DIGITAL SUPPLEMENT: Detailed Description of the IPT + PE Intervention and ACTAU Conditions

Theory of the Intervention

The intervention is based on Interpersonal Psychotherapy (IPT), a short-term intervention for depression that focuses on reducing depressive symptoms and improving interpersonal relationships (Weissman, Markowitz & Klerman, 2007). The basic premise of IPT is that depressive symptoms are initiated and maintained within an interpersonal context and, thus, the therapy is designed to help people use new skills and strategies to address stressful interpersonal issues. It has been shown to be effective for depressive symptoms and has been used in a group format adapted for antepartum and postpartum mothers; a successful randomized clinical trial of IPT was conducted with married or partnered, high-school educated mothers in the postpartum period (Forman et al., 2007). In addition, the protocols used to guide the nursing strategies to engage mothers in a therapeutic relationship in the home context were based on Peplau's model of Interpersonal Relations in Nursing (Peplau, 1989).

The addition of self-efficacy and social support to the framework guiding the use of IPT in this population of mothers was built on empirical studies of parenting under circumstances of economic hardship. Studies of mothers enduring economic hardship have shown that the factors of interpersonal relationships with low conflict, strong social support, and high perceived self-efficacy are associated with less depressive symptom severity (Gjesfjeld, Greeno, Kim, & Anderson, 2010). Despite facing similar face similar life issues, not all mothers who rear their children in poverty experience depressive symptoms (Jackson, Brooks-Gunn, Huang, & Glassman, 2000). Mothers at higher risk are those whose interpersonal relationships are troubled and highly conflicted; who attempt to manage life issues fraught with loss, danger, humiliation and entrapment; and who use coping styles that are reactive and avoidant (Brown, Bifulco, &

Harris, 1987; Brown & Harris, 1993; Brown, Harris, & Eales, 1993; Brown & Moran, 1997). Interpersonal Psychotherapy was ideal because of the emphasis on reducing interpersonal conflict and resolving losses. It was theorized that through the relationship with the nurse and the formal delivery of IPT, the mother could examine a focal interpersonal context and link stressors within that context to the current depressive episode. Strategies to minimize the impact of depressive symptoms on optimal mothering were added to the IPT focus, as well as strategies to manage the reoccurrence of depressive symptoms. Also theorized was that as the mother built competence in reducing interpersonal stressors, improving her parenting, and controlling depressive symptoms, her self-efficacy would increase as well. Self-efficacy has been identified as a key mediator between stress and depressive symptoms (Holland et al., 2011).

Overview of the Intervention

The IPT+PE intervention was adapted for low-income mothers as described in the study report and elsewhere (REFS). The four IPT foci (disputes, role transitions, grief, and interpersonal deficits) and their associated strategies were transformed into modules using language and contexts that mothers had described during the preliminary descriptive and pilot studies (Beeber, Holditch-Davis, Belyea, Funk, & Canuso, 2004). Mothers chose strategy modules within a primary IPT focus and established regular in-home therapy visits with the nurse. By limiting the focus of the therapy and creating a predictable order, the nurses' skillfully introduced structure was introduced into mothers' lives. The introduction of order was a powerful therapeutic factor.

The intervention had three phases: (a) a 10-session in-person, home visiting phase during which the intervention was delivered; (b) a telephone booster phase during which the mother's gains were reinforced through short phone calls by the nurse; and (c) a face-to-face termination during which the mother and nurse ended the relationship, solidified the strategies and gains of the intervention, and identified resources in the event that symptoms recurred. Thirteen weeks were planned for the 10 home visits to allow for missed appointments, a regular feature in the lives of these mothers who often missed appointments to solve pressing life problems associated with meeting basic needs for food, housing, and child health. The objective was to complete 10 visits by the second data collection appointment (T2) at 14 weeks postbaseline.

The telephone phase consisted of 3-4 telephone calls over 5 weeks. Following each telephone call, the nurse mailed the mother a summary of the session along with suggested follow-up work for the mother to do before the next phone call. The telephone phase was a deliberately attenuated transition between the home visits and independence. The intent was to allow the mother to implement new interpersonal strategies on her own, but still have the nurse as an advisor. During this phase, the mother was encouraged to apply and elaborate on what she learned, and exploration of new areas was discouraged. A final face-to-face termination took place after the telephone calls were completed with an objective of completing the calls and the termination session prior to the third data collection in the 22nd week. As part of the termination session, the nurse provided a summary letter written to the mother that described her accomplishments during the intervention. In addition, the nurse and mother finalized plans in the case of reoccurrence of symptoms or referral for ongoing care if needed. All mothers received a resource list of current mental health providers, community groups and peer support groups. The nurse and mother discussed how the mother would maintain her bond with the EHS staff and

programs and if the mother wished, EHS staff were invited to the session. Finally, the nurse and mother completed the emotional work of termination.

ACTAU visits followed an identical visit pattern with telephone calls and a termination session at the end. The delivery schedule for both IPT+PE and ACTAU conditions in Table 1.

Table 1. Schedule of Intervention Contacts, ACTAU Contacts, and Data Collections

Intervention Week		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**…**	**…**	**26**
Intervention Visits		**1**	**…**	**…**	**…**	**…**	**…**	**…**	**…**	**…**	**…**	**…**	**…**	**10**												
Telephone Calls																**1**	**2**	**3**	**…**	**4**						
Termination Visit																					**T..**	**T**				
Data Collections	**T1**														**T2**								**T3**			**T4**
ACTAU Visits		**1**	**...**	**…**	**…**	**…**	**…**	**…**	**…**	**…**	**…**	**…**	**…**	**10**												
ACTAU Tel. Calls																**1**	**2**	**3**	**…**	**4**				**…**	**…**	
Termination Visit																					**T..**	**T**				

Visit-by-Visit Description of the IPT+PE Intervention

Visit 1

Assessment of depressive symptoms was standardized through the use of two clinical guides, the Assessment Circle and Depressive Symptoms Inventory. These were developed for the study, and tested for acceptability in the initial descriptive work and for clinical utility in the pilot study with Early Head Start (EHS) mothers (Beeber, Holditch-Davis, Belyea, Funk, & Canuso, 2004; Beeber, Perreira, & Schwartz, 2008).

The *Assessment Circle* was developed initially for use with low-literacy mothers but the utility with all mothers became evident. The Circle was divided into five segments labeled thoughts, feelings, actions, body, and relationships. The circle allowed mothers to record their depressive symptoms and track symptoms weekly over the intervention period. The nurse began

by asking the mother to identify her most troubling symptoms and recorded the mother's words down in the appropriate section of the circle exactly as she described them. At each successive visit, depressive symptoms were reviewed by using a new circle and comparing it to previous circles to see if the symptoms had changed in response to the intervention.

The Depressive Symptoms Inventory (DSI) was used by the nurse as an interview guide during the initial assessment. Based on the Agency for Health Care Policy and Research guidelines for depression management (AHRQ, 1993) and the *Diagnostic and Statistical Manual IV-R* (APA, 2000), the DSI was tested in previous studies by the team. The DSI was organized along the five dimensions of the Assessment Circle, included the symptoms used to make a diagnosis of Major Depressive Episode (MDE) and had an additional severity scale that allowed nurses to gauge symptom remission or exacerbation.

During the depressive symptoms assessment, nurses provided psychoeducation about depressive symptoms and helped the mother tie the onset of the most recent episode of the symptoms to interpersonal stressors. This helped the nurse and mother formulate the area within which the IPT work would occur. The visual circle helped the mother connect the depressive symptoms to other aspects of her functioning, most importantly her parenting interactions. In addition, the circle served as a device by which the mother externalized and objectified the symptoms. These processes helped to introduce a sense of control over the symptoms, an initial step in building self-efficacy, during the first encounter between the nurse and mother.

The nurse administered a brief Social Support Inventory to assess the availability and quality of instrumental (money, skills, childcare respite), informational, informal-social (sharing meals, recreation), and emotional (listening, comforting, touch) types of social support. Nurses provided psychoeducation about the importance of social support.

The nurse's assessment of parenting was guided using the Mother-Child Observation Guide. The guide was adapted from concepts of infant mental health and observational studies of symptomatic mothers and their infants or toddlers (Campbell et al., 2004; Campbell, Morgan-Lopez, Cox, & McLoyd, 2009). The nurse observed the mother and the child together for 5 minutes, during which the mother was instructed to interact with the child in a way that she might do naturally in the course of a day. The nurse noted the mother's strengths and key parenting interactions that were affected by the mother's depressive symptoms. These included the verbal patterns the mother used with the infant/child, whether she held the infant/toddler's attention, what type of affect she relayed, whether her expectations of the infant/toddler were reasonable, and whether she used the infant/toddler's cues to shape her interaction and the child-centeredness of her language and actions. Then the mother was asked to play with the infant/toddler with a toy of her choosing for about 5 minutes. The nurse noted the choice of toy, the length of the interaction, and whether the infant/toddler or mother lost interest first. Finally, the nurse asked the mother about her most difficult moment with the infant/toddler in the last week. The nurse helped the mother identify why it was so difficult. These observations were used to develop an individualized parenting enhancement plan with the mother.

The nurse presented these assessments to the supervision team who assisted with formulating the approaches to the mother.

Visit 2

In the second visit, the nurse summarized the assessment and reviewed the mother's depressive symptoms in the context of her interpersonal relationships. The nurse and mother

arrived at a mutual summary and collaboratively chose strategy modules (Skill Sheets) relevant to the key interpersonal focus. The Skill Sheets contained written information, exercises about feelings, behavior change exercises, learning games, and role play situations written at a 4th grade reading level. The sheets were laminated and personalized with the mother's first name and that of her child embedded in the text and other customized information such as local resources, her Early Head Start staff contacts, and emergency telephone numbers. A photograph of the mother and her child on the top of the Skill Sheet helped the mother identify with and incorporate the content on the Skill Sheet (Beeber et al., 2007).

Visits 3-10

At Visit 3, the nurse gave the mother the personalized Skill Sheets in a secure folder and began the work. Work on the key interpersonal problem area was organized around the strategies in the Skill Sheets, which kept the work focused and manageable. Parenting enhancement was introduced when the mother was experiencing some symptomatic relief and could begin to shift her attention to her child (generally about the 5th or 6th session). The exception to this sequence was a focal dispute between herself and her child (e.g., toddlers with behavioral problems). The parenting enhancement was guided by a unique set of Skill Sheets that helped the mother interrupt the depressive symptoms that interfered with her response to the child's cues or other parenting functions such as play, decoding the child's needs, providing child-centered talk, and meeting the child's needs for security and limits. The Skill Sheets contained strategies for interrupting the symptoms and substituting more sensitive, involved, child-centered interactions.

The nurses were skilled in engaging the mother to make change without undermining her existent strengths as a parent.

Visits 8-10

These sessions included summarizing the mother's work on strategies and preparation of the mother for the transition to the telephone booster phase. The latter included developing a set of advance directives for intervention in case of a situation requiring immediate intervention (e.g., suicidal intent, thoughts of harming the child) and the introduction of an additional Skill Sheet that helped the mother develop strategies to use in the case of recurrence of symptoms.

Telephone Booster Phase and Final Termination

In the telephone phase, the nurse reviewed the mother's progress, reviewed Skill Sheets that had been part of the previous 10 sessions, and assessed her depressive symptoms. No new issues were discussed unless they could be related to the major focus of the in-person work. After each session, the nurse mailed the mother a short summary of the session with suggestions for practicing what was discussed. The nurse reminded the mother of the upcoming termination.

The final termination meeting was conducted in a face-to-face session during the 20th-21st week. Throughout the intervention, the mother was making regular contact with EHS staff. At the termination meeting, the mother had the option of involving her EHS staff person in making a plan for ongoing care. The EHS staff members were invited to provide support and specific coaching on key strategies when requested by the mother. The nurse provided a written resource

list and discussed it with the mother. The nurse read a personal letter to the mother that summarized the issues, strategies learned and gains that the mother had made. Finally, the nurse and the mother completed the emotional work of termination.

Ongoing Assessments of the Mother's Depressive Symptoms

During Weeks 6 and 10 (transition), and the final session, the nurse used the DSI to assess the mother's symptoms. When there was no reduction in symptoms by Week 6 or a worsening of symptoms by Week 10, the nurse consulted with the mother about whether she wished to be referred for evaluation for medication or alternative therapy. The nurse also consulted with the team and presented the mother with alternatives. Only a small number of mothers had not shown improvement and none wanted referral out of the study. Four mothers were referred for medication evaluation at the conclusion of the intervention. Throughout, nurses were prepared to enact emergency protocols for worsening symptoms, suicidal crises, thoughts of harming the child, child neglect or abuse, and domestic violence.

Attention-Control Treatment as Usual Condition

Mothers in the ACTAU condition received 10 face-to-face contacts over 13 weeks. At each contact, the nurse read a preset health education lesson to the mother, briefly assessed her depressive symptoms, and asked for questions. No discussion of the mother's interpersonal issues or depressive symptoms was permitted except in relationship to the health education topic. The health topics chosen had little crossover with depression risk factors or consequences and

included (in order): preventing falls, high blood pressure, dental care, diabetes, lead poisoning, healthy eating, foot care, prevention and treatment of burns, preventing HIV infection, and the importance of folic acid intake. Mothers were given a black and white information sheet that was not personalized. but did have the lesson content written in fourth grade language. The 10 health education lessons were followed by 3-4 telephone calls over the next 5 weeks in which mothers were encouraged to bring up any questions about the health education topics. At a final appointment, the nurse terminated with the mother and provided her with resources for health follow-up.

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