

# Feasibility and Acceptability of Using FirstPlay® to Enhance Mother–Child Interaction: A pilot study of mothers’ perspectives

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## Abstract

**Background:** Although there is evidence that human touch facilitates mother–child bonding, mothers’ understanding of how to connect with and develop the emotional regulation of their babies remains unclear.

**Objectives:** This study used a Storytelling Massage program to investigate mothers’ experience of practicing reciprocal interactions with their children. Specifically, it explored the efficacy of multi-sensory activities for building healthy parent–child bonds.

**Method:** Participants included 12 mothers with children between 8 and 23 months. These mothers participated in a 6-session program on FirstPlay Infant Storytelling-Massage Intervention (FirstPlay Therapy) and attended an individual semi-structured interview after the program. Data were analyzed using a phenomenological approach.

**Results:** The FirstPlay program positively affected the participants’ self-efficacy in parent–child bonding and parenting beliefs. Five themes were identified: “bonding with the child—connect and engage,” “attending to the child’s uniqueness and needs,” “developing a structure and a daily routine,” “feeling calm and relaxed as a person,” and “gaining confidence as a mom.”

**Conclusion:** The results of this study further support the need for low-cost, high-impact programs that enhance parent–child interactions. Limitations of this study are discussed. Future research and practical implications are also suggested.

**Keywords:** mothers’ perception; infant; interaction; qualitative study

## Introduction

Socio-economic background is one of the key factors in individuals’ developmental, educational, health, and well-being outcomes across their lifespan (1). A child who starts behind has a high chance of staying behind. Families with low socio-economic status experience barriers and shortages not just in resources such as food, clothes, and diapers but also in the quality time that facilitates parent–child interaction and the formation of attachment (2). Studies have suggested that preschool children from disadvantaged families are more prone to psychological and social problems than their counterparts from higher-income homes (3). Previous research has suggested that there are strategies and interventions that can break this intergenerational cycle of disadvantage, and it is better to offer such support from the earliest years of life. Singer stressed that infants and toddlers coming from disadvantaged families need extra attention and responsive care to ensure their ongoing development (4). A secure attachment relationship between

mother and child has been recognized as a protective factor that increases the likelihood that a child will develop positive mental health in adulthood. Building mothers’ competency in relating to their infants can further help to reduce the risk of these children facing additional challenges in their development.

### *Parents and Infants in the Technology World*

In the digital world, technology can easily come between parents and their children. Studies have reported that preschool children from low-income families have more screen time than their counterparts in higher-income families (5). Children from disadvantaged families were more likely to overuse digital devices, have fewer quality interactions with parents, and exhibit problem behavior (6). Prolonged use of electronic devices was also documented in families with infants. It has been reported that parents who focus on technology may pay less attention to their infants (7). Radesky, Kistin, Eisenberg, and Gross reported that parents who

were over-involved in using mobile devices missed their children's need for attention (8). In fact, different types of portable media devices (such as tablets and mobile phones), also known as "virtual pacifiers," have become means to soothe a child who is expressing strong emotions (9). This affects children's ability to learn to regulate their emotions, thus perpetuating a vicious cycle that disrupts the parent–infant bond. Time that used to be spent on talking, singing, nurturing touch, and engaging games (which involve tremendous amounts of sensory input) has been replaced with time interacting with digital technology (which makes high demands on the user's visual system), which may lead to insecure attachment styles and eventually more disruptive behavior by the child (7).

### ***Caregiving Is the Key for Change***

The digital world, together with the context of growing up in disadvantaged families, creates a vicious cycle that hinders the development of children. Early caregiving mediates the effects of stress on development (10). Studies have shown that when families are faced with stressful psychosocial and physical conditions at home, parents are at risk of becoming less sensitive and warm in their patterns of early caregiving. Economically disadvantaged families typically experience high levels of pervasive adversity and stress, which may impact the interactions among parents and children (11–14). Lower levels of maternal sensitivity increase the likelihood that children will have elevated cortisol levels and lower executive function ability, which leads to difficulties in regulating emotion and behavior (15).

Programs addressing mental health and improvement in parenting behaviors are important. Studies have shown that programs such as the Reach Out and Read program, in which parents were given children's books along with guidance and modeling of reading interactions, can improve child language development and parent–child interaction (16). The use of video-based feedback to enhance parent–child interaction has also been shown to increase parental efforts to stimulate a child's development and reduce depressive symptoms in mothers (17).

It is important to enhance parents' understanding of the importance of engaging children in joyful play activities and to teach them strategies for making them happen. Technology may impede our ability to connect with others physically. While helping parents understand how technology can help their parent–child interactions, it is also important to help parents know the importance of nurturing touch for facilitating the development of attachment and parent–child connection.

### ***Importance of Touch for Very Young Children and Infant Massage***

Touch is a powerful form of communication and is reciprocal (18, 19). Research has indicated that touch influences one's well-being and psychological functioning (20). Nurturing physical touch promotes healthy physiological development not just in other mammals but also in humans. C-tactile afferents (CT) are a special class of gentle touch-sensitive c-fibers in the skin with functional properties that constitute a privileged peripheral pathway for tactile stimulation that is usually a signal of close, affiliative body contact with others (21).

Massage is the systematic tactile stimulation of the body, and it is a form of nurturing touch. It involves the gentle, slow stroking and rubbing of body parts and it can be done using a variety of techniques. Through massage, the quality of mother–child interactions, specifically emotional availability, can be enhanced. For example, Field (2006) concluded that infant massage produces benefits for babies and children (18). Infant massage has also been shown to increase parenting skills and enhance the parent–child relationship (22). The impact of infant massage on children's skills and functions has been studied, although the effects of different massage variables (technique and duration) have not been addressed (23, 24). In addition, there have been limited studies of the effect of infant massage on the parents who perform the massages (25).

### ***FirstPlay Infant Storytelling Massage***

FirstPlay® is a play therapy model that focuses on the importance of responsive, attuned, and nurturing touch. It is a structured program with an instructional manual. As a baby massage program, FirstPlay also addresses the detrimental effects that technology can have on parent–child interaction.

FirstPlay Infant Storytelling Massage combines first play activities with therapeutic storytelling and is implemented by trained practitioners who model, guide, facilitate, and supervise parents' provision of attuned touch to their young children with the aim of helping parents to build healthy attachment relationships with their children. This interactive experience also facilitates children's social, emotional, and cognitive development (26). These touch experiences (rocking, gentle physical holding, singing song) are nurturing and joyful (27, 28). This kind of joyful, caring, and nurturing touch helps children to develop a healthy internal working model with a positive sense of self (29). In FirstPlay Infant Storytelling Massage, trained practitioners facilitate respectful, caring, and fun activities for parents and infants through a story called "The Baby Tree Hug" (30). The activities are demonstrated using a baby doll while mothers simultaneously practice the

techniques with their own infant, according to the instructions in the manual. The practitioner’s role is to facilitate, model, and supervise the attuned interactions between parent and child (31).

If parents can be equipped with the skills to purposefully arrange a specific period during the day for interactive activities through a relatively low-cost arrangement, this can increase mothers’ sensitivity to their children and enhance their competency in relating to the children. This structured process can help mothers to use new methods of pleasant and tender physical contact to develop empathy and increased connection with their babies.

There are a variety of infant massage approaches and techniques (32). However, there have been very few studies of which massage techniques are most effective for different group(s). More work is needed to determine the techniques, timing, frequencies, and duration that can optimize the benefits of massage for infants and their caregivers. For interventions to be effective, it is important to ensure their rigor and sustainability (33).

**The Present Study**

The purpose of this study was to investigate the impact of FirstPlay on the ability of mothers from low-income families to connect with their children and to develop competence in relating to the care of their children aged 0 to 2. As FirstPlay is manualized, the content, coverage, frequency and duration were predetermined. Understanding parents’ perceptions of this process is an important step in facilitating the continuity and sustainability of a program for promoting the well-being of both mothers and children

**Method**

**Design**

This study explored how individual mothers create meaning and how they make sense of their experience of using FirstPlay to facilitate interaction with their young children. In phenomenological research, the data are descriptions of an experience rather than quantitative data. A phenomenological method of inquiry was adopted in this study as such an approach allows researchers to examine personal human experiences; specifically, this study pooled central meanings to capture the essence of the participants’ experiences (34). Exploring the experiences of others enables previously unavailable insights to be discovered.

**Participants and recruitment**

Twelve mothers were recruited through convenience sampling. These mothers were from low-income families that qualified for government financial subsidies. The participants’ demographics are shown

in Table 1. The mean age of the mothers was 34.2 years. The mothers’ highest education level was high school. All of the participants met the following inclusion criteria: (i) mothers below 40 years old; (ii) normal term birth and no birth complications; (iii) coming from families who were receiving government subsidy; and (iv) signed the informed consent form agreeing to participate in the program. All of the participants attended all of the sessions.

**TABLE 1.** Participants’ demographics. (N=12).

	<i>n (%)</i>
<b>Marital status</b>	
Married	7 (58.3)
Separated/Divorced	5 (41.7)
<b>Highest education level attained</b>	
Primary	1 (8.3)
Secondary	10 (83.4)
Tertiary	1 (8.3)
<b>Employment status</b>	
Full-time	2 (16.7)
Part-time (incl. flexible work schedule)	6 (50.0)
Unemployed	4 (33.3)
	<i>Mean (SD)</i>
<b>Age</b>	
Mothers (years)	34.2 (3.9)
Children (months)	15.5 (5.09)

**The program**

This study examined the effectiveness of a 6-session FirstPlay program for mothers of children under the age of 2. These sessions were delivered by a professionally qualified practitioner who is trained in using FirstPlay as an intervention for very young children. Intervention fidelity was monitored using a checklist after each session. FirstPlay was designed to foster healthy emotional connections between infants and adults (caregivers). A review of the literature on FirstPlay found that it improved both children’s overall development and mothers’ mental health (35). The program for this study was adapted from the 6-session FirstPlay curriculum developed by Courtney (31). In Session 1, the mothers were given the background on FirstPlay, including information on the benefits of touch and the importance of healthy attachment, and mothers’ perspectives and capacities to read their baby cues and be sensitive to their baby’s behavioral states were assessed. In Session 2, the mothers were taught the FirstPlay Story massage techniques using the “Baby Tree Hug” story in the Parent Manual. This session emphasized reminding parents to take time to “calm down and relax” before they start a session. The importance of the child’s emotional state was stressed. The practitioner acted as a role model for mothers, clarifying that the most important part of the process was for mothers to enjoy their time with

their infant. In Session 3, the mothers' capacity to respond to their infants' cues was assessed, and the techniques they had learned were reinforced as they demonstrated to the practitioner what they have practiced with their baby using the FirstPlay Parent Manual. The practitioner's role was to provide feedback on positive interactions, redirecting the mothers only when the touch was seen as inappropriate (e.g., too hard, too light, too ticklish, as observed through the infant's response). After the exercise, the practitioners highlighted positive instances where attunement between parent and infant was observed; this is an effective way to increase parental responsiveness and help them develop confidence in relating to their own child. In cases where "mis-attunement" was noted, additional demonstrations and discussions were offered. In Session 4, the mothers continued building a foundation in FirstPlay practices and were using songs and games that were familiar to them, becoming more familiar with the story-massage, songs, and games. In Session 5, the mothers took the lead in guiding another caregiver through the process, i.e., a friend, grandparent, or father, demonstrating the FirstPlay story-massage and follow-up activities to that person. In Session 6, the practitioner reviewed the curriculum including the Baby Tree Hug techniques, First Play activities, and other information discussed in the previous sessions. The mothers were encouraged to identify their favorite activities and movements done with their baby at the end of the story.

**Procedure**

Ethics approval for this study was granted by the university where the researcher was in. The recruitment of participants was based on a convenience sample. All of the participants gave informed consent to take part in the study. The program was conducted on an individual basis. Data collected from parents were anonymized prior to the analysis. Pseudo-names are used throughout this paper to preserve the anonymity of the participants.

**Data collection**

After the program, a semi-structured interview was conducted with each mother to explore her experience of using FirstPlay with her child. The interview was designed to explore two major areas:

the mother's perception of change in the child or in how the mother related to the child; and the mother's perceptions of the importance of baby massage and developing sensitivity and empathy. The interview began with direct questions about the demographics. This was followed by nondirective questions about the mothers' understanding of infant development, their concerns about their infants, difficulty in relating to them, their experience with FirstPlay, and the importance of baby massage. Different probing techniques (e.g., asking for examples and elaboration) were applied throughout the interviews to elicit more detailed and comprehensive information from each mother. To maintain consistency, all of the interviews were conducted by the same assistant. All of the interviews were audio-recorded and transcribed verbatim before the data were analyzed.

**Fidelity of delivery**

Delivery of the sessions was checked to ensure that each step was implemented as described in Courtney's program manual (31). In addition to the checklist mentioned above, the following questions were reviewed by the practitioner after each session. Were all of the steps in that particular session presented and was the session's goal met? Was the mother actively engaged and involved? Was the environment positive and interactive? Was the mother offered help to solve problems related to barriers to goal attainment? Was time allowed for questions? Were the questions answered adequately? Overall, did the implementation adhere to the original program protocol?

**Data Analysis**

A descriptive phenomenological data analysis strategy was adopted to capture the essence of the participants' experiences (36, 37). Two research assistants, working independently, read all of the transcripts to get an overall sense of the participants' experiences. The research team highlighted significant phrases and developed meaning statements (see Table 2) through the processes of dialoguing, discussion, and rereading the transcripts. Through these processes, emergent themes common in the participants' experiences using FirstPlay were identified, and then grouped into higher-order themes. To ensure the quality and rigor of this

**TABLE 2.** Significant Statement and its Corresponding Meaning Statement (Example).

<i>Significant statement</i>	<i>Meaning Statement</i>
I have more ideas about what bonding is. Staying together is just part of it. Attention to and addressing the nonverbal cues of my baby are so important. I should spend more focus on relating to the baby on the spot instead of figuring out what toys to get to stimulate him.	Mom believed that the felt sense of connection with the baby could be enhanced through paying attention to the here-and-now and the cues sending out.

qualitative study, efforts were made to set aside biases. One method used was member checking. After the researchers formulated thematic descriptions, the participants were asked to confirm that they captured the intended meaning. This approach helped to authenticate the results (38, 39).

**Results**

The section lists the common themes that emerged from the data analysis. Quotations from the participants capture the essence of their experiences with FirstPlay. Table 3 provides a list of themes and subthemes.

***Bonding With the Child***

The participants described experiencing a close connection with their children while engaging in FirstPlay. Some mothers reported that their child was difficult to start with but touch did help with the connection. Other mothers reported that the touch made them feel closer to their child. An example of a parent’s recollection of this experience is as follows:

*“We love the child... though she is a difficult child, we love her so much. I find that physical touch helps us engage better with her. When I make her closer to me, I believe she is also eager to stay closer to me and we connect better.”*

*“I work for long hours and I seldom have time to engage with my child. Sometimes, she is hard to engage and connect with. Since I tried FirstPlay, I think it is a good means to gain trust with her. I was overwhelmed when she looked at me while I took it as asking for more massage on her hand. I remember how*

*sweet she was when she looked at me and smiled. There was more cuddling and quality time among us.”*

***Being More Focused and Responsive to the Child***

The participants reported that they paid closer than normal attention to their child while engaging in FirstPlay activities as it was a “special time” for them. FirstPlay provided them with a chance to pay close attention to their child and to reinforce their sense of connection with the child. Mothers were able to describe their child’s responses in some detail.

*“I began to be more aware of my child’s cues as to when he is ready for FirstPlay. I can see his facial expression on how much he longs for it. When he is excited, he gets wild. His eyes sparkle and he giggles.”*

Mothers described their experiences of talking with and relating to their child. They described getting and responding to their children’s cues.

*“I know when she likes it and when not. When I went to her face, she looked at me differently. I sensed that it may be too much for him. So, I stopped and went to another spot.”*

*“FirstPlay gave me ideas on how to relate to this child. I learn more about my child through interpreting the eye contact. Maybe my child is also connecting with me this way.”*

***Serving as Part of the Routine***

The participants mentioned that establishing a time for FirstPlay activities on a daily basis helped them to create predictability for the children and themselves.

**TABLE 3.** Themes and subthemes.

Themes	Subthemes
Theme 1 - Bonding with the child	Resume some kind of bonding with the child. Touching makes us closer. A sense of “togetherness”.
Theme 2 - Being more focused on the child	Child as the center of attention. Able to attend to child’s cues and know more about her unique personality, character, and needs. More aware of potential problems coming up.
Theme 3 - As a daily routine	Able to have time together – for connection. Setting up a time for a break. Routine is important for everyone.
Theme 4 - Feeling calm and relaxed	Feeling good and positive. Feeling self as a capable mom to make the child feel good. Able to be calm in order to massage the child.
Theme 5 - Gaining confidence as mom	Acquire more knowledge about infant development. Know more about the importance of “touch”. A no-cost way to handle child’s mild physical problems. Something fun to do to attune with the child. Able to manage new things.

It also helped them pick up on their child's quiet and alert times.

*"I have been busy all day and FirstPlay is the time I can put things down and have the special moment with my child. It's a good time for us both to "recharge". ... and I can literally recharge my phone too without relying too much on it."*

*"At first, my child felt uneasy with the task but as time went by, he was more relaxed and he would know that the massage time is coming once he saw me reorganizing the stuff in the corner. It looked like he has developed a routine for himself!"*

### **Feeling Calm and Relaxed**

The participants indicated that they themselves felt calm and relaxed when engaging in FirstPlay activities with their children. They enjoyed these "special moments."

*"I didn't mean I am relaxed all the way, especially at the time when I started to learn FirstPlay. ... I found it easier for me to practice FirstPlay at home ... and I picked up the part(s) which I found easy to do. When my child is responsive to me, I found it very relaxing."*

*"I have to be calm and relaxed before doing FirstPlay with my child. So, this task gave me an opportunity to stay calm and relaxed. When I see my child relaxed, I have a feeling that I am relaxed too. It's mutual ...amazing!"*

### **Gaining Confidence**

The participants reported that they had gained a lot of knowledge and strategies for relating to their children.

*"Through massage, my child could also learn different words from me and through my words in storytelling, my child's imagination can be enhanced."*

In the interviews, the participants recalled the importance of positive touch in a child's development and that massage could be a low-cost way to handle issues that arise in children's daily routine, such as appetite or sleeping problems. Some of the parents also mentioned that they gained ideas for relating to their children that did not involve toys or reliance on digital devices.

*"I didn't have much idea about what to do with my child. I don't have much things at home and many toys for babies are expensive.... and I know that mobile phones are not good for babies. It is good that I have learned some fun games to play with my child. Having fun and staying attuned with my child is not difficult. I have started collecting more rhymes and songs to play with my child."*

*"I am able to sing more child-like songs now. It's good to start thinking about new ways to end FirstPlay when the massage is done."*

*"The support given by the therapists enabled me to look into my own inner resources and to prepare me to face the difficulties ahead. I like the step-by-step guide given to me. Had the program been run in groups, I may have given up already as I learn slowly. With someone coaching me and provide feedback to me, I can learn and become competent."*

### **Discussion**

Overall, the findings of this qualitative study provide insights into how mothers from low socio-economic backgrounds view FirstPlay training. The participants' descriptions of changes in their children, themselves, and parent-child interactions are consistent with the results of other studies of FirstPlay. Unlike other studies, this study focused on the phenomenological experiences of the mothers enrolled in the program.

The parents' understandings of "bonding" and how secure attachment can be developed out of bonding coincide with those in the study by the Committee on Integrating the Science of Early Childhood Development (40), which stated that the critical aspect of the parent-child relationship is not the quality of the care, or just the bond between parent and child, but is the quality of the nonverbal communication between the dyad. The reports of the parents in this study of focusing on what was happening in the moment between themselves and their children (for example, picking up a cue that the child needs rest and no more playing) are typical "serve and return" interactions (41, 42). Children naturally serve when they initiate interactions through their gaze, vocalizations, or actions; adults return the serve when they respond in developmentally supportive ways. Although infants are genetically programmed to connect with caregivers, only within the context of attuned, reciprocal, and well-regulated interactions can genes promote optimal growth.

The theme "being with the child" (here and now) corresponds with the literature on the negative impact of technology on young children (43). Mobile phones, computers, and other distractions can prevent parents from giving their full attention to their children. Parents who text a friend or respond to a social media post while with their child miss out on opportunities to make eye contact with their child and promote the secure attachment process. The participants valued the experience of learning FirstPlay as a program that facilitated their sensitivity and awareness of the importance of a regular routine for both the child and the mother.

Our findings are consistent with previous studies that infant massage is effective in enhancing mother–child interaction (44, 45). A secure attachment relationship between mother and infant is recognized as a protective factor that increases the likelihood of children developing positive mental health in adulthood. The impact of infant massage on mother–infant attachment and attunement and the dyadic relationship has been established in the literature (35).

The results of this study show that FirstPlay, as a play therapy model, supports the efficacy of parents. Before joining this program, the mothers overlooked the potential beneficial effects of sensory stimulation and massage for both babies and their parents. A parent’s sense of efficacy affects how they appraise their children’s self-regulation. If a mother thinks that she is not competent in parenting, she may view the infant as having poor self-regulatory abilities, such as low ability to be soothed and high distractibility. A mother’s low sense of parenting self-efficacy may also influence her real interactions with her child. This may in turn cause the mother to misinterpret the infant’s cues and needs (46).

Studies have shown that programs consisting of multiple sensory stimulations, that is programs that stimulate all or several sensory organs to create auditory, tactile, visual, vestibular, kinesthetic, olfactory, and gustatory sensations, effectively improve the growth and/or neurodevelopment of very young children (47). This is further supported by studies showing that multisensory actions and modulation enhance a child’s social–emotional ability through bidirectional interaction (48).

### **Limitations**

This study had some limitations, particularly the small convenience sample, which may reduce the generalizability of the results to other families from various socio-economic backgrounds and/or with children who have diverse needs. The different experiences and ability to express ideas verbally among the mothers may create variation in the quality of their responses. Although the sample size was small, the interviews with individual mothers allowed a deep exploration of their experience in the program. The transcribers and coders also facilitated our analysis of the themes.

### **Clinical and practical significance**

Overall, this study adds to the literature and has both research and practical implications. Low-income families are more likely to have lower quality parent–child interactions, as they have diminished parental capacity to engage in positive, emotionally supportive techniques with their children. The results of this study suggest that expanding our understanding of

the impact of FirstPlay as a manualized program for infants and their parents is a useful line of research. Studies of the impact of this kind of program may help parents who have children with developmental delays or other special needs. When promoting similar programs to parents, more and better information should be provided to highlight the benefits not just for the babies but also for the parents. Addressing nonverbal cues and providing here-and-now experience in interaction are important for developing bonding and secure attachment for young children. Setting up regular routines (including a multisensory massage program) that develop better parent–child interaction and encourage parents to engage in joint attention activities is important. Positive regular routines for parents and young children may also help to reduce household chaos. Coordinated efforts are needed to promote programs and services at the family or community level to serve families who are vulnerable and socio-economically disadvantaged.

### **Ethics approval**

Ethics approval from the University was received by the researcher before data collection took place. Participants signed the informed consent for joining the program in this study and agreed to provide their data for research purposes.

### **Disclosures**

The author has no competing interests to declare. No external funding was provided for this study.

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