Method

Procedures

A hand search of all marked citations in *JPBI* was conducted through the Sage Journals online system. Marked citations refer to any listed entry that included an author and page number in the table of contents, including editorials, full articles, forum articles, exchanges, obituaries, and commentary. Two coders independently reviewed all marked citations by title and abstract and verified studies eligible for review. If the abstract did not provide sufficient information to make a determination, the full article was obtained and reviewed. To be included in the review, studies had to meet the following criteria: (a) published in *JPBI* from Volume 1 (1999) to Volume 11 (2009); (b) original report of research; (c) included at least one child participant between the ages of 3 and 8 years that had an identified disability or exhibited challenging behavior; (d) involved an intervention designed to prevent, reduce, and replace challenging behaviors or promote positive behaviors; and (e) involved a parent or familial caregiver in the implementation of the behavior support intervention with the child. Hereafter, parent and familial caregiver are referred to, interchangeably, as families or family members.

Each study identified was reviewed and coded by the first author using a coding protocol that included coding categories and operational definitions for each coding category. The coding categories and definitions were developed

and refined by all the authors before using them to analyze the studies. The coding protocol was used to record information about each study under three major sections: (a) participant characteristics, (b) intervention conditions and components, and (c) child and family outcomes. Contextual fit codes and associated definitions were integrated within each of these sections. Table 1 shows the key coding categories and number of codes under each section. For intervention conditions and components, child-focused interventions refer to the behavior support intervention for the child implemented by a family member and family implementation supports refer to family education programs or direct implementation supports provided to family members to support their implementation of the behavior support intervention. Child-focused intervention and family implementation supports were recorded separately. For the family implementation supports, we defined family education programs as individualized or group training to learn about a defined behavioral approach and direct implementation supports as individualized or small-group training to learn how to implement strategies included in an individualized behavior support intervention.

Interrater Agreement

Two coders independently screened all marked citations to determine whether articles met the requirements for inclusion in the review. One third of all studies ($n = 6$) were

randomly selected and independently coded by a second coder using the same coding protocol. Interrater agreement was calculated by counting the number of agreements between each rater divided by the total number of studies reviewed or total number of codes for each study, for screening and coding, respectively. Interrater agreement for screening was 99%. The mean interrater agreement on the study coding form was 93% (range 90%–96%). Coding disagreements on the screening or study coding form were discussed between the two coders and consensus was reached.

Results

A total of 324 marked citations were reviewed and 18 studies were identified that met the specified inclusion criteria. All studies identified were published in *JPBI* between 1999 and 2009. Across the 18 studies, four types of research designs were represented: single-subject experimental design ($n = 10$), case study design ($n = 3$), quasi-experimental group design ($n = 2$), or other designs ($n = 3$; e.g., evaluation of model demonstration program).

Participant Characteristics

A total of 227 children participated across the 18 studies; however, one study implemented a group experimental design that involved 158 child participants (Baker-Ericzen, Stahmer, & Burns, 2007). Excluding this study, 69 child participants were involved across the remaining 17 studies. Children in the 18 studies ranged in age from 18 to 116 months, with a mean age of 49 months ($SD = 8$). Almost all children (98%) in the 18 studies were reported as having autism or pervasive developmental disorder—not otherwise specified (PDD-NOS). Specifically, 223 children were reported as having autism or PDD-NOS, whereas 4 children were reported as typically developing with challenging behaviors related to food refusal and nighttime disturbances.

The exact number of family members included as participants across the studies could not be determined. Some researchers specified the number of family members that participated in the study and defined the family member role (e.g., mother, father, grandparent). Other researchers did not specify the number of family members or used generic terms, such as parents or caregivers, without specifying the number of family participants.

Table 2 shows the number of studies that reported child and family member demographic information (e.g., race/ethnicity, marital status, level of education, occupation). Information about each demographic category was reported in less than half of the studies. In 8 studies, researchers did not report any demographic information about the families. Demographic information was reported on five of the seven demographic categories in 1 study, four of the seven

Table 2. Number and Percentages of Participant and Collaboration Variables Reported in the Reviewed Studies

Category	<i>n</i>	%
Child		
Race/ethnicity	6	33
Home language	3	17
Family member		
Marital status	7	39
Race/ethnicity	6	33
Home language	3	17
Age	1	6
Income/SES	5	28
Occupation	2	11
Level of education	4	22
No demographic information	8	44
Collaboration in assessment		
Family ecology information obtained	5	28
Functional behavior assessment conducted ^a	9	50
Family involved in functional behavior assessment	7	39
Collaboration in planning		
Family ecology information considered during planning	3	17
Behavior support plan developed	8	44
Family involved in behavior support plan	8	44
Family received instruction ^b	18	100
Needs assessment completed before instruction ^b	5	28
Family received follow-up supports	11	61
Family involved in planning of instruction ^b	1	6

Note. Number of studies = 18. SES = socioeconomic status.

a. Eleven studies intended to prevent or reduce challenging behavior and, therefore, only these studies might be expected to conduct a functional behavior assessment.

b. Instruction refers to family education or implementation supports.

demographic categories in 2 studies, three of the seven demographic categories in 3 studies, two of the seven demographic categories in 2 studies, and one of the seven demographic categories in 2 studies.

Conditions and Components Associated With the PBS Intervention

Child-focused intervention. Studies were focused on (a) preventing or reducing a challenging behavior and teaching a new or replacement skill ($n = 8$), (b) teaching a new skill ($n = 8$), or (c) preventing or reducing a problem behavior ($n = 2$). Across the 18 studies, a variety of interventions were implemented. As shown in Table 1, we characterized the type of intervention implemented using a list of eight possible specific behavior support strategies (typically used in combination) or a list of three possible common multicomponent interventions. With respect to specific behavior support strategies, researchers reported using environmental arrangements

or modifications ($n = 5$), adult-delivered antecedent-based strategies ($n = 6$), adult-delivered consequence-based strategies ($n = 8$), prompting procedures ($n = 1$), visual supports ($n = 3$), an augmentative communication device ($n = 1$), social stories ($n = 1$), or an intervention not included as a category on the coding form (e.g., scheduled awakenings, deescalation procedure; $n = 8$). Two multicomponent intervention approaches were implemented across the 18 studies. Functional communication training was used in 1 study and pivotal response training was used in 4 studies.

Intervention fidelity data on the families' implementation of the behavior support intervention were reported in 9 studies. An observational, interval recording system was used to evaluate the percentage of intervals with (a) correct implementation of the intervention ($n = 5$), (b) positive parent behaviors ($n = 1$), or (c) opportunities provided for the child to respond ($n = 1$). On average, family member implementation of the intervention was greater than 80%; positive parent behaviors and opportunities to respond were consistently above baseline levels. In addition, researchers listened to an audio recording of family members and the child interacting using a checklist ($n = 1$) or had families report about the intervention by phone each day ($n = 1$) to evaluate intervention fidelity.

Although not specified as intervention fidelity, Stahmer and Gist (2001) used an observational interval recording system to compare the percentage of intervals with correct use of intervention techniques. These authors further compared the difference in correct implementation between families that participated in a parent-to-parent support group ($M = 75\%$, range = 68–86), and families that did not participate in a support group ($M = 60\%$, range = 29–78).

Family implementation supports. A family education program or direct implementation supports were provided in all studies to support the family's implementation of the behavior support intervention. As shown in Table 1, we used nine possible categories to code the types of interventions used to provide initial instruction related to family education programs or direct implementation supports. To instruct families about how to implement the intervention across the studies, researchers reported using individualized instruction with families ($n = 10$), model demonstration of the intervention ($n = 7$), a manual for families to read ($n = 4$), role-play with families ($n = 2$), a series of workshops that families attended ($n = 1$), or another strategy not defined by an existing category on the coding form (e.g., watch an instructional video; $n = 6$). In 5 of the 18 studies, researchers did not detail processes used to instruct families but included a statement that described families were instructed to use the intervention (e.g., parents were trained through discussion and feedback on their use of the skills). The two additional coding categories of "one-time workshops" or "no information reported" were not identified in any of the studies.

In 11 of 18 studies, researchers reported that follow-up supports were provided for families after the initial family education program or direct implementation supports were offered. We used 10 possible categories to code follow-up supports. Across the studies that provided follow-up supports, researchers reported using parent-to-parent support meetings ($n = 1$), consultation with families ($n = 3$), in situ coaching methods ($n = 3$), feedback to families after an observation of implementation ($n = 2$), model demonstration ($n = 1$), role-play ($n = 1$), continued e-mail or phone contact ($n = 3$), or some other type of follow-up strategy not defined by a category ($n = 4$). In 3 studies, families received follow-up supports but the type of support provided was not specified. In addition to the family education program, direct implementation supports, and follow-up, researchers reported providing family-focused interventions (e.g., respite or counseling services) in 3 studies.

Child and Family Outcomes Associated With the PBS Intervention

Child outcome data were reported in all 18 studies. Data were collected through observations of child behavior, direct assessments of the child, and self-report measures completed by families. In the Baker-Ericzen et al. (2007) study involving 158 children, the authors reported statistically significant mean differences pre- and postintervention for scores on the Vineland Adaptive Behavior Scale (Sparrow, Balla, & Cicchetti, 1984). Stahmer and Gist (2001) reported overall increases in word use pre- and postintervention for 22 children. When families implemented the intervention to criterion levels, statistically significant increases in word use were found.

Across the 16 studies that used a single-subject experimental or other research design, 22 children decreased challenging behaviors and 42 children increased positive behaviors. The difference in the number of children showing decreases in challenging behavior and increases in positive behavior was related to the focus of the intervention in the reviewed studies. Specifically, 10 studies included a component on preventing or reducing challenging behaviors (e.g., disruptive behaviors, food refusal, night terrors, interrupting behaviors, or tantrums) that resulted in a decrease in challenging behavior for 22 child participants. Fourteen studies included a component on teaching new or replacement skills (e.g., communication and language, use of an AAC device for communication, eye contact, other social behaviors, or food acceptance) that resulted in an increase in positive behaviors for 42 child participants. Of these studies, only one of the food refusal studies (i.e., Galensky, Miltenberger, Stricker, & Garlinghouse, 2001) reported a child participant's behaviors were not changed. In this study, however, the parents

terminated the intervention following a burst of refusal behavior.

Follow-up data on child behaviors were collected in 9 of the 18 studies. Follow-up data were collected (a) between 1 and 6 months after intervention in 8 of these studies; (b) between 12 and 26 months after intervention in 4 of these studies; and (c) in three longitudinal follow-up probes at 36, 67, and 87 months in 1 of these studies. Follow-up data from these studies indicated that children maintained positive skills and reductions in challenging behaviors over time.

In addition to child outcomes related to child behaviors, four studies measured children's participation in daily routines. In these studies, researchers examined the extent to which a child participated in typical family routines (e.g., mealtime, shopping trip, bedtime). Routine participation was measured by (a) percentage of routine steps successfully completed ($n = 1$), (b) latency in minutes to successful completion of a routine ($n = 1$), or (c) percentage of intervals with active participation or on-task engagement in a routine ($n = 2$). In these studies, researchers reported positive increases in children's routine participation after intervention.

Family quality of life was measured before and after the intervention in 3 studies. Binnendyk and Lucyshyn (2009) used the Family Quality of Life Survey (Park et al., 2003) to assess quality of life; increases in ratings over the duration of intervention and follow-up were reported. Lucyshyn et al. (2007) used a structured interview to assess quality of life; these authors reported increases in the range of activities and settings in which the child would participate or visit and thus the family could participate or visit together. Koegel, Symon, and Koegel (2002) used adapted rating scales for happiness, interest, and stress to create a composite parental affect score for each observational probe to assess family members' affect during interactions with their child as an indicator of quality of life. These authors reported increased positive affect across preintervention, intervention, and postintervention for five families.

Contextual Fit

As shown in Table 1, contextual fit was evaluated by coding aspects related to (a) cultural and linguistic background; (b) family involvement (i.e., collaboration) during assessment, planning, and implementation of the behavior support intervention; (c) information about family ecology; (d) intervention settings; (e) families' perspectives about the intervention; and (f) measurement of quality of life. Indicators of contextual fit were drawn from the literature in family-based PBS and early intervention previously described.

Cultural and linguistic background. Information about children's and families' home language was reported in only 3 studies (see Table 2). In one of these 3 studies, researchers reported that the family education program or direct

implementation supports were available in the family's home language (i.e., English and Spanish; Baker-Ericzen et al., 2007).

Collaborative partnerships. The number and percentage of studies that reported information about family collaboration during assessment and planning is shown in Table 2. Researchers in 9 of 18 studies reported conducting a functional assessment or functional analysis. Of these 9 studies, 7 reported collaboration with families in the functional assessment process. Researchers in 8 studies reported developing a behavior support plan, and in all 8 studies researchers reported they collaborated with the families in the behavior support planning process.

Before providing the family education program or direct implementation supports as part of the family-focused intervention, researchers in 5 studies reported completing a needs assessment. Collaboration with the family to plan implementation supports was explicitly described in one study (Lucyshyn et al., 2007). In addition, 1 study used family members who participated in the parent education program to instruct other family members to implement the intervention (Symon, 2005).

In addition to collaborative partnerships between families and researchers, 1 study highlighted the importance of connecting families with families. Stahmer and Gist (2001) reported using a parent-to-parent support group with a professional facilitator to provide follow-up support to families after the initial family education program. These authors provided access to the parent-to-parent support group for half of the families ($n = 11$) in the study. They reported that families with access to the support group were more likely to implement the intervention techniques with a high level of fidelity than families who did not have access to a support group.

Family ecology. Collecting information about family ecology was reported in 5 studies. In 3 of these studies, this information was used to inform the design of the behavior support intervention (see Table 2).

Family activity settings. The location in which the behavior support intervention occurred most often was the home ($n = 15$), followed by community ($n = 5$), clinic ($n = 2$), school ($n = 1$), or not reported ($n = 2$). More than one setting for the behavior support intervention could be identified. Within the home, a variety of family activity settings were used for the intervention, including morning routines, playtime, clean-up activities, mealtimes, meal preparation, bath time, bedtime, and sleep routines. In addition, 3 studies conducted in the home described locations in the home (e.g., living room, kitchen, bedroom) where the intervention was implemented. Within the community, the family activity settings included visiting restaurants, fast-food restaurants, shops, and coffee shops. Families selected the locations or the activity settings for the behavior support intervention in 8 studies.

The family education program or direct implementation supports occurred in the home ($n = 6$), at a clinic ($n = 6$), in

the community ($n = 1$), at a school ($n = 1$), other location ($n = 1$), or not reported ($n = 4$). In addition, of the 11 studies that provided follow-up supports, these supports occurred in the home ($n = 7$), in the community ($n = 1$), at a school ($n = 1$), other location ($n = 1$), or not reported ($n = 1$).

Family perspectives. Researchers in half of the studies ($n = 9$) measured the families' perspectives about the behavior support intervention. Families' perspectives of the behavior support intervention were measured by interview ($n = 1$), an investigator-developed survey on social validity ($n = 3$), an investigator-developed survey on satisfaction ($n = 3$), an investigator-developed survey on sustainability ($n = 1$), an investigator-adapted questionnaire on goodness of fit ($n = 2$), or the *Treatment Evaluation Inventory–Short Form* ($n = 1$; Kelly, Heffer, Gresham, & Elliot, 1997). Two studies administered more than one measure. In general, families reported the intervention was acceptable, compatible with their respective lifestyles, and one that they would continue to use. Families also expressed satisfaction with changes in child behaviors. Across the 18 studies, measurement of families' perspectives about the family education program or direct implementation supports was found in only 3 studies and 1 study provided an anecdotal report of family satisfaction. Families' perspectives on the family implementation supports were measured using an investigator-developed survey on social validity ($n = 1$) or an investigator-developed survey on satisfaction ($n = 2$).

Discussion

The purpose of this review was to analyze studies published in *JPBI* in which families implemented the behavior support interventions with their young children. The review provides a synthesis of the extent to which these *JPBI* studies have reported on the characteristics of participants, conditions under which the behavior support intervention was implemented, components of the intervention, and child and family outcomes. In addition, a primary focus of the present review was to analyze key indicators of contextual fit and how these indicators were reflected in the studies reviewed.

A total of 18 studies met the inclusion criteria for this review. Overall, the reviewed studies demonstrated that family-implemented interventions were successful in promoting positive behaviors and reducing challenging behaviors in young children. The reviewed studies primarily focused on children with autism spectrum disorder (ASD) and their families. Children with ASD are likely to experience more challenging behavior because of delays in communication and social skills (Buschbacher & Fox, 2003) so we expected many studies would include young children with ASD. The finding that almost all children enrolled in the 18 studies were reported as having autism or PDD-NOS was, however, unexpected.

Empowering families of young children to prevent challenging behavior and promote positive behavior is an expanding area of PBS research. Partnerships with families of young children are a key aspect of prevention for future challenging behaviors and promoting or preserving child and family quality of life. Findings from the present review are consistent with findings of previous reviews (e.g., Conroy et al., 2005) that have shown that family members can implement PBS interventions to address challenging behavior and to support their young children to achieve positive outcomes. Given the negative outcomes for children and families that result from challenging behavior, it was promising that interventions implemented by families in their natural environments promoted positive behaviors or reduced challenging behaviors in young children. Moreover, when maintenance was examined, outcomes were shown to maintain over time (range 1 month to 87 months).

When examining the conditions associated with implementation of behavior support interventions, families implemented these interventions most often in the home, followed by community settings. The most common activity settings were everyday routines and transitions that occur in the home (e.g., meal times, playtime). For families with children with challenging behavior, addressing behavior in the environments that most immediately affect family life and family functioning has been identified as a top priority (Fox, Vaughn, Wyatte, & Dunlap, 2002).

The components of the behavior support interventions implemented by families included key elements of technically sound behavior support practices (e.g., prevention, functional behavior assessment, behavior intervention planning, ongoing evaluation). A promising finding from the review was that intervention fidelity was examined in half the studies reviewed. Fidelity of implementation has been associated with the effectiveness of the intervention (Hieneman & Dunlap, 2000); however, implementing interventions with fidelity in "real world contexts" has been considered a challenge in applied research (Stichter, Clarke, & Dunlap, 2004). The studies in this review suggest families (i.e., typical intervention agents) were able to implement interventions with integrity in natural environments.

One factor that might explain these findings is that all families participated in some type of family education program or received direct implementation supports. In addition, most families received some type of follow-up support. Family education programs have a long history of supporting families to implement a variety of interventions with their children; however, these programs have not been universally successful (Mahoney et al., 1999). Recent recommendations have focused on the inclusion of supportive contextual interventions as an integral aspect of family implementation supports (Singer, Goldberg-Hamblin, Peckham-Hardin, Barry, & Santarelli, 2002). Analyzing the components of the family education programs and direct

implementation supports that contributed to family implementation in the reviewed studies would be a logical next step to understand the conditions associated with implementation fidelity.

With respect to contextual fit, researchers associated with the studies included in the present review demonstrated collaborative partnerships with families in ways consistent with recommended family-centered PBS practices that have emphasized collaborative partnerships for assessment, planning, and implementation of the behavior support interventions (Vaughn et al., 1997). Moreover, Stahmer and Gist (2001), which included a parent-to-parent support component to the intervention, extends findings from previous studies focused on parent-to-parent support programs, which have shown families gain emotional and practical supports from participating in parent-to-parent support groups (Santelli, Turnbull, & Higgins, 1996; Singer et al., 1999).

An unexpected finding of this review was that relatively little information about family ecology, cultural and linguistic background, and other family characteristics were reported across the 18 studies. Typically, intervention studies include information about the participants receiving the intervention (i.e., the children). In these studies, families were in the unique position of being both the intervention agents and the recipients of family education programs or direct implementation supports. To enhance understanding about which interventions work for whom and under what circumstances, descriptive information about the child, the family, and routine or activity settings should be reported (Albin et al., 1996). Inclusion of sufficient information about relevant attributes of study participants and the settings in which the intervention occurred is consistent with recommended reporting practices in the evidence-based practice literature (e.g., Horner et al., 2005).

In addition, learning about each family's ecology, cultural and linguistic background, and preferences to design a family-centered PBS intervention has been recommended (Chen et al., 2002; Vaughn et al., 1997). Notably, researchers in two studies compared interventions designed with and without consideration for family ecology and preferences. Stiebel (1999) and Moes and Frea (2000) reported families' fidelity of implementation of the intervention and children's behavior improved with interventions that were congruent with the family ecology and family priorities and preferences. Similar research in school-based PBS has shown technically sound behavior supports plans designed without consideration of the perspectives and preferences of the teams that will implement them are rated less favorably compared to technically sound plans that incorporate team member perspectives and preferences (Benazzi, Horner, & Good, 2006). Studies in the present review and those conducted in school-based settings offer support for the premises that consideration of contextual fit can influence

the fidelity of implementation and the effectiveness of the intervention.

Researchers measured families' perspectives about the behavior support interventions in 9 of 18 studies and the families' perspectives about the family education programs or direct implementation supports in 4 of the studies. Previous research has shown that social validity has not been regularly measured in applied behavior analysis journals (Kennedy, 1992). Nevertheless, this finding was somewhat unexpected, given the emphasis on social validity in PBS (Dunlap et al., 2008) and the numerous rating scales, questionnaires, surveys, or semistructured interviews designed to measure acceptability, feasibility, effectiveness, sustainability, or satisfaction that can be administered with relative ease (cf. Clarke, Worcester, Dunlap, Murray, & Bradley-Klug, 2002). Alternatively, the involvement of the family in the development and implementation of the behavior support intervention might be viewed as an inherent form of social validity. Although these collaborative partnerships are critical in family-centered PBS, assessing and evaluating families' perspectives and gathering their feedback about both child-focused interventions and family implementation supports seems important. This information can help inform the formative and summative evaluation of the intervention, particularly with respect to contextual fit. Using multiple measures to evaluate positive behavior support interventions allows for the examination of different facets of the families' experience and is consistent with previous recommendations for PBS research (Clarke et al., 2002).

Although quality-of-life changes have been identified as an important outcome of implementing PBS interventions that consider contextual fit, few studies in this review measured changes in families' quality of life. This finding was not surprising given the challenges that have been identified with respect to determining which quality-of-life dimensions should be measured and how. Promising work has been conducted to design and validate quality-of-life measures (e.g., Beach Center Family Quality of Life Scale; Summers et al., 2005) and future studies are likely to include outcome measures associated with this multidimensional construct.

Limitations

Several limitations should be considered when interpreting the findings of the present review. First, the review was limited to the analysis of studies published in one journal. We chose to delimit the present review to *JPBI*, the research journal of APBS. The extent to which family-implemented positive behavior support studies published in other journals focused on contextual fit cannot be determined from the present review. Second, in this review, studies were identified as reporting information about family ecology if procedures were reported that focused on obtaining information

about families' needs, priorities, goals, values, strengths, resources, and supports, beyond assessment information collected to determine the function of the child's behavior. It is possible that information about a family's ecology was collected as part of a functional behavior assessment interview but not explicitly reported and, therefore, not captured in the findings from the present review.

An additional consideration with respect to the findings of the present review is that information about contextual fit indicators that was not reported in a published study does not necessarily mean researchers did not address these indicators as part of the design, implementation, or evaluation of the behavioral support intervention. Restrictions on manuscript length might have precluded researchers from including this type of information. Nonetheless, given contextual fit of behavior support interventions has been associated with intervention acceptability and effectiveness (Lucyshyn, Kayser, et al., 2002), it seems important to include this information in published reports of family-centered PBS interventions, particularly when the interventions are implemented by family members in everyday activity settings.

Contributions and Directions for Future Research

This review contributes to the growing body of literature about family-centered PBS for families of young children. Our emphasis on analyzing studies with respect to key features of contextual fit builds on the current literature to define and examine contextual fit in family-centered PBS for young children. By examining the presence of indicators related to contextual fit in the planning, implementation, and evaluation of the existing research literature in *JPBI*, we provide a baseline of reporting practices in one journal. Findings from the present review provide information on which aspects of contextual fit have been routinely considered and reported in *JPBI* and which aspects of contextual fit might be reported in future published research. Additional research might be conducted to evaluate whether findings from the present study are replicated in future reviews that include studies published in other journals.

The studies reviewed summarize the evidence published in one journal over 10 years related to achieving positive child and family outcomes by conducting behavior support interventions in natural environments in collaborative partnerships with families. Social validity data were gathered in some studies included in the present review and maintenance of outcomes were evaluated in half of the reviewed studies. Based on the findings in the present study, measuring and reporting the social validity of interventions are recommended, as is the collection of data that describe whether targeted outcomes have been maintained.

Limited information was provided in the reviewed studies related to family characteristics and ecology, including

cultural and linguistic background, and changes in family quality of life. Given these indicators of contextual fit have been identified as key components of family-centered PBS interventions for young children, we recommend researchers explicitly describe key family ecology and contextual fit indicators and characterize the specific processes and procedures they use to evaluate contextual fit (cf. Binnendyk & Lucyshyn, 2009). To help evaluate the extent to which a research study has integrated contextual fit indicators into the design of the behavior support intervention, we have developed a coding protocol that specifies and provides operational definitions for key indicators. Additional research might examine these contextual fit indicators systematically using controlled studies to examine empirically which contextual fit indicators are associated with the effectiveness and sustainability of the behavior support intervention (cf. Moes & Frea, 2000; Stiebel, 1999).

Over the past 20 years, processes associated with the design, implementation, and evaluation of PBS interventions that are technically sound have been refined. Accumulating empirical evidence and growing consensus support the premise that these interventions must also be contextually appropriate with respect to the values, skills, resources, and routines of those who will implement the intervention. Findings from the present review highlight promising evidence and areas for continued improvements in research and reporting practices in family-centered PBS for young children.

Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The authors received no financial support for the research, authorship, and/or publication of this article.

References

- *References marked with an asterisk indicate studies included in the literature review.
- Albin, R. W., Lucyshyn, J. M., Horner, R. H., & Flannery, B. (1996). Contextual fit for behavioral supports plans: A model for goodness of fit. In L. K. Koegel, R. L. Koegel, & G. Dunlap (Eds.), *Positive behavioral support: Including people with difficult behavior in the community* (pp. 81–98). Baltimore, MD: Brookes.
- Bailey, D. B., Golden, R. N., Roberts, J., & Ford, A. (2007). Maternal depression and developmental disability: Research critique. *Mental Retardation and Developmental Disabilities Research Reviews*, *13*, 321–329.
- Bailey, D. B., Simeonsson, R. J., Winton, P. J., Huntington, G. S., Comfort, M., Isbell, P., . . . Helm, J. M. (1986). Family-focused intervention: A functional model for planning, implementing, and evaluating individualized family services in early

- intervention. *Journal for the Division for Early Childhood*, 10, 156–171.
- *Baker-Ericzen, M. J., Stahmer, A. C., & Burns, A. (2007). Child demographics associated with outcomes in a community-based pivotal response training program. *Journal of Positive Behavior Interventions*, 9, 52–60.
- Benazzi, L., Horner, R. H., & Good, R. H. (2006). Effects of behavior support team composition on the technical adequacy and contextual fit of behavior support plans. *Journal of Special Education*, 40, 160–170.
- *Binnendyk, L., & Lucyshyn, J. M. (2009). A family-centered positive behavior support approach to the amelioration of food refusal behavior. *Journal of Positive Behavior Support*, 11, 47–62.
- Buschbacher, P. W., & Fox, L. (2003). Understanding and intervening with the challenging behavior of young children with Autism Spectrum Disorder. *Language, Speech, and Hearing Services in Schools*, 34, 217–227.
- Carr, E. G., Dunlap, G., Horner, R. H., Koegel, R. L., Turnbull, A. P., Sailor, W., . . . Fox, L. (2002). Positive behavior support: Evolution of an applied science. *Journal of Positive Behavior Interventions*, 4, 4–16.
- *Charlop-Christy, M. H., & Carpenter, M. H. (2000). Modified incidental teaching sessions: A procedure for parents to increase spontaneous speech in their children with autism. *Journal of Positive Behavior Interventions*, 2, 98–112.
- Chen, D., Downing, J. E., & Peckham-Hardin, K. D. (2002). Working with families of diverse cultural and linguistic backgrounds. In J. Lucyshyn, G. Dunlap, & R. Albin (Eds.), *Families and positive behavior supports: Addressing problem behavior in family contexts* (pp. 133–154). Baltimore, MD: Brookes.
- Clarke, S., Worcester, J., Dunlap, G., Murray, M., & Bradley-Klug, K. (2002). Using multiple measures to evaluate positive behavior support: A case example. *Journal of Positive Behavior Support*, 4, 131–145.
- Conroy, M. A., Dunlap, G., Clarke, S., & Alter, P. J. (2005). A descriptive analysis of positive behavioral intervention research with young children with challenging behavior. *Topics in Early Childhood and Special Education*, 25, 157–166.
- Crone, D. A., & Horner, R. H. (2003). *Building positive behavior support systems in schools: Functional behavior assessment*. New York, NY: Guilford.
- Dunlap, G., Carr, E. G., Horner, R. H., Zarcone, J. R., & Schwartz, I. (2008). Positive behavior support and applied behavior analysis: A familial alliance. *Behavior Modification*, 32, 682–698.
- *Dunlap, G., & Fox, L. (1999). A demonstration of behavioral support for young children with autism. *Journal of Positive Behavior Interventions*, 1, 77–87.
- Dunlap, G., Newton, J. S., Fox, L., Benito, N., & Vaughn, B. (2001). Family involvement in functional assessment and positive behavior support. *Focus on Autism and Other Developmental Disabilities*, 16, 215–221.
- Dunlap, G., Strain, P. S., Fox, L., Carta, J. J., Conroy, M., Smith, B. J., . . . Sowell, C. (2006). Prevention and intervention with young children's challenging behavior: A summary of current knowledge. *Behavioral Disorders*, 32, 29–45.
- *Durand, V. M. (2002). Treating sleep terrors in children with autism. *Journal of Positive Behavior Interventions*, 4, 66–72.
- *Fox, L., & Smith, B. J. (2007, January). *Promoting social, emotional, and behavioral outcomes of young children served under IDEA* (Policy Brief). Technical Assistance Center on Social Emotional Interventions for Young Children. Retrieved from <http://www.challengingbehavior.org/do/resources/briefs.htm>
- Fox, L., Vaughn, B. J., Wyatte, M. L., & Dunlap, G. (2002). We can't expect other people to understand: Family perspectives on problem behavior. *Exceptional Children*, 68, 437–450.
- *Frea, W. D., & Hepburn, S. L. (1999). Teaching parents of children with autism to perform functional assessments to plan interventions for extremely disruptive behaviors. *Journal of Positive Behavior Interventions*, 1, 112–122.
- *Galensky, T. L., Miltenberger, R. G., Stricker, J. M., & Garlinghouse, M. A. (2001). Functional assessment and treatment of mealtime behavior problems. *Journal of Positive Behavior Interventions*, 3, 211–224.
- Gallimore, R., Goldenberg, C. N., & Weisner, T. S. (1993). The social construction and subjective reality of activity settings: Implications for community psychology. *American Journal of Community Psychology*, 21, 537–559.
- Hieneman, M., & Dunlap, G. (2000). Factors affecting the outcomes of community-based behavioral support: Identification and description of factor categories. *Journal of Positive Behavior Interventions*, 2, 161–169.
- Horner, R. H., Carr, E. G., Halle, J., McGee, G., Odom, S., & Wolery, M. (2005). The use of single subject research to identify evidence based practice in special education. *Exceptional Children*, 71, 165–179.
- Huffman, L. C., Mehlinger, S. L., & Kerivan, A. S. (2001). Off to a good start: Research on the risk factors for early school problems. Paper No. 1. Retrieved from http://www.eric.ed.gov/ERICWebPortal/custom/portlets/recordDetails/detailmini.jsp?_nfpb=true&_ERICExtSearch_SearchValue_0=ED476378&ERICExtSearch_SearchType_0=no&accno=ED476378
- *Hupp, S. D. A., & Reitman, D. (2000). Parent-assisted modification of pivotal social skills for a child diagnosed with PDD: A clinical replication. *Journal of Positive Behavior Interventions*, 2, 183–188.
- *Ingersoll, B., & Dvortcsak, A. (2006). Including parent training in the early childhood special education curriculum for children with autism spectrum disorders. *Journal of Positive Behavior Interventions*, 8, 79–87.
- Kelly, M. L., Heffer, R. W., Gresham, F. M., & Elliot, S. N. (1997). Development of a modified treatment evaluation inventory. *Journal of Psychopathology and Behavioral Assessment*, 11, 235–247.

- Kennedy, C. H. (1992). Trends in the measurement of social validity. *Behavior Analyst, 15*, 147–156.
- *Koegel, R. L., Symon, J. B., & Koegel, L. (2002). Parent education for families of children with autism living in geographically distant areas. *Journal of Positive Behavior Interventions, 4*, 88–103.
- *Lorimer, P. A., Simpson, R. L., Smith-Myles, B., & Ganz, J. B. (2002). The use of social stories as a preventative behavioral intervention in a home setting with a child with autism. *Journal of Positive Behavior Interventions, 4*, 53–60.
- *Lucyshyn, J. M., Albin, R. W., Horner, R. H., Mann, J. C., Mann, J. A., & Wadsworth, G. (2007). Family implementation of positive behavior support for a child with autism: Longitudinal, single-case, experimental, and descriptive replication and extension. *Journal of Positive Behavior Interventions, 9*, 131–150.
- Lucyshyn, J. M., Horner, R., Dunlap, G., Albin, R. W., & Ben, K. R. (2002). Positive behavior support with families. In J. Lucyshyn, G. Dunlap, & R. Albin (Eds.), *Families and positive behavior supports: Addressing problem behavior in family contexts* (pp. 3–44). Baltimore, MD: Brookes.
- Lucyshyn, J. M., Kayser, A. T., Irvin, L. K., & Blumberg, R. E. (2002). Functional assessment and positive behavior support at home with families. In J. Lucyshyn, G. Dunlap, & R. Albin (Eds.), *Families and positive behavior supports: Addressing problem behavior in family contexts* (pp. 97–132). Baltimore, MD: Brookes.
- Mahoney, G., Kaiser, G., Girolametto, L., MacDonald, J., Robinson, C., Safford, P., & Spiker, D. (1999). Parent education in early intervention: A call for a renewed focus. *Topics in Early Childhood in Special Education, 19*, 131–140.
- *McCartney, E. J., Anderson, C. M., English, C. L., & Horner, R. H. (2005). Effect of brief clinic-based training on the ability of caregivers to implement escape extinction. *Journal of Positive Behavior Interventions, 7*, 18–32.
- McWilliam, R. A., Snyder, P., Harbin, G. L., Porter, P., & Munn, D. (2000). Professionals' and families' perceptions of family-centered practices in infant-toddler services. *Early Education & Development, 11*, 519–537.
- *Moes, D. R., & Frea, W. D. (2000). Using family context to inform intervention planning for the treatment of a child with autism. *Journal of Positive Behavior Interventions, 2*, 40–46.
- Park, J., Hoffman, L., Marquis, J., Turnbull, A., Poston, D., Mannan, H., . . . Nelson, L. (2003). Toward assessing family outcomes of service delivery: Validation of a family quality of life survey. *Journal of Intellectual Disability Research, 47*, 367–384.
- Perry, D. F., Dunne, C. M., McFadden, L., & Campbell, D. (2008). Reducing the risk for preschool expulsion: Mental health consultation for young children with challenging behaviors. *Journal of Child and Family Studies, 17*, 44–54.
- Powell, D., Dunlap, G., & Fox, L. (2006). Prevention and intervention for the challenging behaviors of toddlers and preschoolers. *Infants and Young Children, 19*, 25–35.
- Santelli, B., Turnbull, A., & Higgins, C. (1996). Parent to parent support and health care. *Pediatric Nursing, 23*, 303–306.
- Singer, G. H., Goldberg-Hamblin, S. E., Peckham-Hardin, K. D., Barry, L., & Santarelli, G. E. (2002). Toward a synthesis of family support practices and positive behavior support. In J. Lucyshyn, G. Dunlap, & R. Albin (Eds.), *Families and positive behavior supports: Addressing problem behavior in family contexts* (pp. 155–185). Baltimore, MD: Brookes.
- Singer, G. H., Marquis, J., Powers, L. K., Blanchard, L., Devenere, N., Santelli, B., . . . Sharp, M. (1999). A multi-site evaluation of parent-to-parent programs for parents of children with disabilities. *Journal of Early Interventions, 22*, 217–229.
- Smith-Bird, E., & Turnbull, A. P. (2005). Linking positive behavior support to family-quality of life outcomes. *Journal of Positive Behavior Interventions, 7*, 174–180.
- Sparrow, S. S., Balla, D. A., & Cicchetti, D. V. (1984). *Vineland adaptive behavior scales*. Circle Pines, MN: American Guidance Service.
- *Stahmer, A., & Gist, K. (2001). The effects of an accelerated parent education program on technique mastery and child outcome. *Journal of Positive Behavior Interventions, 3*, 75–82.
- Stichter, J., Clarke, S., & Dunlap, G. (2004). An analysis of trends regarding proactive and ecologically valid interventions in applied research. *Education and Treatment of Children, 27*, 86–104.
- *Stiebel, D. (1999). Promoting augmentative communication during daily routines: A parent problem-solving intervention. *Journal of Positive Behavior Interventions, 1*, 159–169.
- Summers, J. A., Poston, D. J., Turnbull, A. P., Marquis, J., Hoffman, L., Mannan, H., & Wang, M. (2005). Conceptualizing and measuring family quality of life. *Journal of Intellectual Disability Research, 49*, 777–783.
- *Symon, J. B. (2005). Expanding interventions for children with autism: Parents as trainers. *Journal of Positive Behavior Interventions, 7*, 159–173.
- Vaughn, B. J., Dunlap, G., Fox, L., Clarke, S., & Bucy, M. (1997). Parent-professional partnerships in behavioral support: A case of community-based interventions. *Journal of the Association for Persons with Severe Handicaps, 22*, 186–197.
- *Vaughn, B. J., Wilson, D., & Dunlap, G. (2002). Family-centered intervention to resolve problem behaviors in a fast-food restaurant. *Journal of Positive Behavior Interventions, 4*, 38–45.
- Wolf, M. M. (1978). Social validity: The case for subjective measurement or how applied behavior analysis is finding its heart. *Journal of Applied Behavior Analysis, 11*, 203–221.