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To cite this article: Yunhee Kim (2015): Relationship-based developmentally supportive approach to infant childcare practice, *Early Child Development and Care*, DOI: [10.1080/03004430.2015.1057579](https://doi.org/10.1080/03004430.2015.1057579)

To link to this article: <http://dx.doi.org/10.1080/03004430.2015.1057579>



Published online: 29 Jun 2015.



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Relationship-based developmentally supportive approach to infant childcare practice[†]

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(Received 27 March 2015; accepted 29 May 2015)

Caregivers' warm, sensitive, and attentive interactions with their children have been widely considered key indicators of infant-caregiver interaction quality in childcare contexts. The primary purpose of this study was to explore infant's daily experiences and the characteristics of relationship-based supportive care practices in a childcare setting. This research project is based upon videotaped and direct observations of infants and caregivers in a naturalistic environment. Approximately the first three months of childcare of the four targeted infants in the infant childcare context were video-recorded. Infant caregivers' consistent care and educational philosophies, dedication as well as congruent belief systems with other team members influenced the accuracy and consistency of caretaking behaviours and responsiveness to individual infant's needs.

Keywords: infant childcare; relationship-based approach; childcare quality

Introduction

We are in an era in which the quality of early out-of-home care and education for young children has become a major concern. The current model of human development emphasises transactional and reciprocal influences among many factors across the life span (Dodge & Pettit, 2003) and early social experiences are considered long-lasting factors that are related to one's internal working models of lifelong relationships as well as sense of self. The first year of life is considered a particularly sensitive period for developing attachment relationships; doing so is 'a salient developmental task of infancy' (Egeland & Hiester, 1995, p. 474).

Unfortunately, infants' full-time out-of-home childcare experience has been considered a risk factor for a higher probability of insecure attachment patterns and consequential negative developmental outcomes (Belsky, 1988, 2001), although this claim is controversial (Caruso, 1990). Some, like Belsky, have found higher proportions of children in childcare groups who are insecurely attached to their mothers compared to those who are reared at home. In addition, according to some, even securely attached infants among the childcare groups were described as being more aggressive, having behaviour problems and in general, considered by their caregivers to be less emotionally healthy and competent (Egeland & Hiester, 1995).

[†]This paper is based on the parts of the author's dissertation manuscript.

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On the other hand, infants' attachment patterns in centre-based or home-based childcare, situations that provide relatively high-quality care, have shown high rates of secure attachment patterns (Burchinal, Bryant, Lee, & Ramey, 1992; Harrison & Ungerer, 1996). For example, in general, both Australian centre and family childcare services, which are very strictly regulated, are found to provide high-quality care in terms of a low child-to-adult ratio, safe and age-appropriate physical environment, and substantial caregiver qualifications (e.g. specialisation in Early Childhood Education or a related area) (Harrison & Ungerer, 1996). In these high-quality care environments, a greater number of children who did not experience infant childcare was identified as insecurely attached to their mothers than the children who were enrolled in childcare during infancy (Harrison & Ungerer, 1996). More surprisingly, all of the children who attended family childcare were securely attached to their mothers in Harrison and Ungerer's study (1996).

If quality is such a key factor, what determines the quality of early care and education? Many parents and policy-makers tend to base their judgement of quality care and education on observable structural factors, such as centre size, physical environment and low child-to-adult ratio. However, these structural variables do not always predict the overall quality of care and education (Burchinal, Howes, & Kontos, 2002), especially not alone. Many researchers have investigated children's daily experiences in their care, which are more directly connected to children's development (National Institute of Child Health and Development Early Child Care Research Network, 1996). For example, the emotional dimensions of caregiver-child interactions have been related to young children's social competences and result in fewer problem behaviours (Mashburn et al., 2008), and when caregivers are less critical towards, or harsh in their interactions with children, the children demonstrate fewer problem behaviours (Rusby, Smolkowski, Marquez, & Jaylor, 2008). Furthermore, the quality of instructional interactions is related to all measures of children's academic and language development (Mashburn et al., 2008).

In particular, caregivers' warm, sensitive, and attentive interactions with their children have been widely measured as key indicators of caregiver-child interaction quality in childcare contexts (e.g. Burchinal et al., 2002; Gerber, Whitebook, & Weinstein, 2007; Howes, 1997; Rusby et al., 2008). One major role of sensitive responsiveness of parents (or caregivers) is that positive affectional exchanges between the adult and a child form and promote the emotional ties between them. When caregivers respond to their children as fully as possible, and thus develop emotionally secure relationships, the children are more likely to be involved in a higher level of social interaction and collaboration and are also more likely to participate in imaginary play in the classrooms (De Schipper, Tavecchio, & Van IJzendorp, 2008; Howes, 1997; Howes, Galinsky, & Kontos, 1998). Confident and close relationships between and among the caregivers and children not only encourage children to reach a higher level of social interaction and cooperative play, but they also have positive effects on children's later cognitive and social development (Peisner-Feinberg et al., 2001).

The current study assumed the association between a professional caregiver's warm and sensitive responses and infant-caregiver attachment relationships in a childcare setting. The findings drawn from this in-depth observational descriptive study will provide many practical implications for professional caregivers, particularly related to how they can form and enhance close relationships with their infants in a childcare context.

The primary purpose of this study was to explore infant's daily experiences and the characteristics of relationship-based supportive care practices in a high-quality full-time childcare setting. In order to carry out this purpose, this study described how infant caregivers communicate with infants as they tailor daily routines and activities. This study also explored how the caregivers' knowledge and beliefs relate to observable behaviours and practices related to her sensitive responsiveness to infants' needs. The research question to be answered in this study was: What is the nature of relationship-based supportive care practices, as demonstrated by the primary infant teacher with her caregiving team in this study.

Context

This research project utilised qualitative methods, which is concerned with four infant cases with their caregivers in a high-quality childcare setting. Given the exploratory nature of this study, I used a purposeful sampling strategy. Before selecting a childcare centre, I present two important selection criteria. First, the centre had to have an infant classroom where there were at least four infants aged from three to nine months. The second criterion was that the centre had to have evidence that it provided high-quality early childhood education. I considered this important in strengthening arguments or suggestions for future research and practices based on study results later in this work.

The centre

The childcare centre that I selected was university-affiliated that offers exemplary early childhood care and education for university employees and students in the Midwestern United States. The centre's philosophy aligns with those of Erik Erikson, Jean Piaget, and Lev Vygotsky, among others, and the centre is dedicated to creating developmentally appropriate care and an educational environment that facilitates each child's competent and healthy growth (from the centre staff handbook). In addition to receiving the highest rating by the state childcare quality rating system, the centre recently renewed its national accreditation with the National Association for the Education of Young Children (NAEYC).

The infant room

The philosophy of *Continuity of Care* has influenced the centre system such that infants stay with same primary caregivers in the same classroom until age three. The two lead caregivers in the targeted infant classroom had been working together for about two and a half years and that year they started their second continuity cycle together in the infant room in the centre. As a way of developing close rapport and long-time relationships with the families, the caregivers made home visits to the prospective families right before they started this year in the infant room. By observing the infant's play, responses, and interactions with their parents, they mapped how they might best start new routines and engage in experiences in the new world of the infant care room.

The *Primary Caregiver* system (called principle caregiving at this centre) also helps caregivers at this setting to keep track of individual children's development and growth. Each caregiver may have no more than four key infants for whom she/he is primarily responsible. Despite the centred principle caregiver system, however, each infant's

daily routines such as meals, snacks, diaper changes, and nap time settlings were conducted by all of the caregivers in the classroom. The caregivers also recognised that each of them was fully responsible for all of the infants in the room, but at the same time, they tried to pay a little more attention and thought towards infants under their primary responsibility.

Participants

I selected one caregiver participant first and then selected her four primary infants for focused filming and data collection in the room. Based on the observations, between two caregivers in the room, I selected Catherine and her four infants: Mason (male, 13 weeks), Sophia (female, 13 weeks), Jayden (male, 23 weeks), and Emma (female, 29 weeks). Catherine showed high warmth, gentle interactions, and quick responses to infant signals as well as great devotion to taking care of the infants. On the other hand, the other caregiver sometimes showed sudden pick-ups that Ainsworth, Bell, and Stayton (1974) considered insensitive, and he also frequently made noises near the nap area, seemingly unaware or insensitive to the potential impact on the sleeping infants.

Procedures and data collection

Video recordings

This study was conducted as part of larger project. The project is based upon videotaped and direct observations of infants and caregivers in a naturalistic environment (an infant childcare classroom). Approximately the first three months (25 August 2011 through 29 November 2011) of childcare of the four targeted infants in the infant childcare context were video-recorded. Video recording data were transcribed using the Inq-Scribe transcription software program. Ten to twelve weeks of transcribed data for each infant were then ready to be coded.

Interviews with caregivers

Two primary caregivers in the infant room were asked to volunteer for interviews. To assess each caregiver's educational background, educational beliefs and experiences, interviews were conducted in the midpoint of the study. The interview meetings followed a semi-structured format to allow for the emergence of individual reflection. The audio-recorded interviews were transcribed and then analysed in order to answer the research question.

Data analysis

Video transcripts were analysed using the use of qualitative analytical techniques. Identifying and reducing the systemic unit of analysis is the first step for qualitative coding, according to Chi (1997). Since caregivers' warm and sensitive responses and actions related to infants' individual needs were the interest of the present study, I initially identified infant-caregiver interactions and every time a caregiver behaviour was directed at a targeted infant, the behaviour was marked separately on the blank spaces of the transcripts. Identifying caregiver actions was pertinent to the data

rather than looking for instances of particular pre-categorised action. After repeated reading and adjusting coding themes, the areas of caregiver expert roles emerged as salient categories: dealing with infant crying, Teamwork, Respecting infant's preference, Care and educational philosophy, Awareness of infants' adjustment and developmental changes, Providing high-quality stimulation and Dedication. Findings related to caregiver expert roles are presented, focusing on the caregiver's relationship-based supportive practices and behaviours in the infant room. Qualitative data in the form of descriptive texts, photograph, and narratives are presented for information about infant's experiences, behavioural and interactional styles with the objects and people.

Findings

Four infants' childcare experiences

The first participant was a six-month, 27-day-old female infant, Emma, one of the four infant cases in the present study. Emma was an only child. While transitioning into the programme, as was true of all the infants, Emma spent half a day in the morning or afternoon for the first three days of childcare on 22 August 2011, and started full day on 25 August. Emma had prior childcare experience from 4 to 6.5 months of age in another childcare centre and moved to this centre in August.

Emma's attachment relationship with the primary caregiver

Emma quickly developed an attachment with her principal caregiver, Catherine. After about three weeks of childcare (second week of September), Emma showed strong signs of bonding, such as joyfully greeting Catherine when she came to childcare in the morning. Catherine also said that Emma had been showing pleasant greetings every morning during dropping-off time since around the third week of childcare. Emma not only waved her legs but also her whole body, giving big smiles whenever she saw Catherine in the morning. Emma also loved Catherine's songs, humming sounds, smiles, and conversations, and knew they led them to joyful interactions. Emma's preference towards Catherine and the bonding signs she exhibited continued throughout the semester. Attachment behaviours were noticeable particularly when she seemed to be very tired and distressed, such as clinging to, reaching for, crawling and making pleasant sounds towards Catherine and gestures as if she was relieved when being picked up by her. In the ninth week observation, Emma crawled into the crib area and after she moved out of the area, she clung to the crib entrance door for about five minutes. Emma was looking inside where Catherine was bottle-feeding Mason in the rocking chair in the far corner of the crib area. At that time, Emma's first morning nap was delayed somewhat more than usual, and it was also found that Emma had a 'poopy' diaper. After feeding Mason, Catherine picked up and changed Emma's dirty diaper. Soon Emma fell fast asleep while drinking a bottle in Catherine's arms (Week 9, 11/07/11). See another example of her attachment behaviour towards Catherine in the description included in [Figure 1](#).

Emma did not typically show any distress signs towards visitors in the room. However, when a couple of visitors came and talked together in a circle, Emma showed a sign of stranger anxiety towards them. Emma grimaced and welled up tears while looking and listening to the conversation. The face-to-face conversations in close proximity seemed to activate her fear and anxiety. At the very same

	(a)[Time (hh:mm:ss): 10:15:26] Emma just woke up from a short, 25 minute nap. Emma was in front of the crib door and attended to Catherine's voices. Emma began to crawl toward Catherine, who was folding the laundry in front of the changing room.		(b) As soon as Catherine was passing nearby, Emma stopped crawling and looked up Catherine. However, Catherine just passed by Emma.
	(c) Emma turned toward the way Catherine was going and made a high-pitched sound of "Ah~" as if she was very frustrated. Emma began to crawl again and followed Catherine.		(d) When Catherine noticed Emma's short sound, she returned back to Emma saying, "Oh, you wanted me to hold you~~ So sorry...(pity words) I had to put away burp clothes..."
	(e) Catherine was walking toward Emma and she also reached for Catherine.		(f) Catherine picked up Emma saying, "I am so sorry! Come! Come! Come!"
	(g) Catherine joyfully talked to Emma with warm affection. Holding Emma, Catherine turned toward me and the camcorder: Catherine: "Say, hi to Yunhee..Hi! Hi to Jack!" Catherine and Emma waved their hands at me.		(h) Suddenly, Emma buried her face on Catherine's shoulder and began to rub her eyes for a moment. Jack noticed this scene and said: Jack: "Oh, you had a little nap?"
	(i) Emma was gazing off into space. Soon, Jack found that she was absorbed by a red cloth hanging on the wall at a distance. Catherine had newly decorated the wall with this red leopard cloth today.		(j) [Time (hh:mm:ss): 10:16:37] Catherine walked toward the wall holding Emma in her arms. Catherine allowed Emma to touch the cloth and talked with her about the
	Jack: "Oh, she is staring at the leopard (pointing at the wall)." Catherine: "Oh, Did you see the leopard? Oh...so beautiful!"		leopard cloth for a while. Jack took several pictures of Emma.

Figure 1. Emma actively sought and crawled towards Catherine (Video Snapshot, 11/14/11).

moment, Jayden was eager to be held by one of the visitors and made big smiles towards them.

Jayden was 5 months and 10 days old at the starting point of the study. Jayden had an older brother who was attending preschool in the same childcare centre. He also spent two half a days for the first three days of enrolment in childcare. Jayden loved interacting with caregivers and other infants as well as playing with a variety of toys and materials in the room. Jayden looked very contented and happy within his social milieu while looking, rotating, sucking, and playing with object materials. Toys that other infants were playing with began to distract him. He would reach and attempt to grab the toys from other infants' hands.

Jayden showed his love for infant cereals by producing pleasant sounds and facial expressions. However, he would often refuse to take his bottle, which became even more difficult after he started eating solid foods. Jayden had been given expressed breast milk which was kept in the refrigerator and also in the freezer. Since Jayden protested getting his bottle, Catherine decided to attempt giving him his bottle before cereals because she believed breast milk to be very important to his diet. Signs of fatigue in Jayden were manifested in the dulling of his eyes and also in a particular way his body would slide down, often bumping into the toys or landing on the floor. Before making extensive fussy sounds, a grimace could be seen on his face. Only after all these other behavioural clues, would he begin to make intermittent fussy sounds or sudden and extensive crying sounds.

Jayden's attachment relationships

According to Catherine, Jayden seemed to recognise his father and brother on 10 October 2011. When he saw his dad and older brother during a buggy ride, he smiled widely towards them. Whereas Emma showed strong preference towards Catherine, Jayden seemed to show equivalent affections to every caregiver and even towards strangers. In early November, two researchers visited the infant room and noticed that Jayden showed affectionate facial expressions towards strangers, and even attempted to throw himself onto one of the two visitors. At the same time, Emma frowned and whimpered while looking at the visitors. Despite this, Jayden once cried excessively when a new person tried to soothe him when he was very tired. Finally, he was consoled after Catherine fed him and rocked him to sleep. At the end of study, Jayden and Emma showed similar behaviours in that he grasped the crib entrance door while Catherine was inside. However, it was unclear whether he was mimicking Emma's behaviours or he was actively seeking Catherine.

Sophia was a three-month-old female infant and a cherished girl in her family; she had one older brother. Sophia had started full-day childcare on 25 August 2011. Her day began at around 7:40 a.m. when she arrived and ended when she was picked up at approximately 2 p.m. by her grandmother. Frequent social smiles and interactive cooing represented Sophia's active social interactions and sociable characteristics. Sophia was good at watching other infants and adults with very focused, extended eye contact. Sophia enjoyed sharing affectionate expressions and engaged in face-to-face talk, shared gazes and smiles. She would also respond to her caregiver's eye contact and verbalisations with her own gurgling and big smiles. Sophia also liked close bodily contact and was not distressed by close proximity or physical contact from other infants and caregivers. She would often gently touch the face of other

infants, and grasp their hair; behaviours that sometimes made the other infants fussy, especially those who did not like close bodily contact.

Sophia also spent considerable time investigating her own fingers and toes. If she was positioned in a bouncer seat during Alert states, which was comfortable but sometimes restricted her body movement, she would sometimes stare at her fingers for long periods of time, holding them in front of her eyes. She also often looked at and followed caregivers with her eyes as they walked around at a distance; all the while Sophia wriggled her toes and cooed contentedly. Sophia was good at holding her head up, and could roll over onto her tummy at the beginning of the study. She could roll over onto her front or back by herself by the age of approximately four and half a months. She would be seen playing with toys in a given position for a while and then she would roll from her back onto her tummy by herself until she would roll onto her back again when she was tired.

On the other hand, Sophia had a strong preference for soothing, and vigorously expressed her needs with an intense, high-pitched voice. Her caregivers described her tone of crying and screaming was very piercing. Catherine quickly recognised in the earlier weeks of childcare that Sophia was consoled when she was held and rocked on a shoulder in an upright position. Catherine helped Sophia by recognising her individual preference for soothing. Prolonged crying was not ignored and responded to promptly.

Mason was a three-month-old male infant with two older brothers. Mason was formula-fed from birth. He was provided with 6 ounces of formula that he usually consumed completely, rarely refusing his bottle. Mason was a restless infant in general, consistently moving his legs and body. He showed very high activity levels; and although he could roll over onto his tummy, he could not roll back himself onto his back. If Mason was placed on his back on the floor, he would quickly roll over. Lying on his tummy, however, it would not be long before his face turned purple, he became very fussy, and would cry out. Catherine explained that in her experience, younger infants like Mason and Sophia are often more easily frustrated and can be fussier than older infants. Jack, the other caregiver, thought Mason was undergoing a growth spurt, which made him more easily tired and that he needed more energy and sleep than other infants. According to Mason's mother, Mason's height was over the 90th percentile on the growth curve for his age in months. In Lampl and Johnson's study (2011), infants' growth in length was related to increased sleep.

Mason's crying was very intensely loud, so loud that it would awaken infants who were sleeping; thus, caregivers always hurried to help him. While eating solid foods he was enthusiastic in accepting the food, however, sometimes he would quickly become fussy and restless. He also liked face-to-face interactions, which made him smile and coo when a caregiver talked to him while making eye contact. However, Mason stayed in Alert and engaged in activity for only relatively short periods of time. By the end of the study, he showed an increased attention span when compared to the beginning.

Relationship-based supportive care: expert roles

Given the contextual differences of home and childcare environments, it was necessary to closely look at professional caregiver's expert roles in group care. In the infant room, caregivers are aided in understanding whether infants are tired, hungry, bored, or in pain with objective information (records on feeding, changing, and sleeping) and

through discussions with parents and other caregivers in the room, and through the deep knowledge they develop of individual infants as their primary caregiving relationship grows. Several instances were observed in this study in which caregivers provided inappropriate care, which was denoted as insensitive when they attempted to help an infant solely based on infant signals without checking records.

Dealing with infant crying

'Prompt responsiveness' appeared to be a strong belief and philosophy for maintaining deliberate responsiveness with a group of infants. Without this as a strong core belief, prompt responses would not be expected and delivered immediately by the caregiver. If one thinks that it is acceptable to postpone her/his responses depending on the situations, his or her responses would be more delayed than the interventions of those who have firm belief that infant's signals should be heard immediately. Such a belief system was also important for the consistency of prompt and contingent responses. Catherine considered that crying was a communicative effort of the infants. She said,

I don't believe that babies should ever cry. I try as much as possible to make crying at minimal because I feel a baby think crying is a way to get thing and that becomes to vicious cycle. I am amazed how well they are feeding and how well they are contently playing. When they are awake they are contently fully playing. I think babies are very sensitive. They got the message that this is a good place that I am safe and secure here I am relaxed ... no tension. That's important! (Interview Transcript, October 29)

However, maintaining consistent and prompt responsiveness levels to all individuals in a group of infants was often challenging. Specifically, caregivers spent considerable time engaged in the physical caretaking routines of each infant (e.g. Diaper change, feedings, washing, and so on). Each infant was also consistently held and rocked before their nap for about 10 minutes. Infants in this sample received 1.4–2.6 episodes of physical caretaking on average per hour during one sleep–wake state cycle; thus, caregivers provided each infant up to 4–12 episodes of individual caretaking a day, given that typically, each infant experienced three to four sleep–wake cycles per day. Consequently, in the earlier weeks of childcare, there often existed moments that some fussing infants had been left alone until a caregiver's hands were free to respond. Nonetheless, none of the infants endured excessive or prolonged periods of crying. Typically, before reaching crying states, the infants were picked up and their needs were met. When she was not available to help an infant who was making fussy sounds, Catherine would speak to the infant, remark that she had heard them and that she would help him/her as soon as possible. Sometimes, she requested help from another caregiver who was available. If no one was available, Catherine helped 2–3 infants at the same time by feeding one infant she held in her arms, talking to another infant, lying nearby on the floor and keeping one infant in her lap. At the end of the present study, infants' crying in the room decreased dramatically and older infants rarely cried as they all learned to trust that their needs would be met.

Catherine's efforts to maintain close proximity to each infant was remarkable, and she showed a level of expertise greater than other caregivers in the room. Catherine seemed to have unique abilities in interacting with multiple infants in a group setting and she also had the ability to maintain her attention with all infants within her sight. First, she maintained close proximity with infants as much as possible and continuously changed infants' positions when they signalled. An example of this is described below.

Teamwork

Teamwork among caregivers was a critical element in working with groups of infants in order to provide consistent and responsive care for each infant. Making all recorded information readily visible and accessible enabled the caregiver team to more accurately interpret infants' signals. Rosa who worked the afternoon shift checked infants' daily report files as soon as she came in the room before she actively started working with the infants. Time-based feeding and changing schedules served as the foundation for basic routines for each infant, while flexibility was always kept in mind. On the second week of childcare, Catherine and Jack discussed the diaper changing system; whether it was better to have one person get diaper changes done by approximately 9 o'clock and the next person do it at around 11 o'clock. However, they did not adopt this system and continued to do it cooperatively based on the recordings on the big white board.

Teamwork facilitated the maintenance of effective and cooperative working systems based on continuous records keeping of feeding, changing, and sleeping. Catherine mentioned that she had a good caregiver team this year, all of whom had work experience with young infants or with young children. All of them were also very gentle and cooperative and worked diligently. They respected not only infants' mood and states but also followed the systems set up in the classroom and were careful observers. The active and deliberate communications among the caregiver team enabled them to provide appropriate responses and caretaking to each infant. The caregiver who was first aware of infant signals would inform other caregivers what she had been observing occurring with an infant. Other caregivers who had knowledge of the infant or experience as caretaker with individual infants shared information with the other caregivers.

Respecting infant's preference

Caregivers respected infants' food preferences and feeding methods. For example, caregivers provided Emma with a pacifier before bottle-feeding to help induce sucking movement. Unexpectedly, however, according to Catherine, feeding became one of the most difficult caregiving activities for caregivers in times of maintaining a balance between schedules and infant signals. A couple of disagreements between caregivers were recorded when Mason consistently cried. Generally, most infants were fed four to six ounces of warmed breast-milk or infant formula, from a bottle, every three hours; at the same time, however, getting hunger signs from the infants themselves always outweighed the schedule and hungry infants were always fed.

Challenges related to feeding were also caused by some breast-fed infants who had a tendency to refuse getting a bottle at childcare. Such refusals and protests provided caregivers with much confusion about whether they did not like bottle-feeding or they were not hungry yet. When an infant protested excessively against getting his/her bottle, some caregivers got frustrated, sighed, and expressed their frustration. However, Catherine was very experienced with young infants and never expressed frustration; instead, she tried various gentle techniques to soothe and feed them. Catherine's warm voice and gentle hum usually alleviated infants' protests. She also rocked infants making wide movements in a nursing chair. If they still resisted, she stopped feeding for a while and gently rubbed their backs. If after offering the bottle repeatedly, always gently, an infant continued to refuse, Catherine would calmly give up and record what time she attempted to feed the infant and how much the infant took, if any.

Care and educational philosophy

Catherine demonstrated characteristic behavioural patterns. For instance, she consistently sat down in the centre of the play area whenever she was available and free from other caregiving duties. Infants were typically placed in the centre play area in a group, and Catherine would sit down beside them in a circle to sing nursery rhymes or songs to them or to simply interact. Sometimes, this play was interrupted by other infants who were just awakening or crying and to whom she would need to respond. Despite Catherine and the other caregivers in the infant room always being very busy working with the whole group of infants, Catherine always set time for active interactions with all of the infants throughout the day either in pairs, groups or individually.

Such consistent behavioural patterns were related to Catherine's firm and specific philosophic orientation about how young humans should be treated by adult caregivers. According to Catherine, she has been consolidating her philosophic thoughts and beliefs about her educational and care practices throughout the years, in part, by attending various infant/toddler conferences and trainings at the state and national levels. She also added that:

[...] we need people in the baby room smiling at them and responding to interacting, singing, and doing things with them and talking and giving a conversation, you know, back and forth and back and forth ... the baby says something and you respond ... so the baby talks more and you respond more [...] we spend 8 hours every day five days a week. We spend more time with the babies than with their parents. So, as a teacher, I feel that we need to make those times precious that given to us and doesn't come back again. Every day is like a gift given to us so I think we can make it blessed, make it productive in the life of the child[...] (Interview Transcript, October 29)

Awareness of infants' adjustment and developmental changes

Over the weeks of the study, as more infants adjusted to the childcare environment, the atmosphere of the room became increasingly more calm and peaceful. Although sometimes small and sudden noises and unusual sounds were still disruptive to infants' sleep, it was generally quiet enough for both caregivers and infants to fall into a routine. Most infants' alert periods also increased over time, some of them showing dramatic increases by the end of the study. Caregivers noticed these changes and Catherine stated that she was expecting this to occur as the infants continued to mature. Most infants would take two longer naps and then around the time they turned to one-year-old according to Catherine, in her experience, most of them would begin to take one long nap.

Providing high-quality stimulation

Catherine's one-on-one and group activities demonstrated excellent features of interactional dialogues: diversity, gentleness, flexibility, rhythmicity, enjoyment, warmth, and emotional encouragement. Caregivers influenced by Catherine's skilled caregiving and natural interactions imitate her with groups of infants as much as possible; sitting with them, reading to the infants, and singing with them. Thus, the other caregivers also provided infants with excellent interactional exchanges and engaged them in language-rich activities employing a variety of songs and rhymes. Although infant caregivers typically do not need to plan structured activities, various songs, rhymes, and hands and

body motions provided infants ample opportunities for emotional exchanges and social learning. Infants' active responses and pleasant expressions such as co-vocalisations, joint laughing, mutual gaze, and infants' extended attention spans were actively encouraged during these times. See the example described below. In this example, which was typical, Catherine's songs and rhymes with the group of infants continued for about 25 minutes. All the infants around her were calm, fully engaged and fascinated by the group activities, Catherine led.

Dedication

Infants were always held and rocked to ease them into falling to sleep. In the first few weeks of childcare, it was observed a few times that some of these young infants fell asleep by themselves, lying in a bouncer seat while they were waiting for someone's help. Catherine and other caregivers in the room, however, never expected that infants would fall asleep by themselves. The caregivers consistently held and rocked infants to help them fall asleep or they fell asleep while getting their bottles in a rocking chair.

Falling asleep and going back to sleep. In general, infant sleep research has shown that when parents are either too responsive to infants' sleep (Sadeh et al., 2010) or not responsive enough (Priddis (2009), infants tend to have sleep problems. Sadeh et al. (2010) assumes that responding too quickly make them dependent on parents to sooth them back to sleep; they suggest parents to give infants opportunity to go back to sleep by themselves at least at first, before they become fully awake or too upset. In the infant room, however, it hardly even happened that infants fell back to sleep by themselves after being awakened. It was common, as shown earlier, to not let infants who were in distress demonstrated by not trust cries, to go unattended. Catherine consistently held and rocked infants when she noticed that the infants were awakening.

When working with the eight infants in this study, the caregivers worked very hard and all the caregivers in the room consistently picked up and held infants when they got fussy in order to calm them or to help them fall to asleep. In the earlier weeks of the study, caregivers worked to soothe infants using a variety of gentle soothing methods, not always sure what would work best for individual infants. It was through their commitment and dedication and constant responsiveness that did not allow infants' prolonged crying that infants' crying decreased gradually and the atmosphere of the room became calmer and more peaceful after the first month of childcare.

Discussions

Provisions of high-quality infant childcare

By decoding the general concept of 'love' in a more precise spectrum of attachment, attachment theory has served as a useful typology of parent-child relationships (Rutter, Kreppner, & Sonuga-Barke, 2009). Attachment theory places a special emphasis on the development of early attachment in the parent-child relationship that becomes the basis both for successful socialisation and for other close relationships that form later in life. A person's interpersonal communication styles, expectations for, and interest in close relationships, rooted in his or her own internal working model of sense of self and relationships begin to form through early experiences of repeated mother – (or other

significant substitute caregiver or caregivers) child interactions and relationship history (Ainsworth et al., 1974; Bowlby, 1973, 1988; Weinfield, Ogawa, & Sroufe, 1997). The quality of mother–child interaction cycles and the sensitivity of maternal care is considered by many scholars to be *the* major determinant for a child’s attachment security, which in turn is also a key source of later socialisation and learning (Ainsworth et al., 1974; Dunst & Kassow, 2008; Ranson & Urichuk, 2008).

McMullen and Dixon (2009) articulated that the framework of relationship-based practices constitutes contemporary thinking for the care of very young children in child-care settings. They described the relationship-based approach to infant and toddler groups – a way of practice most desired – and stated that they can be extended into a model that guides practice and policy. The current tendency towards relational care and the education model is promising, although there remains a long way to go. The core theoretical framework of this study is that infant–caregiver relationship is thought of as being the most influential factor in positive childcare experiences to the degree that infants may become empowered to enjoy competent relationships.

A recent study also showed that children who were securely attached to their principal caregivers in childcare environments tended to show decreased stress hormone levels (Badanes, 2009). The findings of the current study revealed that professional caregivers’ expert roles are not only essential for maintaining interactional quality but also vital in regard to overcoming major challenges faced by working with a group of infants.

Enhancing caregiver sensitivity

Professional development for caregivers of young children is very important in order to improve caregiver sensitivity because caregivers in early childhood care and education tend to have markedly diverse educational backgrounds and preparation paths. Although structural quality factors are more easily regulated and controllable (e.g. accreditation status, adult–child ratio, and class size), caregiver sensitivity can also be changed and impacted through factors such as caregivers’ personal characteristics, working environments, and other structural quality factors. For example, with respect to the parent–child relationship, maternal depression is a known risk factor that significantly weakens the mothers’ ability to provide sensitive parenting. Importantly, recent research shows that in-service professional development could moderate the effect of caregivers’ depression, which has been related to harsh or less sensitive behaviour towards the children under their care (Gerber et al., 2007). Caregiver training has been found to lead to less authoritarian attitudes and more positive interactions with children (Arnett, 1989) and to result in more effective behaviour management practices by caregivers (Rusby et al., 2008).

More accurate and better support

Initial identification of the infant state was often not as accurate in a group care setting as in a one-on-one setting. The existence of infant crying and fussiness did not simply tell the teachers what to do. Due to the limits of group care, mistakes and near misses were made as infant caregivers dealt with a group of infants. For example, one day in October, Catherine placed a sleeping Mason in his crib, but Mason soon awakened and banged around his crib after few minutes of sleep. Jack soon found Mason awake and placed him in a play area. On another day, Emma suddenly cried and Jack interpreted her crying as a sign of fatigue so he began to help her to take a nap. However, Emma

was crying because she hit her forehead with a toy. If Jack had checked Emma's sleep records, he may have interpreted her crying differently. Records, and paying attention to them, can eliminate some of the inevitable mistakes when a caregiver did not see the previous events of the infant.

An accessible and visualised recording form can be formatted to consist of three main parts: feeding, sleeping, and changing. In regard to sleep patterns, detailed information needs to be written down, including when and how long the infant napped as well as information about his/her sleep the previous night at home. This information allows both the parents and caregivers to consider the infant's total amount of sleep for the day, thereby eliminating many of the factors for sleep-wake disorganisation (Kim, 2014).

Infant caregivers' consistent care and educational philosophies as well as congruent belief systems with other team members strongly influence the accuracy and consistency of caretaking behaviours and responsiveness to individual infant's needs. It is speculated that the importance of lead caregiver's philosophic orientations weigh on the other caregivers. As it was observed in this study, caregivers in Catherine's room gradually changed their behavioural patterns to mimic hers. Leerkes (2010) found that mothers showed greater sensitivity levels when they had set infant-oriented goals rather than parent-oriented goals and when they had the ability to accurately interpret infant distress signals. In a childcare setting, infant caregivers as a team need to build their own care and education philosophies and goals. In a group care setting, infants are cared for by their primary caregivers as well as by other caregivers, so the teamwork in the room is an important factor in determining the quality of care each infant receives.

This study also highlights the 'transition period' for infants, caregivers, and parents over the first few weeks or months of childcare. Goldsmith's (2005) ethnographic study revealed that this time is a very intense and highly emotional time for everyone – families, teachers, and infants. It takes time not only for caregivers to learn infant responses and preferences, but also for infants to learn to trust their caregivers and the environment. It is also important to remember that infants are adjusting to new daily routines and transitions from home to the centre as well as the centre to home. Based on information from parents, caregivers can apply childcare practices based on preferred ways of feeding, sleeping, holding, comforting, and playing with each infant.

Future directions

Further inquiry and investigation into other supportive practices – the practices of swaddling, pacifier use and sleep extension support – is warranted. It was recorded in this study that infants slept better and showed less body movements and responses to external stimuli when they were swaddled. In the present study, it was also observed that infants' pacifier use seemed to hinder transition to deep sleep. Infants suddenly startled when the pacifiers fell from their mouths in the middle of the moments that active sucking began to stop during the transition to deep sleep. In addition, it was observed that an infant slept better and got her bottle more easily than before after she stopped using pacifiers. Since there have been ongoing controversies on these practices, continuing to build clear rationales on and find evidences behind such practices would help caregivers be equipped with infant-oriented supportive practices.

Disclosure statement

No potential conflict of interest was reported by the author.

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