A COMPARISON OF VERBALIZATION OF CHILDREN WITH BEHAVIOR PROBLEMS AND MALTREATMENT HISTORY OF MOTHERS WITH AND WITHOUT DEPRESSIVE SYMPTOMS

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Irene Brodd

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Department of Psychology
Abstract

of

A COMPARISON OF VERBALIZATION OF CHILDREN WITH BEHAVIOR PROBLEMS
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This research examined the verbalizations of clinic-referred children with a history of
maltreatment and behavior problems, specifically comparing children whose mothers did or did
not report clinical levels of depressive symptoms. Young children and their biological mothers
comprised 158 mother-child dyads selected from the UC Davis CAARE Center archival data.
Dyads were observed in a semi-structured play situation involving analogs of child-directed and
parent-directed play and clean up. There were no significant differences in the total amount of
verbalizations expressed by children of depressed and non-depressed mothers, nor did the ratio
and frequency of child positive talk, questions, and negative talk differ by maternal depression
status. Analyses of variance (ANOVAs) revealed significant child verbalization differences
across analogs indicating that children’s negative talk increased as situational stress increased,
i.e., from child-directed play to clean up. Application of the results to existing literature, study
limitations and implications for future research are discussed.

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_______________________
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Chapter 1

INTRODUCTION

Statement of the Problem

Children rely on their parents to learn to navigate the social world. From infancy, parents work to meet their children’s needs by providing nutrition, comfort, reduction of discomfort and social stimulation. As early as two to three weeks old, infants interact socially with their mothers by initiating interactions such as vocalizing while kicking out their arms and legs, and responding joyfully when mothers maintain the exchange (Bowlby, 1988). As the mother becomes attuned to her infant’s signals, she maintains longer play interactions and allows her child more opportunities to initiate (Bowlby, 1988). Based on these early interactions, infants develop attachments to their primary caregivers. Attachment has been described as “an affectionate time that one person…forms between himself and another specific one…that binds them together in space and endures over time,” (Ainsworth & Bell, 1970, p 50). Mothers’ sensitivity to her child’s verbal and nonverbal cues is a vital aspect of maintaining a healthy attachment, which subsequently supports healthy social development in the child.

While healthy mother-child interactions provide a foundation for children to learn and develop, risk factors such as maltreatment, maternal mental health, and child behavior problems can interfere with appropriate social development. In 2011 there were 676,569 child victims of abuse and neglect reported to Child Protective Services (CPS). Roughly broken down, approximately 78.5% of children experienced neglect, 17.6% physical abuse, and 9.1% sexual abuse. Children who have died as a result of abuse or neglect number about 1,545. Compared to 2007, total unique child victims (794,000) and fatalities (1,760) have decreased. While in 2007, children under the age of four made up 75.7% of the population of children who died as a result
of maltreatment this number increased to 81.6% in 2011. Children who have experienced maltreatment differ from non-maltreated children in aggression, attention deficits, negativity, demonstration of inappropriate affect, and emotional regulation (Shields & Cicchetti, 1998).

Child behavior problems as mentioned above may include internalizing problems such as emotional reactivity, anxious/depressed behavior, somatic complaints, or withdrawn behavior or externalizing problems such as attention problems, aggression non-compliance and destructiveness, and inattentive problems (Achenbach, 1991; McMahon, 1994). In addition to environmental risk factors such as exposure to substance use and inter-partner violence (IPV), behavior problems are likely to develop as a result of parenting practices such as punitive discipline, inconsistent parenting, physical aggression, spanking, and low warmth and positive involvement (Stormshak, Bierman, McMahon, & Lengua, 2000). Child behavior problems strain the parent-child relationship, have been shown to later interfere with peer relationships (Campbell, 1995; Shields & Cicchetti, 1998), and parents have reported that these problems persist from before age five into middle childhood. (Deater-Deckard, Dodge, Bates, & Pettit, 1998).

Treatment programs such as Parent-Child Interaction Therapy (PCIT) have been successful in improving child behavior problems and reducing parent stress with families at high risk for maltreatment (Timmer, Urquiza, Zebell, & McGarth, 2005). PCIT is an empirically based intervention used to evaluate and treat behavior problems in a dynamic parent-child relationship (Eyberg & Robinson, 1982). PCIT has been effective for reducing externalizing behaviors in children with behavior problems, improving the parent-child relationship, and even extending treatment to include siblings (Eyberg & Robinson, 1982). In addition to child adjustment problems that result in referral to PCIT, mothers of these children often present with mental health challenges including depression and depressive symptoms that exacerbate difficulties with parenting and especially the effective management of child behavior (Dumas, Gibson, & Albin,
1989; Cox, Puckinger, Pound, & Mills, 1987; Cummings and Davies, 1994; Lovejoy, Graczyk, O’Hare, & Neuman, 2000). Unlike anger management treatments, which focus solely on the
caregiver’s behavior, PCIT is a means by which to improve parenting skills (verbal and
behavioral) and at the same time strengthen the parent-child relationship.

Since PCIT treatment relies heavily on modifying how parents speak to their children,
clinical research primarily focuses on verbalizations of the mother. However, research that
examines the verbalizations of the child is sparse, despite the fact that the parent-child
relationship is transactional in nature, meaning that the parent and child exert mutual influence on
one another (Sameroff, 2009). Even fewer studies have examined child verbalizations in the
combined population of abuse, maternal depression and child behavior problems, which is likely
to increase risk for negative child outcomes even more. Studies in one or two of these areas have
yielded useful information and are worth mentioning. For example, Timmer et al. (2011)
examined the relationship between depressed and non-depressed mothers and their maltreated
children with behavior problems in the context of PCIT treatment. Mothers’ and children’s
emotional availability and mothers’ verbalizations were assessed. Although both groups of
children improved over the course of treatment, children of depressed mothers were more
negative and showed more severe behaviors at intake than children of non-depressed mothers.
Since children’s speech was not assessed, it is unknown if the children differed in their
verbalization by maternal depression status at intake.

Few studies of verbalizations of children of depressed parents have been identified
(Breznitz & Sherman, 1987; Radke-Yarrow et al., 1990) and these studies vary in which specific
aspects of speech are measured and how quantity of speech is recorded. In one study, Breznitz
and Sherman (1987) found that children of depressed mothers are different than children of non-
depressed mothers in how much they speak. They found specifically that children of depressed
mothers spoke significantly less during mother-child interactions during a lunchtime observation
than children of non-depressed mothers. Children referred for behavior problems such as conduct
disorder have also been found to be different in their verbalization with their mothers (Forster,
Eyberg & Burns, 1990) compared with children from a non-clinical sample. Forster et al. (1990)
found that during child-directed play, conduct disordered children asked fewer questions and used
less praise than non-clinic-referred children.

Additionally, given the negativity and severity of behavior problems of children of
depressed compared to non-depressed mothers in the context of child maltreatment (Timmer et
al., 2011), it is important to understand how mothers’ verbalizations and behaviors are related to
child verbalizations. Children with a history of maltreatment behave more negatively,
demonstrate inappropriate affect, and are more verbally assaultive toward their peers than non-
maltreated children (Shields and Cicchetti, 1998). Since children learn from interaction with their
parents, it is important to examine not only the behaviors of children referred for treatment of
behavior problems but also their verbal interaction. It is expected that children carry over the way
they interact and talk with their mothers to other important relationships, such as with teachers
and peers (Erickson, Srouge, & Egeland, 1985). Therefore, increasing our understanding of
children’s verbalizations with their mothers may result in identification of new strategies for early
intervention with at-risk children for the purpose of strengthening their social relationships and
maintaining healthy developmental trajectories. The purpose of this study is to examine child
verbalizations at intake to PCIT to determine if verbalizations of children of depressed mothers
are different from verbalizations of children of non-depressed mothers within the population of
children referred for behavior problems and maltreatment.

Review of the Literature

Maternal Depression: Prevalence and Symptoms

Maternal psychopathology is considered to be an important social environmental risk
factor to which children are exposed. Recent nationwide data from the Center for Disease Control
from 2006 to 2008 estimates 9.1 percent of adults 18 and older experience some form of depression, with approximately 10.2\% females classified as experiencing “major” or “other forms of depression” (Center for Disease Control, 2010). Compared to the national average, women of childbearing age (18-44) have a higher prevalence of depression (13.9\%); thus, it is important to understand how women are affected by depression in their maternal role. For example, maternal depression has been linked to parenting stress (Hops et al., 1987) and feelings of incompetence or ineffectiveness as a parent (Webster-Stratton & Hammond, 1988). These effects may be seen in mothers with subclinical levels of depression as well. Mothers may experience one or more symptoms of depression including low energy, dysphoria, preoccupation with negativity, irritability, preoccupation with self, hopelessness, emotional distance, poor communication, and propensity to anger and explosive reactions (Spector, 2006; Bayer, Sanson, & Hemphill, 2006; Middleton, Scott, & Renk, 2009; Kane & Garber, 2009). Within the parent-child relationship, depressive symptoms reduce the effectiveness of child management while contributing to child behavior problems (Cummings and Davies, 1994; Lovejoy et al. 2000).

**Depression and Interacting with Others**

Depressed mothers are suspected to interact similarly with their children, other family members and strangers, particularly in their patterns of verbal communication. Spouses living with a depressed partner have reported a strain on the relationship and specifically feel frustrated with the depressed person’s fatigue, distress, feelings of worthlessness, and negativity (Coyne et al., 1987). Additionally, a study examining how participants felt, acted, and behaved after speaking with a depressed versus a non-depressed stranger, found that participants who spoke with a depressed person exhibited more negative verbal and non-verbal behavior, spoke less, and made fewer statements that maintained the conversation positively (Gotlib & Robinson, 1982). While the participants who spoke to a depressed stranger did not perceive a reduction in their mood, their interaction contained more negative content maintenance statements such as
describing self or an event in a negative manner. It is likely, given the pervasive nature of depression, that this same style and maintenance of conversation occurs between depressed mothers and their children. Mothers are suspected to speak to their children with greater negativity, less positivity, with slower speech, and with fewer statements.

**Maternal Depression: Exposure and Impact**

Lovejoy et al. (2000), Cummings and Davies (1994), and Cox et al., (1987) provide evidence that depression has a significant impact on the quality of the mother-child relationship. According to Cox et al. (1987), maternal depression exposes the child to depressive symptoms and less effective parenting. Symptomology such as lethargy, preoccupation with negativity and self, as well as worry and hopelessness may render the mother ineffective to attend to her child’s needs (Cummings and Davies, 1994). Additionally, negativity, irritability, and hostility that are common in depression expose the child to negative maternal affect. Cox et al. (1987) observed that depressed mothers had a greater tendency toward becoming passive or checked out and asked fewer questions during interaction with their children than non-depressed mothers. Depressed mothers were also less responsive to the child’s cues and, when the mother picked up cues, children were less able to follow the mother’s lead, which resulted in briefer interactions as compared with non-depressed dyads. In response to depressed mothers’ reduced sensitivity, children modified their behaviors in order to get their needs met and attempted to gain attention by escalating from requests to high intensity demands, and eventually resorted to only demands as a means of securing maternal attention (Cox et al., 1987).

**Mother and Child: The Transactional Relationship**

The effects of parent-child interaction on the overall health and quality of the relationship can be seen from infancy onward. Seminal work by Bowlby (e.g., 1969, 1976, 1982) and Ainsworth et al. (1978) first demonstrated that mother-infant interactions promote or inhibit attachment based on the mother’s availability to her infant. More recent research has shown, for
example, that depressed mothers of four-month-old infants are less responsive, show fewer positive and more negative facial expressions, and speak less often using infant-directed speech (Kaplan, Bachorowski, & Zarleno-Strouse, 1999). During interactions with their depressed mother, young infants avert their gaze less often, suggesting there is less interactive information to take in so they did not need to look away in order to process it (Field, Diego, & Hernandez-Reif, 2009). These studies suggest that from infancy, because of mothers’ mental health, depressed mothers expose their children to less enriched verbal interaction, which in turn dampens the quality and quantity of their children’s interactive cues.

The effects of depression on the transactional quality of the parent-child relationship are not fully understood beyond infancy into toddlerhood and early childhood. It has been observed, however, that children of depressed mothers have a greater occurrence of behavior problems and negativity (Lovejoy et al., 1984; Cummings & Davies, 1994; Downey & Coyne, 1990, Timmer et al., 2011). This may be a result of lax or over reactive discipline in order to gain compliance (Cummings and Davies, 1994; Cox et al., 1987) and reliance on these techniques may be related to depressive symptoms such as low energy levels, irritability, or feelings of inadequacy to handle the problem (Weissman and Paykel, 1974; Webster-Stratton & Hammond, 1988). Lax discipline appears to be related to a depressed mother’s poor ability to recognize and characterize her child’s negative behavior (Sansbury & Wahler, 1992). When watching a video of a previous interaction with her child, for example, lax mothers noted just over half of the instances of problem behaviors that were identified by a professional (Sansbury & Wahler, 1992). In contrast, mothers who were coercive or over reactive were able to recognize more instances of their child’s aversive behaviors, but rather than labeling them in an objective way, e.g., “I told him to say where he was,” their labels were diffuse and often unrelated to observable behavior, e.g., “I was already mad at him” (Sansbury & Wahler, 1992, pp 582-583). Mothers’ inaccurate interpretation of events was more likely to occur with diffuse labeling and may be related to depressed mothers’
tendency to interpret events as negative. This skewed assessment of the situation may also interfere with depressed mothers’ effective use of limit setting and may contribute to lax parenting.

In each developmental phase from infancy to toddlerhood and beyond, Bandura’s social learning theory has demonstrated that children model behavior they have seen rewarded or go unpunished in other people (Bandura, Ross, & Ross, 1961). Thus, children of depressed mothers may exhibit behavior and compliance problems because of maternal modeling of depressed and negative behavior (Breznitz & Sherman, 1987; Cox et al., 1987). As a social partner, depressed mothers model greater negativity and are inconsistent in meeting their child’s social interaction needs (Goodman & Gotlib, 1999). Additionally, their children also observe mothers’ angry and explosive reactions (Kane & Garber, 2009). Therefore, children may behave in the negative, angry, explosive manner their mothers have modeled to them.

**Parent-Child Interaction and Verbalization with Depressed and Non-Depressed Mothers**

With infants as young as three-to-four-months old, depressed mothers have been observed to have significantly slower and less varied child-directed speech compared to non-depressed mothers (Bettes, 1988). Breznitz and Sherman (1987), observed similar patterns of child unresponsiveness, noting toddlers of depressed mothers spoke less with their mothers during an unstructured, low stress interaction of eating lunch. In fact, the number of child vocalizations for the 32-month-old children was the best predictor of the mother’s depressed status (Breznitz & Sherman, 1987).

In a study examining conversational exchange between toddlers and their well or depressed mothers, the use of language was examined for both mothers and children (Radke-Yarrow, Belmont, Nottelmann, & Bottomly, 1990). The study evaluated semi-structured situations of increasing stress from eating lunch together (low stress) to mother leaving and returning (increased stress), free play, and waiting for a medical examination to the examination
itself (highest stress). Mother’s verbalizations were examined for content, focus of content, tone, and amount of talk. Mothers’ spoke positively about content related to competence in using or manipulating objects and prosocial behavior and were more negative about child autonomy and self-control. While mothers with and without depression were similar in this regard, depressed mothers spoke more negatively about her own and her child’s emotion. Further, when examining children’s verbalizations and their mother’s responses, differences were evident for depressed mothers: their availability to their children and response to the spoken content was disconnected (e.g. child: I scare; mother: Here you go look. Ha? Surprise; child: I scare). Additionally, a significant positive correlation was observed between child negative comments with mother negative comments. The results of this study suggest that depressed mothers offer their children inconsistent verbal modeling and support in addition to negative communication.

**Parent-Child Interaction and Verbalization with Children with Behavior Problems**

In another study of child verbalization, Forster, Eyberg, and Burns (1990) coded verbal behavior of 4-8 year old conduct problem children of depressed mothers using the Dyadic Parent Interaction Coding System (DPICS) during Child-Directed Interaction (CDI) phase of Parent-Child Interaction Therapy (PCIT). The sample included 40 children. There were 10 boys and 10 girls in each of the conduct problem and control groups. The study used the Eyberg Child Behavior Inventory (ECBI) to measure parent report of problem intensity and severity and parents in the conduct problem group reported higher intensity and severity of their child’s problems than the comparison group. Results pertaining to their verbal behaviors showed that conduct disordered children asked fewer questions ($M = 2.75, SD = 2.65$) than non-clinic referred children ($M = 5.00, SD = 2.92$). Additionally, conduct problem children and used less praise talk ($M = .10, SD = .31$) than non-clinic referred children ($M = .55, SD = .76$). There was no significant difference in the verbalization of criticisms ($M = .60, SD = .82$ versus $M = .40, SD = .75$) or commands ($M = 2.40, SD = 2.82$ versus $M = 2.45, SD = 1.67$) for conduct problem and non-clinic
referred children respectively. (Forster et al, 1990). The researchers suggested the null findings regarding child negativity and commands could be explained by the situational differences in PCIT analogs. In child-directed play, the first of three analogs of PCIT, child may have been more positive since parents were making few demands. The researchers suggested the other two situations in the PCIT analog sequence should be examined for potential differences since parents are asked to make more demands of their child.

In another study examining child talk, a small sample study examined the treatment effects of PCIT on child verbalization changes of 20 behavior problem preschool boys (Mee, 1991). Mother-child dyads completed PCIT and verbalizations were analyzed for child-directed, parent-directed and clean up situations at pre-treatment and post-treatment. Parents reported high intensity and severity of their child’s problems compared to typically developing preschoolers. Codes were collapsed into five main categories: Negative child talk, commands, questions, play talk, and praise. Child verbalization was coded for negative child talk, which included smart talk, critical statements, whine, and yell responses. Child commands included directing the mother in a direct or indirect manner (e.g., how about we… vs. give me that). Questions included children’s inquiries or reflecting the mother’s statement in the form of a question. Play talk was verbalization by the child for a character during play and praises were a positive evaluation of self, the parent, or the activity. Analysis of variance did not find a significant difference by situation for children’s negative talk; however, inspection of mean frequencies suggests a possible trend toward an increase in negative talk. In contrast, statistically significant results showed that children issued more commands and play talk in child directed play than in parent directed or clean up. The researcher expected that over the course of treatment, as mothers developed more appropriate verbalization styles, their children would also improve in their verbal expression. It was expected that child negative verbalizations would decrease and children would increase in pro-social talk. Child negative talk decreased over the course of treatment but there
were no differences between play analogs in post-treatment analysis. The Mee et al. (1991) study findings demonstrated that children with behavior problems decreased in negative verbalization from pre-treatment to post-treatment. However, the findings did not support their expectation that children’s negative verbalizations would significantly increase as parents gained directive control. This may have been related to the small sample size and a lack of power, suggesting that situational differences in child verbalization should be examined with a larger and more representative sample.

**Mother and Child Verbalization: Gaps in the Literature**

While general interaction qualities between depressed mothers and their children have been identified, three particularly important empirical points have not been explored sufficiently: verbalization of behavior problem children of depressed mothers within a maltreatment population, measures used to record observed mother-child interaction, and situational differences that potentially affect verbal interactions. The works of Bettes (1988) and Breznitz and Sherman (1987) established some empirical understanding about the verbal interaction between depressed mothers and their children as these mothers speak less to their children and their children speak less to them. Still further research is needed to extend our understanding to other specific populations including depressed mothers who have children with abuse and behavior problem histories. Further work in observational measurement of child interactional behaviors in these populations is also needed. Studies typically record maternal behavior and verbalization, while children are observed as positive or negative and compliant or non-compliant but without quantifying their verbal responsiveness to any great extent (Dumas et al, 1989; Cox et al, 1987). Although it has been observed that children of depressed mothers generally speak less (Breznitz & Sherman, 1987), it is important to further understand what specific types of verbalizations are affected and if these vary between children with and without behavior problems. Finally, it is expected that verbalizations of behavior problem children of depressed mothers may be different
based on the situations in which the mother-child interact. For example, children are expected to verbalize differently when they are leading play than when their mother is leading. It is important to extend the work of Forster et al., (1990) to look at possible situational effects on child verbalizations beyond child-directed interaction (CDI), where the child is expected to be more verbal and expressive since the child is given an opportunity to pick the activity and lead the interaction. Specifically, in parent-directed interaction (PDI) and clean up situations, the child is expected to follow mother’s game and directions to complete a chore. PDI and clean up situations are typically more stressful for the dyad and may result in different verbalization patterns compared to child-directed interaction. Further differences may be present when comparing depressed and non-depressed dyads. For example, depressed mothers may have difficulty verbalizing their intent to change the activity and their children may find it difficult to verbalize their reactions to such a change, resulting in more child negativity.

To date, no studies have examined verbalizations of behavior problem children of depressed mothers within a maltreatment population. Research supports that children tend to mirror and imitate their parent’s behavior and speech (Breznitz & Sherman, 1987; Hummel & Gross, 2001). Additionally, depressed mothers of young children experience added strain as a result of child behavior problems (Lovejoy et al., 1984; Cummings & Davies, 1987; Field, Diego, & Hernandez-Reif, 2009; Downey & Coyne, 1990; Elgar et al., 2004). Symptoms common to depression, such as preoccupation with negativity, may exacerbate the difficulty mothers experience with child behavior problems (Cox et al., 1987), even though the proportion of child-initiated conflict has not been found to be significantly different in depressed versus non-depressed mother-child dyads (Caughey, Huang, & Lima, 2009).
Purpose of the Study

To fill some of the aforementioned gaps in the literature, this study seeks to understand if, within the population of children who have experienced maltreatment and have behavior problems, there are significant differences in verbalizations between children who have mothers who assent to depressive symptoms compared to mothers who do not. This study aims to further the current research on verbal interactions by examining child verbalization in more and less stressful interactional circumstances. Differences in child history such as pre- and/or post-natal exposure to substance use, exposure to inter-partner violence, neglect, and abuse (sexual and physical) were examined for potential group differences in addition to the presence of maternal depression.

Hypotheses

Within the population of children with a history of maltreatment who have been clinic-referred for behavior problems, it is expected that children of depressed mothers will verbalize less in each phase of semi-structured play interaction than children of non-depressed mothers (Hypothesis 1). It is expected that children of depressed mothers will ask fewer questions and have a smaller proportion of questions to total talk than children of non-depressed mothers across situations of PCIT (Hypothesis 2). It is also expected that children of depressed mothers will have fewer positive verbalizations, in frequency and in proportion to total speech, than children of non-depressed mothers across situation of PCIT (Hypothesis 3). Lastly, it is expected that children of depressed mothers will issue a higher frequency of negative verbalizations and have a higher proportion of negative verbalizations to total talk than children of non-depressed mothers across each phase of PCIT (Hypothesis 4).
Chapter 2

METHODS

Participants

Participants in the study included 159 mother-child dyads selected from a university-affiliated treatment center for child maltreatment in Northern California. Children were referred for the treatment of behavior problems by their mothers, Child Protective Services (CPS) or pediatricians. Participants for the study were selected if a mother-completed Brief Symptom Inventory (BSI) and video recorded initial parent-child interaction were available in the database.

The sample of 159 mother-child dyads included children of approximately preschool age ($M = 4.70, SD = 1.39$). Mothers were on average in their late twenties ($M = 28.85, SD = 6.88, N = 158$). As a sample, mothers graduated or completed some high school education ($M = 11.66, SD = 1.92, N = 151$). Slightly more than half of the total sample of mothers and children were Caucasian, 52.2% and 54.1% respectively. More than half of the children in the sample were exposed to neglect (59.7%) or inter-partner violence IPV (54.4%). The sample consisted of almost two-thirds of the children being raised by a single mother (67.9%) and 63.5% of the children having been in foster care (see Table 1).
Table 1

*Sample Descriptive Statistics (N = 159)*

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex of child (% male)</td>
<td>59.7</td>
</tr>
<tr>
<td>Age of child (in years)</td>
<td>4.7 (1.4)</td>
</tr>
<tr>
<td>Child ethnicity:</td>
<td></td>
</tr>
<tr>
<td>% Caucasian</td>
<td>52.2</td>
</tr>
<tr>
<td>% African American</td>
<td>21.4</td>
</tr>
<tr>
<td>% Latino/a</td>
<td>20.8</td>
</tr>
<tr>
<td>% Other</td>
<td>5.7</td>
</tr>
<tr>
<td>% of children with physical abuse history</td>
<td>44.0</td>
</tr>
<tr>
<td>% of children with sexual abuse history</td>
<td>10.8</td>
</tr>
<tr>
<td>% of children with neglect history</td>
<td>59.7</td>
</tr>
<tr>
<td>% of inter-parental violence history</td>
<td>54.4</td>
</tr>
<tr>
<td>% of children with prenatal exposure to AOD*</td>
<td>45.9</td>
</tr>
<tr>
<td>% of children ever in foster care</td>
<td>63.5</td>
</tr>
<tr>
<td>% of mothers with single marital status</td>
<td>67.9</td>
</tr>
<tr>
<td>% of mothers with high school graduation or less</td>
<td>11.7</td>
</tr>
<tr>
<td>Characteristics</td>
<td>Sample</td>
</tr>
<tr>
<td>-----------------------------------------</td>
<td>--------</td>
</tr>
<tr>
<td>Mothers’ ethnicity:</td>
<td></td>
</tr>
<tr>
<td>% Caucasian</td>
<td>54.1</td>
</tr>
<tr>
<td>% African American</td>
<td>17.6</td>
</tr>
<tr>
<td>% Latino/a</td>
<td>18.9</td>
</tr>
<tr>
<td>% Other</td>
<td>9.4</td>
</tr>
<tr>
<td>Age of mother (in years)</td>
<td>28.9 (6.9)</td>
</tr>
<tr>
<td>% of mother with past mental health diagnosis</td>
<td>21.7</td>
</tr>
</tbody>
</table>

Note. *AOD- Alcohol and Drug*

This study used archival data for children and parents who were part of a larger sample of children referred for behavior problems and their parents who received PCIT. Consent to participate in the study was obtained at enrollment in therapy. Families who agreed to participate in the study were not compensated financially. Children may have entered treatment with more than one caregiver but only maternal data was examined. Upon participation in PCIT treatment, families completed an intake packet containing the following forms: the family life questionnaire, Child Behavior Checklist (CBCL), Eyberg Child Behavior Inventory (ECBI), Parenting Stress Index (PSI), Brief Symptom Inventory (BSI), Trauma Symptom Checklist for Young Children (TSCYC). All mother-child dyads participating in treatment that completed initial intake packet and Dyadic Parent-Child Interaction Coding System (DPICS) recordings were eligible for this study. Only the BSI mother-report form was used for analysis. The University of California, Davis IRB approved the consent form and all participants gave informed consent to participate in research.
Materials

Brief Symptom Inventory (BSI)

A reduced version of the Symptom Checklist-90 (SCL-90; Derogatis, 1977), the 53-item BSI assesses nine symptom dimensions including a 6-item scale for depression and a 6-item scale for anxiety. Responses to items range from 0-4, "not at all" to "extremely". Although the scale is administered and scored in its entirety, for this study, particular focus is assigned to the depression scale, which demonstrated exemplary Cronbach’s alpha of .85 for internal consistency and .84 for test-retest over 2 weeks (Derogatis, 1993). Overall, the scale has shown convergent validity with the SCL-90 and the MMPI (Derogatis, 1993). Separate sub-scores demonstrate discriminant validity for depression. Since this study does not seek to reduce depressive symptoms, statistical regression is not a basis of concern. Mothers-child dyads were grouped for analysis on the basis of maternal depressive symptom ratings in which a clinical level of $T > 60$ was used as the cut-off score for the maternal depression grouping as per the scoring manual (Derogatis, 1993).

Family Life Questionnaire

Demographics for the caregiver, child, and family were completed providing ages, gender, socioeconomic status, religious affiliation, physical limitations, education, and living situation (Appendix A).

File Review

Each child’s maltreatment history was assessed through maternal report and substantiated by court records, CPS reports, and therapist notes. Data were coded for presence or absence of child physical abuse, sexual abuse, neglect, and inter-parental violence history (IPV). In cases where maltreatment seemed possible but was unsubstantiated, suspected abuse was recorded. For the purpose of this study, children with suspected or reported maltreatment were classified as having experienced maltreatment. Prenatal exposure to alcohol or drug was examined as exposure
or potential exposure to drugs such as marijuana, THC, methamphetamines, etc. or alcohol and reported as presence or absence of prenatal exposure to alcohol or drug. Suspected exposure was reported if mother assented to use for a time greater than the child’s age (e.g. she had been using for the past 10 years and the child was four years old at intake.) Additionally, presence or absence of child placement in foster care was recorded.

**Dyadic Parent–Child Interaction Coding System (D-PICS-II)**

The Eyberg, Bessemer, Newcomb, Edwards and Robinson (1994) coding system was used to label the verbalizations of mothers and children. The D-PICS-II has 52 codes for behaviors, verbalizations, and vocalizations, and this study selected specific verbalizations to code. Children were coded for praise (labeled and unlabeled), descriptions (behavior and information), and reflective statements, negative talk, commands (direct and indirect) and questions and acknowledgements.

Child praise was coded as a positive evaluation of the mother’s behavior, response, or product the mother or mother and child made (e.g., a block structure or nicely drawn picture). Labeled praises contain information specific to what the child was praising (e.g., we build a great tower) while unlabeled praises were just positive speech (e.g., good job). Information descriptions are defined as verbalizations that give information about the environment or something occurring in the play (e.g., that’s a blue crayon; A, B, C…). Behavior descriptions (e.g., you are building a tall tower) described the mother’s behavior or the child’s own behavior (e.g., I squished the play-doh) during the play interaction. Reflective statements are coded when the child repeats back the mother’s verbalizations.

Child direct commands (e.g., please give me that) and indirect commands (e.g., how about we make a tower) are a way children try to lead in an activity. Questions (e.g., what color is this block?) are verbal inquiries that request an answer but not a behavior. Negative talk is a critical or negative evaluation of the mother or a product of the mother’s work (e.g., that’s not how you
draw cat) and communicates disapproval. Child negative talk communicates disagreement with the mother’s statement or command, argument, contradiction or an unwillingness to comply.

Child verbalizations were collapsed into four categories for analysis. Child negative included negative talk and direct and indirect commands. Questions included the children reflective and original questions. Positive talk included labeled and unlabeled praise, information and behavior descriptions.

**Procedures**

During the initial observational session, therapists informed parents of the instructions for special playtime. The initial observational therapy session followed intake and consent procedures and took place at a university-affiliated treatment center Sacramento, California. Each parent and child dyad was escorted to a playroom, which was set up with several age appropriate toys at a table. The parent was given a bug-in-the-ear FM transmitter through which the therapist gave instructions. After giving the parent instructions the therapist left the room and conducted the remainder of the session from behind a one-way mirror. All sessions were recorded onto videotape or DVD for purposes of coding and archiving.

The observations were designed to elicit parent-child interaction during different phases of play and consist of three analogs of five minutes each that represent increasing stress on the parent-child relationship. In Child-directed interaction (CDI), parents were observed as they responded to their child’s lead in play. In Parent-directed interaction (PDI), parents were instructed to engage their child in a new activity and get their child to follow their lead. Finally, parents were asked to have their child clean up the toys and put them away with the remainder of the phase for unstructured parent-child talk (CU). This observational method, developed by Shelia Eyberg, examines parent response to child lead, child response to parent lead, and child response to compliance request (Eyberg, Nelson, Duke, & Boggs, 2005). Instructions for each set are given followed by a 5-minute observation. Instructions are as follows:
Child-directed Interaction: “In this situation, please tell (child's name) that s/he may play with whatever he/she chooses. Let her/him choose any activity she/he wishes. You just follow her/his lead and play along with her/him. Directions for the second situation, Parent-Directed interaction, are: ‘That was fine. Please do not clean up the toys at this time. Now we’ll switch to the second situation. Tell (child's name) that it is your turn to choose the game. You may choose any activity. Keep him/her playing with you according to your rules.’ Directions for third situation, Clean Up, are: ‘That was fine. Now please tell (child’s name) that it is time to leave the playroom and the toys must be put away. Make sure you have him/her put the toys away by him/herself. Have him/her put all the toys in their containers and all the containers in the toy box’ (Eyberg et al., 2005, p 16).

Observational Data Coding

Coders were graduate and undergraduate students in psychology who received extensive training in DPICS coding and procedures. Coding procedures, including priority order, decision rules, and two-second rule, were followed as per the DPICS manual (Eyberg et al., 2005, p 20). Trained coders achieved mastery to collect data when 85% of their codes matched those of a master coder. Videos were viewed and coded individually by reliable coders and each segment was viewed twice. Frequencies of verbalizations were tallied and totaled to create individual categories of acknowledgements, labeled praise, unlabeled praise, information description, reflection, behavior description, question, reflective questions, and negative talk. Frequencies for commands were tallied as indirect and direct command with subsections of comply, non-comply and no opportunity to comply. Ten percent of the videos randomly selected from 159 dyads that met the study criteria were coded for reliability. Intra-class correlation coefficients were as follows: positive talk CDI, $r = .53$; positive talk PDI, $r = .77$; positive talk CU, $r = .85$; negative talk CDI, $r = .69$; negative talk PDI, $r = .90$; negative talk CU, $r = .98$; questions CDI, $r = .94$;
questions PDI, \( r = .94 \); questions CU, \( r = .88 \); total talk CDI, \( r = .90 \), total talk PDI, \( r = .96 \), total talk CU, \( r = .95 \) indicated adequate reliability with the exception of low reliability for CDI categories.

**Collapsed child verbalization categories.** Child verbalization codes were combined to create positive, negative, and question categories. Categories as described above were tallied for each verbalization then combined for positive talk. Child information descriptions, reflections, behavior descriptions, and labeled and unlabeled praises were considered neutral and positive verbal, combined to create child positive talk. These were recognized as verbalizations which maintained mother-child interaction and were beneficial for the dyad’s positive interaction. Child questions and reflective questions were collapsed into a question category. Finally, child negative talk was composed of negative verbalizations, direct and indirect commands. Categories as described above were summed in SPSS to create three collapsed categories of positive verbalizations, negative verbalizations and questions.
Chapter 3

RESULTS

Preliminary and Descriptive Analyses

Observation data were collected for 159 randomly selected dyads that met minimum requirements of an initial videotaped mother-child interaction and a complete mother-reported BSI form. During the data cleaning phase of the study, one case was found to have missing child verbalizations data, so 158 cases were included in child verbalization analyses.

Demographic and Risk Factor Differences by Maternal Depression

Mother-child demographic for clinical cut-off and low depressive symptoms are described in Table 2. Children ranged in age from 1.73 to 9.25 years, \((M = 4.704, SD = 1.39)\) with 62.4% boys in the non-depressed group and 56.1% in the non-depressed group. Mothers ranged in age from 17 to 66 years old, \((M = 28.85, SD = 6.881)\). Approximately two-thirds of the mothers in each group were single and just over a tenth had education of high school diploma or less. The sample was ethnically representative across mothers and children.

In order to understand if children of depressed mothers differed from children of non-depressed mothers in child’s age, mother’s age, or mother’s education, separate one-way analyses of variance (ANOVA) were conducted. Mothers assenting to depressive symptoms were no different in age \(F(1, 157) = .606, p = .438\) or education \(F(1,150) = .044, p = .834\) than mothers who did not endorse depressive symptoms. Children in both groups were approximately the same age, \(F(1, 158) = .974, p = .325\). Chi-square analyses testing for the presence of family risk factors did not show any significant differences with regard to physical abuse, neglect, inter-parental violence, or prenatal alcohol or drug exposure (See Table 2). Presence of family risk factors of sexual abuse and child ever being in foster care were significantly different between groups. Children of mothers who did not endorse clinical levels of depressive symptoms were more likely
to have been in foster care $\chi^2(1) = 8.904, p = .003$. Mothers who endorsed depressive symptoms demonstrated a higher family risk factor of suspected or reported child sexual abuse $\chi^2(1) = 6.823, p = .009$. These variables were co-varied in all subsequent analyses with no significant interaction effects. Therefore, remaining analyses are presented without the co-variation of ever in foster care or sexual abuse history.

Table 2

*Participant Demographic Differences by Maternal Depressive Symptoms (N = 159)*

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Non-Depressive</th>
<th>Depressive</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(N = 93)</td>
<td>(N = 66)</td>
<td></td>
</tr>
<tr>
<td>Sex of child (% male)</td>
<td>62.4</td>
<td>56.1</td>
<td>n.s.</td>
</tr>
<tr>
<td>Age of child (in years)</td>
<td>4.61 (1.35)</td>
<td>4.83 (1.44)</td>
<td>n.s.</td>
</tr>
<tr>
<td>Child ethnicity:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Caucasian</td>
<td>50.5</td>
<td>54.5</td>
<td>n.s.</td>
</tr>
<tr>
<td>% African American</td>
<td>22.6</td>
<td>19.7</td>
<td>n.s.</td>
</tr>
<tr>
<td>% Latino/a</td>
<td>20.4</td>
<td>21.2</td>
<td>n.s.</td>
</tr>
<tr>
<td>% Other</td>
<td>6.5</td>
<td>4.5</td>
<td>n.s.</td>
</tr>
<tr>
<td>% of children with physical</td>
<td>47.3</td>
<td>39.4</td>
<td>n.s.</td>
</tr>
<tr>
<td>abuse history</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% of children with sexual abuse</td>
<td>5.4</td>
<td>18.5</td>
<td>$p = .009$</td>
</tr>
<tr>
<td>history</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Characteristic</td>
<td>Non-Depressive (N = 93)</td>
<td>Depressive (N = 66)</td>
<td>Sig.</td>
</tr>
<tr>
<td>----------------------------------------</td>
<td>-------------------------</td>
<td>---------------------</td>
<td>------</td>
</tr>
<tr>
<td>% of children ever in foster care</td>
<td>73.1</td>
<td>50.0</td>
<td><em>p = .003</em></td>
</tr>
<tr>
<td>% Mother- single marital status</td>
<td>66.7</td>
<td>69.7</td>
<td>n.s.</td>
</tr>
<tr>
<td>% Mother- high school grad or less (N = 151)</td>
<td>11.63</td>
<td>11.70</td>
<td>n.s.</td>
</tr>
<tr>
<td>Mothers’ ethnicity:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Caucasian</td>
<td>51.6</td>
<td>57.6</td>
<td>n.s.</td>
</tr>
<tr>
<td>% African American</td>
<td>19.4</td>
<td>15.2</td>
<td>n.s.</td>
</tr>
<tr>
<td>% Latino/a</td>
<td>19.4</td>
<td>18.2</td>
<td>n.s.</td>
</tr>
<tr>
<td>% Other</td>
<td>9.7</td>
<td>9.1</td>
<td>n.s.</td>
</tr>
<tr>
<td>Age of mother (in years)</td>
<td>28.49</td>
<td>29.36</td>
<td>n.s.</td>
</tr>
<tr>
<td>% Mother- mental health diagnosis history</td>
<td>18.2</td>
<td>26.6</td>
<td><em>n.s</em></td>
</tr>
</tbody>
</table>

**Child Verbalizations Differences**

To test the first hypothesis that children with behavior problems of depressed mothers would verbalize less in each situational interaction than children with behavior problems of non-depressed mothers a 2(maternal depressive symptoms: endorsed versus not endorsed) by 3(analog: CDI versus PDI versus CU) analysis of variance was conducted for total child verbalization by analog. The first hypothesis was not supported as child verbalization did not
differ by maternal depression symptoms across analogs, $F(1,154) = .004, p = .948, \eta^2 = .000$ OP = .050; children of depressed mothers did not vary in the total number of verbalizations by analog compared to children of non-depressed mothers (see Table 3). Results of the analysis found that child total verbalizations varied by analog for the sample as a whole $F(1,154) = 27.655, p = .000, \eta^2 = .152$ OP = .999. The mean verbalization in table 4 illustrated this significant linear trend. The greatest mean child verbalizations were observed in child directed play and the fewest mean verbalizations were observed in clean up.

Table 3

*Total Child Talk by Analog by Maternal Depressive Symptoms (N= 158)*

<table>
<thead>
<tr>
<th>Analog:</th>
<th>Non-Depressive (N = 93)</th>
<th>Depressive (N = 65)</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDI</td>
<td>46.20 (15.50)</td>
<td>45.42 (17.42)</td>
<td>n.s.</td>
</tr>
<tr>
<td>PDI</td>
<td>42.90 (15.68)</td>
<td>40.60 (12.17)</td>
<td>n.s.</td>
</tr>
<tr>
<td>CU</td>
<td>36.45 (15.56)</td>
<td>34.74 (13.61)</td>
<td>n.s.</td>
</tr>
</tbody>
</table>

Table 4

*Total Child Verbalizations by Analog (N = 158)*

<table>
<thead>
<tr>
<th>Analog</th>
<th>CDI</th>
<th>PDI</th>
<th>CU</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child Total</td>
<td>45.87</td>
<td>41.96</td>
<td>35.75</td>
<td>$p =$</td>
</tr>
<tr>
<td>Verbalization</td>
<td>(16.27)</td>
<td>(14.34)</td>
<td>(14.77)</td>
<td>.000</td>
</tr>
</tbody>
</table>

To test the second hypothesis that behavior problem children of depressed mothers would ask fewer questions and have a smaller ratio of questions to total talk by analog, separate
2(maternal depressive symptoms: endorsed versus not endorsed) by 3(analog: CDI versus PDI versus CU) ANOVAs were conducted. The mean frequency of questions asked by children of depressed mothers was not significantly different from children of non-depressed mothers, $F(1, 154) = .0, p = 1.00, OP = .05$ (see Table 5). Similarly, the proportion of questions to total child talk was not significantly different for the two groups by maternal depression symptoms, $F(1, 154) = .95, p = .758, OP = .061$ (see Table 6).

Table 5

*Mean Frequency of Child Questions by Analog by Maternal Depressive Symptoms (N= 158)*

<table>
<thead>
<tr>
<th>Analog:</th>
<th>Non-Depressive (N = 93)</th>
<th>Depressive (N = 65)</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDI</td>
<td>6.43 (5.53)</td>
<td>7.09 (7.67)</td>
<td>n.s.</td>
</tr>
<tr>
<td>PDI</td>
<td>5.66 (4.82)</td>
<td>6.03 (3.98)</td>
<td>n.s.</td>
</tr>
<tr>
<td>CU</td>
<td>7.01 (5.32)</td>
<td>7.88 (6.45)</td>
<td>n.s.</td>
</tr>
</tbody>
</table>

Table 6

*Ratio of Child Questions to Total by Analog by Maternal Depressive Symptoms (N= 158)*

<table>
<thead>
<tr>
<th>Analog:</th>
<th>Non-Depressive (N = 93)</th>
<th>Depressive (N = 65)</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDI</td>
<td>13.6% (10.6)</td>
<td>14.5% (10.8)</td>
<td>n.s.</td>
</tr>
<tr>
<td>PDI</td>
<td>12.8% (9.7)</td>
<td>14.9% (10.4)</td>
<td>n.s.</td>
</tr>
<tr>
<td>CU</td>
<td>21.2% (16.7)</td>
<td>22.2% (13.3)</td>
<td>n.s.</td>
</tr>
</tbody>
</table>


Post hoc analysis found a significant linear trend for the proportion of questions to child total talk by analog suggesting that children asked significantly more questions in clean up than in CDI, \( F(1, 154), p = .001, \eta^2 = .069, \text{OP} = .918 \). Frequency of questions asked was not significantly different by analog, \( F(1, 154) = .130, p = .179, \eta^2 = .001, \text{OP} = .065 \) (see Table 7).

Table 7

*Mean Frequency of Child Questions and Ratio of Child Questions to Total Talk by Analog (N = 158)*

<table>
<thead>
<tr>
<th>Analog</th>
<th>CDI</th>
<th>PDI</th>
<th>CU</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean Child Question Frequency</td>
<td>6.70 (6.48)</td>
<td>5.81 (4.49)</td>
<td>7.38 (5.81)</td>
<td>n.s.</td>
</tr>
<tr>
<td>Ratio of Questions to Total Child Talk</td>
<td>14.0% (10.6)</td>
<td>13.7% (10.0)</td>
<td>21.6% (15.4)</td>
<td>( p = .001 )</td>
</tr>
</tbody>
</table>

To test the third hypothesis that behavior problem children of depressed mothers would use a lower frequency of positive talk and a smaller proportion of positive to total verbalizations by analog, separate 2(maternal depressive symptoms: endorsed versus not endorsed) by 3(analog: CDI versus PDI versus CU) ANOVAs were conducted. The mean frequency of positive verbalizations by children of depressed mothers was not significantly different than the frequency of positive talk of children of non-depressed mothers, \( F(1, 154) = .24, p = .878, \eta^2 = .000, \text{OP} = .053 \) (see Table 8). Similarly, the proportion of positive to total child talk was not significantly different for the two groups by maternal depression symptoms, \( F(1, 154) = .001, p = .975, \eta^2 = .000, \text{OP} = .05 \) (see Table 9).
Table 8

*Mean Frequency of Child Positive by Analog by Maternal Depressive Symptoms (N= 158)*

<table>
<thead>
<tr>
<th>Analog:</th>
<th>Non-Depressive (N = 93)</th>
<th>Depressive (N = 65)</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDI</td>
<td>24.67 (10.14)</td>
<td>25.02 (10.49)</td>
<td>n.s.</td>
</tr>
<tr>
<td>PDI</td>
<td>17.46 (9.14)</td>
<td>16.48 (7.78)</td>
<td>n.s.</td>
</tr>
<tr>
<td>CU</td>
<td>13.16 (8.21)</td>
<td>12.35 (6.85)</td>
<td>n.s.</td>
</tr>
</tbody>
</table>

Table 9

*Ratio of Child Positive to Total by Analog by Maternal Depressive Symptoms (N= 158)*

<table>
<thead>
<tr>
<th>Analog:</th>
<th>Non-Depressive (N = 93)</th>
<th>Depressive (N = 65)</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDI</td>
<td>53.5% (12.2)</td>
<td>56.0% (14.2)</td>
<td>n.s.</td>
</tr>
<tr>
<td>PDI</td>
<td>39.8% (14.8)</td>
<td>40.4% (15.1)</td>
<td>n.s.</td>
</tr>
<tr>
<td>CU</td>
<td>34.3% (16.8)</td>
<td>35.5% (14.1)</td>
<td>n.s.</td>
</tr>
</tbody>
</table>

Post hoc analysis found a significant linear trend for the proportion of positive verbalization to child total talk. As a sample, children with behavior problems and maltreatment history decreased in the proportion of positive speech from child directed play (54.53%) to parent-directed play (40.07%) to clean up (34.81%), $F(1, 154) = 79.288$, $p = .000$, $\eta^2 = .340$, OP = 1.00. Frequency of positive talk was also significantly different by analog. Children issued a greater mean frequency of positive talk in child directed play which decreased by clean up, $F(1, 154) = 93.21$, $p = .000$, $\eta^2 = .377$, OP = 1.00 (See Table 10).
Table 10

*Mean Frequency of Child Positive Verbalization and Ratio of Child Positive to Total Talk by Analog (N = 158)*

<table>
<thead>
<tr>
<th>Analog</th>
<th>CDI</th>
<th>PDI</th>
<th>CU</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean Child Positive Frequency</td>
<td>24.8 (10.25)</td>
<td>17.05 (8.60)</td>
<td>12.83 (7.67)</td>
<td>p = .000</td>
</tr>
<tr>
<td>Ratio of Positive to Total Child Talk</td>
<td>54.5% (13.1)</td>
<td>40.1% (14.9)</td>
<td>34.8% (15.7)</td>
<td>p = .000</td>
</tr>
</tbody>
</table>

To test the final hypothesis that behavior problem children of depressed mothers would use a greater frequency of negative talk and a greater proportion of negative to total verbalizations, separate 2(maternal depressive symptoms: endorsed versus not endorsed) by 3(analog: CDI versus PDI versus CU) ANOVAs were conducted. The mean frequency of negative verbalizations by children of depressed mothers was not significantly different than the frequency of negative talk of children of non-depressed mothers, $F(1, 154) = .172, p = .679, \eta^2 = .001, \text{OP} = .07$ (see Table 11). Similarly, the proportion of negative to total child talk was not significantly different for the two groups by maternal depression symptoms, $F(1, 154) = .016, p = .901, \eta^2 = .000, \text{OP} = .052$ (see Table 12).
Table 11

Mean Frequency of Child Negative Verbalization by Analog by Maternal Depressive Symptoms (N=158)

<table>
<thead>
<tr>
<th>Analog:</th>
<th>Non-Depressive (N = 93)</th>
<th>Depressive (N = 65)</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDI</td>
<td>6.74 (5.95)</td>
<td>5.25 (4.14)</td>
<td>n.s.</td>
</tr>
<tr>
<td>PDI</td>
<td>12.94 (7.87)</td>
<td>10.83 (6.24)</td>
<td>n.s.</td>
</tr>
<tr>
<td>CU</td>
<td>12.60 (9.86)</td>
<td>10.43 (7.44)</td>
<td>n.s.</td>
</tr>
</tbody>
</table>

Table 12

Ratio of Child Negative to Total Talk by Analog by Maternal Depressive Symptoms (N=158)

<table>
<thead>
<tr>
<th>Analog:</th>
<th>Non-Depressive (N = 93)</th>
<th>Depressive (N = 65)</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDI</td>
<td>14.2% (10.9)</td>
<td>11.8% (9.0)</td>
<td>n.s.</td>
</tr>
<tr>
<td>PDI</td>
<td>31.7% (19.7)</td>
<td>27.4% (15.0)</td>
<td>n.s.</td>
</tr>
<tr>
<td>CU</td>
<td>33.9% (20.6)</td>
<td>30.6% (17.4)</td>
<td>n.s.</td>
</tr>
</tbody>
</table>

Post hoc analysis found a significant linear trend for the proportion of negative verbalization to child total talk. As a sample, children with behavior problems and maltreatment history increased in their proportion of negative speech from child directed play (13.2%) to parent-directed play (29.9%) to clean up (32.4%), $F(1, 154) = 61.219, p = .000, \eta^2 = .284, \text{OP} = 1.00$. Children issued a greater mean frequency of negative talk in clean up then they did in child directed play, $F(1, 154) = 29.743, p = .000, \eta^2 = .162, \text{OP} = 1.00$ (See Table 13).
Table 13

Mean Frequency of Child Negative and Ratio of Child Negative to Total Talk by Analog

(N = 158)

<table>
<thead>
<tr>
<th>Analog</th>
<th>CDI</th>
<th>PDI</th>
<th>CU</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean Child Negative Frequency</td>
<td>6.13 (5.32)</td>
<td>12.07 (7.30)</td>
<td>11.71 (8.99)</td>
<td>p = .000</td>
</tr>
<tr>
<td>Ratio of Negative to Total Child Talk</td>
<td>13.2% (10.2)</td>
<td>29.9% (18.0)</td>
<td>32.4% (19.4)</td>
<td>p = .000</td>
</tr>
</tbody>
</table>
Chapter 4

DISCUSSION

This study aimed to increase our understanding of the child’s contributions to the quality of the parent-child relationship in the context of maltreatment and other family risk factors. While mothers are their children’s first and primary social partners and model appropriate verbal and nonverbal behaviors for them (Bandura, 1961), children’s social behaviors also influence their mothers within transactional nature of the parent-child relationship. In addition, children who are considered at-risk because of trauma or unhealthy family environments may have difficulty responding appropriately to their mother’s attempts to engage or direct them. Existing research has focused primarily on mothers, with relatively less study of children’s behaviors that could potentially help guide recommendations for treatment. Another rationale for more closely examining children’s behaviors during parent-child interaction is a methodological one. Specifically, mothers who are clinic-referred and perhaps court-mandated because of child maltreatment are likely to perform socially appropriate behaviors during observational assessment that may not be natural or representative of their parenting. Since young children are less able to dissemble, researchers and clinicians may gain a more accurate picture of the relationship by attending to child behaviors.

The current research examined the verbalizations of children with a history of maltreatment who were clinic-referred for treatment of behavior problems, comparing children whose mothers did or did not report clinical levels of depressive symptoms. Results pertaining to study hypotheses suggest that mothers’ self-report of current depressive symptoms are not related to their children’s current total verbalizations across situations requiring the parent to exert more control. Additionally, children’s current positive, negative, and question verbalizations did not differ in frequency, or ratio to total talk for children with behavior problems of mothers who
endorsed depressive symptoms compared to children of mothers who did not endorse depressive symptoms.

The null results in this study contradict Breznitz and Sherman’s (1987) findings that children of depressed mothers increase their speech in a stressful situation. Results in the current study suggest that as parents gained more directive control of the activity, children with behavior problems spoke less. While the semi-structured play paradigm used in the current study was different from Breznitz and Sherman, in which observations were made while children were waiting to be measured by a doctor, children’s increased negative and decreased positive verbalizations suggest that children experienced the transition from child directed play to parent directed play as stressful. Since group differences did not exist by maternal depression status, the increase in child verbal negativity from CDI to PDI found in the current sample may be related more to children’s behavior problems and maltreatment history than to their mother’s mental health.

This study furthered research on verbal behaviors of at-risk children by examining child verbalization for positive talk, questions and negative talk in situations of different stress levels. In addition to examining mean frequency for child talk, results demonstrated a situational difference for the ratio of positive talk, questions, and negative talk to total talk. Positive talk was high during the low-stress child directed play situation. Also, the ratio of positive to total talk decreased as the parent directed the child more and the least amount of positive talk occurred during the highest stress situation of clean up.

An unexpected finding was observed in the change in child questions by analog. During dyadic parent–child interaction, questions posed by parents are recognized as an interruption to play and a means of redirecting the child’s attention (Eyberg et al., 1994). In contrast, children’s use of questions is less understood. In normally developing children, asking questions is a way to learn about the world and situations. In the present study it appears that as parents gained more
directive control, children used more of their verbal interaction to try to understand what was happening by asking questions.

To the researcher’s knowledge, child verbalizations using DPICS verbalizations codes have not been examined for typically developing children and limited research is available on children’s use of questions for maladjusted children. The research studied used to standardize and validate the DPICS compared clinic referred and normative children for behaviors such as whining, yelling, non-compliance, and deviance but not verbalizations (Robinson, & Eyberg, 1981). The DPICS-III manual reports the frequency of descriptive questions asked by children with oppositional defiance disorder (ODD) that appear steady across situations (Eyberg et al., 2005). Additionally, the ratio of questions to total talk was not calculated for children with ODD. Questions in the present study were a combination of reflective and information questions. Unlike findings by Eyberg et al. (2005), the number of questions asked by children with behavior problems increased significantly from child directed play to parent directed play. The present study adds to the body of research regarding child verbalization by demonstrating an increase in ratio but not frequency of child questions from child directed play to cleanup. It is speculated that children increased in the ratio of questions to total talk in relation to the increasing situational stress. This finding demonstrates the importance of examining both frequency and ratio for verbalizations since the proportion of questions to all of the child’s talk with the mother changed as stress increased.

**Limitations of the Study and Implications for Future Research**

One limitation of this study, typical of samples gathered in clinical treatment settings, is that it did not utilize a control sample of children without maltreatment history or without behavior problems. All mother-child dyads were referred to PCIT specifically for the child’s externalizing behavior problems. Although control samples are rarely available in clinical settings, future research would benefit from comparison of study variables pre-treatment to post-
treatment. This could yield information on potential changes in children’s verbalizations as a result of improvement in the quality of the mother-child relationship and mothers’ interactional skills.

Second, the information used to assign mothers into depressed and non-depressed groups was limited. Mothers were not asked for detail about the duration or severity of their mental health and were measured for presence or absence at the start of treatment only. As such, it could not be determined, for example, if older children had been exposed to maternal depression for a longer period of time than younger children. Additionally, use of maternal self-report provided limited and perhaps inaccurate information regarding their depressive symptoms. In the future, research should evaluate maternal mental health history using multiple methods and informants when appropriate, such as inclusion of a diagnostic interview in addition to maternal self-report, in order to draw conclusions about the relationship between maternal depression, child age and child behavior problems. While mothers reported if they had ever had a history of mental health diagnosis, these diagnoses included depression as well as bipolar mood disorder, which would have exposed children to different modeled behaviors.

Third, the age group for this analysis was broader than is typical for PCIT. PCIT is recommended for children between 2 and 7 years of age; however, this sample examined verbalizations of children as young at 21 months and as old as 9.25 years. Such a wide age range may have contributed to the null findings for child verbalization by maternal depression status. Based on normal development, it would be expected for older children to talk differently in frequency and ratio compared to very young children.

With regard to data collection and coding, the creation of summary variables for positive and negative talk was necessary because of low frequencies of some specific codes. For this study, child negative verbalization was a combination of negative talk (e.g. “no”, “that’s not how you…”) and commands (e.g. “give me that”, “how about we…”) based on the theory that
commands are a form of undesirable, bossy talk (Mee, 1991). However, some commands, especially in the context of child-directed play, may not necessarily indicate negativity on the part of the child. For example, the command “give me the orange crayon” during child-directed play may be an appropriate utterance or even an attempt to involve the mother in play. Additionally, the affective tone of commands can be neutral or negative, which was not taken into consideration in the coding process.

Future research may benefit from use of additional codes from DPICS, such as self-talk and play-talk, that may provide more information about how stressful children experience the situation. In the present study, only interactive verbalizations from child to mother were coded. While collecting observational data, researchers noticed both positive and negative play-talk and varying amounts of self-talk. While these verbalizations were not coded, analysis of these verbalizations may lend a clearer understanding of how much total talk children with maladjustment emit whether directly (through interaction with the mother) or indirectly (through play-talk and self-talk) while with their mothers. It is speculated that child negative play-talk may contribute to general negativity in the dyadic interaction and result in greater interactive negativity such as the child issuing commands or negating the mother’s instructions.

**Conclusion**

While research has substantiated that children with maltreatment histories tend to exhibit similar negative behaviors in observed interactions with well or depressed mothers at intake to PCIT (Timmer et al., 2011), it does not appear as if there are substantial differences in how both groups of children interact with their mothers verbally. While maternal depression is a risk factor at this point in development, it does not seem to have interfered with children’s verbal expression. Therefore, it is speculated that children of both well and depressed mothers will decrease in their negative verbalizations as mothers improve and gain skills as a result of PCIT treatment (Timmer et al., 2011). Early interventions, such as PCIT provide a means for both behavioral and verbal
improvement over the course of treatment for children and their well or depressed mothers. Clinical implications of these results are somewhat hopeful, suggesting that even with the presence of maternal depression, children appear to be persisting in their verbal interaction with a potentially unresponsive mother. Study results suggest that standard PCIT intervention would be effective for this population, without needing to modify the treatment to accommodate variations in maternal mental health status.
FAMILY LIFE QUESTIONNAIRE

NAME OF CHILD: ____________________________

1. What is your relationship to the child in treatment? (e.g. mother, father, aunt, foster mother, adoptive parent) ____________________________

2. Please choose the best response indicating the status of your relationship with this child.
   - [ ] this child has always lived with me
   - [ ] this child has lived with me since ___________ [date]
   - [ ] I have partial custody: ________ days per week
   - [ ] this child has lived with me since [date] ________ but was separated from me from
     ________ to ________ [dates].
   - [ ] I have visitation ____________ hours per week

3. How old are you? __________________________

4. Which ethnicity do you identify with the most?
   - [ ] African-American
   - [ ] Asian-American
   - [ ] White/Non-Latino
   - [ ] Hispanic/Latino
   - [ ] Native-American
   - [ ] Pacific Islander
   - [ ] Other __________________________

5. What is your current marital status? (please check one)
   - [ ] single
   - [ ] living with partner
   - [ ] divorced
   - [ ] married
   - [ ] separated
   - [ ] widowed

6. How many years of school have you completed? __________________________

7. What is your present work status? (Please check one)
   - [ ] full time foster parent
   - [ ] employed ______ hours/wk (what kind of work do you do?)
   - [ ] unemployed looking for a job
   - [ ] unemployed not looking for a job
   - [ ] student
   - [ ] housewife
   - [ ] disabled
   - [ ] retired
   - [ ] other, specify __________________________

8. Do you or your spouse/partner (if you have one) receive any compensation from these sources? (Check all that apply)
   - [ ] None
   - [ ] Foster care monies
   - [ ] Unemployment compensation
   - [ ] SSI (Social Security)
   - [ ] Welfare (GA)
   - [ ] Welfare (AFDC)
   - [ ] Disability compensation
   - [ ] Other, specify: __________________________
9. What is your yearly household income? (please check one)
   - less than 10,000
   - 10,000 to 15,000
   - 15,000 to 20,000
   - 20,000 to 25,000
   - 25,000 to 30,000
   - 30,000 to 35,000
   - 35,000 to 40,000
   - 40,000 to 50,000
   - more than 50,000

We want to know something about your living situation.

10. How easy will it be for you to travel to the clinic?
   - Difficult
   - Fairly Difficult
   - Fairly Easy
   - Easy

11. In the past 6 months, how often have you worried about whether your family had enough to eat?
   - Very often
   - Every month
   - Once or twice
   - Never

12. How happy are you with where you live right now?
   - Unhappy
   - A little unhappy
   - Fairly happy
   - Happy

13. How safe do you feel where you live?
   - Unsafe
   - A little unsafe
   - Fairly safe
   - Safe

14. How likely is it that you will still be living in the same place 6 months from now?
   - Unlikely
   - A little unlikely
   - Fairly likely
   - Likely

15. How often do friends/family visit you where you live?
   - Less than once a month
   - About 1 x a month
   - A couple of times a month
   - Once a week
   - Few times a week
   - Daily
   - More than once a day

16. How many friends does your child have to play with in your neighborhood?
   - None
   - 1 or 2
   - Many

We want to know how you feel about changing your child’s behavior.

17. I think this child’s behavior needs to change...
   - a lot
   - a little
   - not at all

18. I am willing to work on changing what I do so that this child behaves better...
   - a lot
   - a little
   - not at all

19. I am willing to practice new parenting techniques even though they may seem different...
   - a lot
   - a little
   - not at all
20. I feel that participating in treatment will help this child...

☐ a lot  ☐ a little  ☐ not at all

We would like to know how important religion is to you.

21. How important is religion in your daily life? (please check one)

☐ not at all  ☐ a little  ☐ fairly important  ☐ very important  ☐ I prefer not to say

21a. How often do you go to church/temple/synagogue/hall?

☐ never  ☐ once a year  ☐ once a month  ☐ a few times a month  ☐ once a week  ☐ a few times a week  ☐ daily

21b. Do you take this child with you to church/temple/synagogue/hall?

☐ no  ☐ yes

We would like to know a little bit about the people in your household.

**PLEASE LIST THE PEOPLE LIVING IN YOUR HOME (FROM YOUNGEST TO OLDEST)**

<table>
<thead>
<tr>
<th>Name</th>
<th>Sex (M/F)</th>
<th>Age</th>
<th>Relationship to you (e.g., your child, your partner's child, foster child, adopted child, spouse/partner, relative, friend)</th>
<th>Behavior problems? (yes/no)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td></td>
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<td>3.</td>
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<tr>
<td>4.</td>
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<tr>
<td>5.</td>
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<tr>
<td>6.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The following questions are about your health.

22. Does your health limit you in your daily activities? If so, how much?
   A lot  A little  Not at all
   a. Moderate activities, such as moving a table, playing with your child, or taking a walk
      1    2    3
   b. Climbing stairs
      1    2    3

23. During the past 6 months, how much of the time has your physical health or emotional problems interfered with your social activities (like visiting friends, relatives, etc.)?
   All of the time  Most of the time  Some of the time  A little of the time  None of the time
   1   2   3   4   5

We'd like you to think about the past year and any bad things that might have happened in your family. These things can cause problems for parents and children.

24. a. In the past year has anyone in your family had a serious accident? Yes  No
   
   If yes, explain: ________________________________

   b. Been in a fire/natural disaster? Yes  No
   
   If yes, explain: ________________________________

   c. Been a victim/witness of violent crime? Yes  No
   
   If yes, explain: ________________________________

   d. Gotten really bad news? Yes  No
   
   If yes, explain: ________________________________

   e. Been a victim/witness to domestic violence? Yes  No
   
   If yes, explain: ________________________________

   f. Been a victim/witness of physical abuse? Yes  No
   
   If yes, explain: ________________________________

   g. Been a victim/witness of sexual abuse/rape? Yes  No
   
   If yes, explain: ________________________________

   h. Had any other bad/frightening thing happen? Yes  No
   
   If yes, explain: ________________________________

25. Is there anything else you would like to tell me about your physical or emotional health? Yes  No

   If yes, explain: ________________________________
STOP HERE IF YOU DO NOT HAVE A SPOUSE/PARTNER

1. What is your partner’s relationship to the child in treatment? (e.g. step-parent, biological parent, etc.)

2. How long have you been in this relationship? (years)

3. How old is your partner? 

4. How many years of school has your partner completed? (1-20, 20+)
   (e.g. high school/GED=12)

5. What is your partner’s present work status? (please check one)
   - full time foster parent
   - employed ___ hours/wk (what sort of work does (s)he do?)
   - unemployed looking for a job
   - unemployed not looking for a job
   - retired
   - other, specify __________
   - student
   - housewife
   - disabled
References


