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Understanding care and feeding practices: building blocks for a sustainable intervention in India and Pakistan

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Undernutrition and inadequate stimulation both negatively influence child health and development and have a long-term impact on school attainment and income. This paper reports data from India and Pakistan looking at how families interact, play with, and feed children; their expectations of growth and development; and the perceived benefits, consequences, opportunities, and barriers of adopting recommended feeding and developmental behaviors. These data were collected as part of formative research for the Sustainable Program Incorporating Nutrition and Games (SPRING) trial. This trial aims to deliver an innovative, feasible, affordable, and sustainable intervention that can achieve delivery at a scale of known effective interventions that maximize child development, growth, and survival and improve maternal psychosocial well-being in rural India and Pakistan.

Keywords: child development; feeding; formative research; SPRING

Introduction

India and Pakistan account for over a quarter of all child deaths, 39% of stunted children, and 34% of children at risk of severe developmental difficulties.[1–3] Undernutrition and inadequate stimulation both negatively influence child health and development and have a long-term impact on school attainment and future income.[4–6] This paper, one of a series planned, reports data from India and Pakistan looking at how families interact, play with, and feed children; their expectations of growth and development; and the perceived benefits, consequences, opportunities, and barriers of adopting recommended feeding and developmental behaviors. These data were collected as part of formative research for the Sustainable Program Incorporating Nutrition and Games (SPRING) trial. This trial aims to deliver an innovative, feasible, affordable, and sustainable intervention that can achieve delivery at a scale of known effective interventions that maximize child development, growth, and survival and improve maternal psychosocial well-being in rural India and Pakistan.

Formative research involves the gathering of information to develop a health communication strategy and is considered essential in the development of any complex intervention.[7–9] It should consider barriers to effective roll-out of the intervention and delivery channels, and use examples of good practice and beliefs in the community as a catalyst for behavior change.[10]

In context of the SPRING intervention, where the intervention aimed to influence behaviors to promote optimal child survival, growth, and development, it was essential to understand care practices within the community. Engle defined care as "the behaviors and practices of caregivers to provide the food, health care, stimulation and emotional

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Table 1. Number and nature of all contacts made during formative research in India and Pakistan

Group represented	Method	Numbers of contacts, India	Numbers of contacts, Pakistan
Pregnant	IDI	8	8
Mothers 0–6 months	IDI	6	5
Mothers 7–12 months	IDI	6	4
Mothers 13–24 months	IDI	7	4
Poorly grown as highlighted by the LHW	IDI	–	4
Mothers 0–24 months	Observations	10	12
Mothers 0–24 months	Narratives	17	12
Fathers	IDI	8	4
Grandmothers	IDI	6	4
Community-based workers	IDI	12	4
Supervisors	IDI	4	4
Higher level health workers/trainers	IDI	2	2
Stakeholders	IDI	1	2
Total		87	69

IDI, in-depth interviews.

support necessary for children's healthy survival, growth and development."[11] In order for the primary caregiver to care for any child, they themselves need to have certain resources, including knowledge, health (both physical and mental), autonomy, support, and financial resources.[12] Understanding the context of care from the perspective of the family is important as care practices are influenced by local context and culture. Though there are examples of ethnographic work looking specifically at feeding practices,[13,14] there are limited data looking at play and feeding around the concepts of care extending to the second year of life. An increased understanding of caregiving beliefs, perceptions, and practices through formative research can help ensure that interventions are appropriately targeted, focus on behaviors that can and need to be changed, and use appropriate messages and approaches.[12,15,16]

Research methods

Qualitative data were collected in the rural Udaipur District of Rajasthan in India and in the Rawalpindi District in Pakistan. Both districts have low rates of female literacy (40 and 48%, respectively) and high rates of infant mortality and stunting.[17] In India, local communities are served by an Anganwadi worker (AWW) and an Accredited Social Health Activist (ASHA),[18] and in Pakistan, by the Lady Health Worker (LHW) program.

Contacts involved one-to-one in-depth interviews, narratives with pregnant women and mothers, and observations of the care practices within the household. In-depth interviews were conducted with pregnant women, mothers of children aged 0–24 months, fathers, grandmothers, and community health workers. In addition, narratives and observations were conducted with mothers of children aged 0–24 months. The narratives asked about a typical day in the life of the mother and child, and the observations recorded how the mother and other family members interacted and cared for the child for up to 4 hours. Respondents were purposively selected using a sampling matrix to ensure diversity on characteristics hypothesized to influence childcare: maternal social grouping, education, caste (India), age of the child, and distance to local facilities. Data were collected until saturation (i.e., when no new information emerged from initial analysis); the sample sizes are shown in Table 1.[19,20]

Guides were developed for each respondent group by the multidisciplinary SPRING team (including members with expertise in social science and qualitative research methods, child development, child nutrition, child survival, mental, and maternal health) and were adapted for each site

Table 2. Categories, themes, and subthemes

Category	Theme	Subtheme
Caring for my child	Aspiration	
	Day-to-day care	Competing demands of mother's time
		Family support
Feeding	Delayed initiation of breastfeeding	Honor in the first feed
		Waiting for clean breast milk
	Continuing breastfeeding: beliefs and barriers	
	Complementary feeds	Introduction of complementary food
		What to feed
		Feeding interaction
Play and interaction	Making the most of opportunities	
	Family play	
	Learning new skills	
	Playing with toys	
	Exploring my world	

through field testing (available from RL). They were translated from English to the local language and back-translated to ensure meaning was maintained.[21,22] Interviews were carried out by trained female field workers, fluent in the local language, in the family home and were digitally recorded and transcribed verbatim; in addition, detailed field notes were taken by a second researcher. Interviewers had a 5-day training that included background information on child growth and development, detailed review of the interview guides, and communication skills, including how to use probes to gain a deeper narrative from respondents; this was especially important as interviews, in the vast majority of cases, were at one time point.

Data analysis and collection ran in parallel to allow the guides to be modified on the basis of emerging themes. Data were analyzed in the local language using an interpretive thematic analysis; quotes in English are for illustration.[23,24] Scripts were read multiple times and notes of emerging themes made; initial interviews were coded by multiple coders, and these codes were used to develop a coding matrix to ensure consistency across coders. The coding matrix was regularly updated during regular research meetings, which also allowed coders to resolve discrepancies between code texts and discuss their own subjectivity. In India, qualitative data management software was used for analysis, and in Pakistan, coding was done by hand. Data from different sources were coded separately and the final themes compared across sources to allow a deeper understanding and for triangulation.[25] Wider categories were broken down into themes and subthemes that emerged from the data. Data were compared across and within countries; similarities and differences were highlighted.

Ethics

Ethical clearance for all aspects of the formative research was acquired from local ethics committees, Independent Research Boards (IRB) in India and Pakistan (IRB Action Research Training for Health (Udaipur, India) and the Human Development Research Foundation (Islamabad, Pakistan) and from the institutional ethics boards at the London School of Hygiene and Tropical Medicine (LSHTM), and University College London (UCL).

Findings

The findings describe how families interact, play with, and feed their children; their expectations of growth and development; and the perceived benefits, consequences, opportunities, and barriers of adopting behaviors that could enhance child growth and development. Findings were divided into three major categories: "caring for my child," "feeding," and "time to play." Themes and subthemes that emerged from the data within each of these categories are presented in Table 2 and described in the text below. Quotes given in the text are illustrative. Further quotes for each theme/subtheme are presented in Tables 3–5.

Table 3. Caring for my child

Themes	Subtheme	Quotes (source—interviews unless stated)	Implications for intervention development
Aspiration		1. "I have many desires that my child will grow, study at school and will get a good job." (Pakistan; narrative with mother of a child aged 13–24 months) 2. "I pray for the child to be healthy and intelligent." (Pakistan; pregnant mother) 3. "At the age of 5 years B will study in school; he will become kermon wala." (Pakistan; grandmother) 4. "What can I say about R's future right now. These days it is all about money, everywhere there is competition. If one has money, then one can educate higher." (India; father of an 11-month-old boy, high asset–score family) 5. "We will send J to study till 10th standard . . . " (India; mother of a 14-month-old girl)	Aspiration is a powerful tool that can be used to frame an intervention.
Day-to-day care	Competing demands for mother's time	1. "After coming back from the field, I tied the cows, brought two pots of water; P was with her father at that time, then I breastfed her." (India; maternal narrative, 3-month-old child) 2. "They (women) do not take care of themselves; this can be a reason. They keep their expenses in their mind and prefer the child." (Pakistan; mother of a 6-month-old child) 3. "Because of repeated childbirths I cannot properly take care of them (the children); this is why I fight with my husband." (Pakistan; pregnant mother)	Mothers in both India and Pakistan are stressed and overworked and need support.
	Family support	1. "It is the responsibility of father to earn bread and mother is responsible for the home." (Pakistan; interview with father) 2. "I give the child milk, wash his clothes; my wife is not well, so I have to do all the work." (India; father of an 11- month-old boy) 3. "Yesterday when I'd gone to the field, my mother-in-law took care of G (child). I don't know what she fed him, whether he cried, did potty, slept or not, I don't know." (India; maternal narrative, 17-month-old child) 4. "My mother cares about me a lot and takes care of the child in a good way." (Pakistan; pregnant mother) 5. "We all live together, so anyone can do S's (child) work. S's aunt, me or even her mother does her work. When she does toilet, any one of us cleans it." (India; interview with grandmother) 6. "A's (child's) work is mostly done by my grandmother-in-law. His eating, drinking, washing clothes, bathing, cleaning after toilet and making him quiet if he cries; all this is mostly done by my grandmother-in-law. My mother-in-law and I also do his work." (India; interview with mother of a child aged 13–24 months)	

Caring for my child

Aspiration

Respondents, irrespective of their social background, expressed strong aspiration for the future of their children (Table 3: aspiration quotes 1–4). In both countries, parents wanted their children to be healthy and intelligent, study well, and obtain good jobs.

> "He should become better than I am . . . . The more he studies, the better it is . . . . It will be good if he gets a job." (India; father of a 15-month-old boy)

In India, in the families with fewer resources, the aspiration was for children to go to the Anganwadi center for preschool and then on to local government-run schools. Families with more

Table 4. Feeding

Theme	Subtheme	Quotes (source—interviews unless stated)	Implications for intervention development
Delayed initiation of breastfeeding	Honor in the first feed	1. "As the habits of the person giving ghutti are transferred to the child, I gave milk instead of ghutti as at the time my brother and brother-in-law were present who are both harsh/strict!" (Pakistan; pregnant mother) 2. "The first feed my son received was gadla. Gadla was given till three days. On the third day I put my child to the breast; milk does not come in the breast for three days; that's why I gave Gadla." (India; mother of a 3-month-old child) 3. "My delivery was done in hospital. There, the nurse did not tell me anything; a bottle of janam ghutti was given for my child and I was instructed to give ghutti 2–3 times in a day; I gave ghutti for 8 days." (India; mother of 11-month-old boy) 4. "Most women breastfeed after 3 days. They give ghutti or give honey after giving a bath." (Pakistan; pregnant mother)	For child survival, there needs to be a change of behavior around the first feed; however, this is an engrained belief.
	Waiting for clean breast milk	1. "I could not give milk on the first day because there was nobody around to help in washing the breast." (Pakistan; mother of a child aged 7–12 months) 2. "I initiated breastfeeding on the second day. Doctor advised to put the child to my breast . . . but milk doesn't come in the breast so (it's) no use putting child to the breast." (India; mother of 3-month-old boy) 3. "(Colostrum) it is milk which has been stored for 9 months in the mother's body, hence it is not good for the child's health." (India; mother of a child aged 12–23 months) 4. "The first milk was discarded because I thought it would be dirty." (Pakistan; mother of a 7-month-old child) 5. "At the time of my first child's birth, breast milk was put on to black insects and they died. Elder people say that such milk is dirty." (Pakistan; narrative of mother of a 6-month-old child)	
Continuing breastfeeding: beliefs and		1. "I breastfed but the child kept suckling the whole day and night. Milk was insufficient." (Pakistan; mother of a < 6-month-old child) 2. "After the third month I started giving water to the child due to summer season."(Pakistan; mother of a child aged 7–12 months) 3. "S was only breastfed till one month; after that she was given other milk because of the insufficiency of her mother's milk." (India; grandmother of a 9-month-old child) 4. "During a fast I don't eat roti. When I breastfeed, milk does not come in the breast; he cries so I give him water." (India; mother of a 5-month-old child)	There is pressure to stop feeding if the baby is perceived to be hungry.
Complementary feeding	Introduction of complementary food	1. "I give them cerelac, porridge, etc. after 4–6 months of age." (Pakistan; narrative of mother of a child aged 0–6 months) 2. "When my child will be able to eat independently then I will give her, . . . or when she will be one and half years old then I will give her to eat." (India; mother of 9-month-old girl)	The practices of weaning are variable in both India and Pakistan. A more consistent message is needed on when and how to wean.

Continued

Table 4. *Continued*

Theme	Subtheme	Quotes (source—interviews unless stated)	Implications for intervention development
	What to feed	1. "I have brought cerelac if he (child) bothers me, I prepare it for him (at the age of 7 months)." (Pakistan; mother of a 7-month-old child) 2. "(One can) make khichri (rice pudding) with pulse, rusk in tea or milk." (Pakistan; mother of a < 6-month-old child) 3. "From the market I only bring biscuits; I give her roti sometimes; I also prepare rice for her because I have to take care of her; today I gave her only milk; yesterday I prepared rice for her." (India; mother of 20-month-old girl) 4. "Daal ka paani, chawal ka paani, cerelac is given from the 7th month; nowadays I am giving khichri and rice to my son." (India; mother of 10-month-old boy belonging to high asset–score family) 5. "Today I gave milk with bournvita to my child; after that I crushed almonds and gave them to him; my mother-in-law told me to give khichri once a day and daliya once a day." (India; mother of 10-month-old boy belonging to high asset–score family) 6. "My mother-in-law once brought the atta from the Anganwadi . . . . The packet had small worms in it, so I gave it to the cow and then stopped bringing it." (India; mother of 10-month-old boy) 7. "For the last six months good atta has been coming because when supervision happened, it was found that it was not good . . . . It used to look white and raw . . . (they) came to know after supervision, so now well-cooked atta comes." (India; interview with Anganwadi worker) 8. " One month before the ASHA met me at the Anganwadi, she told me to give biscuits and atta to my child." (India; mother of 14-month-old girl)	
	Feeding interaction	1. "P (child) was calling his mother by making hu-hu sounds, and pointed towards the kitchen . . . . His mother understood and got one roti mixed with vegetable and sat down; P also sat beside his mother; then the mother started feeding him by putting the food in his mouth; P sat quietly and ate." (India; observation of a 22-month-old boy) 2. "When he is hungry he cries; when he cries I breastfeed him. For feeding him (other things) I have to move around him then he eats." (India; mother of an 11-month-old boy from a low-score family) 3. "I give him a little amount of banana, 2–4 spoons of rice pudding." (Pakistan; mother of child aged 7–12 months) 4. "At the age of 10 months, my child started eating with her own hands." (Pakistan; mother of child aged 12–23 months)	

financial resources associated a good education with sending their children to private institutions. In both countries, education was seen as a way to prosper through employment. In India, there was a disparity between the family's aspirations for boys compared to girls, with girls being expected to study for fewer years (Table 3: aspiration quote 5).

Table 5. Play and interaction

Theme	Quotes (source—interviews unless stated)	Implications for intervention development
Making the most of opportunities	Breastfeeding 1. "I feed her with love and affection; I say, 'My child drink.' " (Pakistan; interview with a mother of a child aged 13–24 months) 2. M was making "hu-hu" sounds while breastfeeding and mother in return responded by making "au au" sound. (India; observation of 4-month-old boy) 3. "I learnt it from the newspaper that reciting verses during breastfeeding will make child good human." (Pakistan; interview with a mother of a child aged 7–12 months) 4. "She keeps on playing while breastfeeding." (India; interview with a mother of a child aged 7–12 months) Massage 5. "Massage is good and it makes the child's body soft, and helps in growth and development." (Pakistan; interview with a grandmother) 6. "Before giving bath I give massage to him and after 1 h give him a bath." (Pakistan; interview with a mother of a child aged 13–24 months) Bathing 7. Children are bathed mostly in the open courtyard in front of or behind the house, in an iron tub (tagari), often between 11 a.m. and 2 p.m. in the sunlight. (Taken from field notes; India)	Play is happening in the household, especially around daily activities.
Family play	1. "When my child looks at me, he wants my attention. I leave my work and pick him up." (Pakistan; pregnant mother) 2. "When baby almost starts to sit and laugh than I started to take him in my lap." (Pakistan; father of a child aged 5–13 months) 3. "Whenever he has a holiday he (the father) picked her up for whole day and sleeps with her." (Pakistan; mother of a < 6-month-old child) 4. "He remains happy with the grandfather; he asks the child to come, 'Press my legs, I am tired'; then the child jumps at his legs and they both laugh." (Pakistan; maternal narrative of a child aged 13–24 months) 5. "Sometimes when I get time, I tickle him and then he laughs." (India; maternal narrative mother of a 5-month-old boy)	In some instances, fathers and other family members play with children. Beliefs around the importance of play need to be strengthened.
Learning new skills	1. "I show D a cow, goat, buffalo. I 'tu-tu aayee gayo' (dog has come), then she smiles . . . . If we take her close to the goat, buffalo, then she touches their head and smiles." (India; mother of a 9-month-old boy)	There are examples of learning through play though this is not the norm.
Playing with toys	1. "He likes to play with toys, newspaper, and plastic shopping bags, grabs it and tries to tear it, attracts with sound POONH POONH." (Pakistan; mother of a < 6-month-old child) 2. "My daughter plays with a ball, empty bottle, and also plays with water pot by taking water in and out" (Pakistan; mother of a child aged 13–24 months) 3. "S (child) sits, crawls, grasps things . . . throws utensils . . . . It looks as if she is playing . . . whether her brain is becoming sharp, this how do I know?" (India; mother of a 9-month-old girl)	Homemade toys are used in the community; this needs to be strengthened.

Continued

Table 5. *Continued*

Theme	Quotes (source—interviews unless stated)	Implications for intervention development
Exploring my world	1. "He plays with his sisters, plays like normal children, calls out the names of his sisters and he becomes happy." (India; mother of a child aged 3–24 months) 2. "She plays with her cousins over here and also goes to the neighbors; she goes with difficulty while walking because she is very weak but she goes." (India; mother of a child aged 3–24 months) 3. "The child who plays with elder siblings will learn from them."(Pakistan; father of 7-month-old child) 4. "There were 5–6 children playing in the courtyard; R (child) was playing hide and seek with them . . . . He was doing what other children were doing . . . " (India; observed while conducting the interview of a father of a 20-month-old boy)	Parents need to be encouraged to actively play with children and observe the benefit of this.

Day-to-day care

The primary responsibility of childcare belonged to the mother; however, she was often supported by the extended family. This is expanded in the subthemes entitled "competing demands for mother's time" and "family support."

Competing demands for mother's time. There were many examples of families investing time and having fun with children, which are expanded in the section entitled, Play and Interactions. However, they also felt stretched by multiple commitments and sometimes overwhelmed by their financial circumstances (Table 3: competing demands for mother's time, quotes 1 and 2). Especially shown in the data from Pakistan, multiple pregnancies increased the burden on mothers who often felt unable to give their children the attention that they felt was necessary (Table 3: competing demands for mother's time, quote 3).

> "I think even now it (unborn child) should not be born as I am overworked, and the other children demand my attention." (Pakistan; pregnant mother)

In India, mothers were often expected to leave the house for extended periods to work in the fields or to graze cattle even if they had young children.

> "I do all the household work—cooking, cleaning, bringing water, washing utensils, work in the fields, do the cattle-related work, and also take care of S." (India; mother of a 14-month-old boy)

Family support. Fathers were seen as providers of materials and money; however, some fathers had an active role in caring for the children (Table 3: family support, quotes 1 and 2). In both countries, the extended family had an important role in both supporting the mother and looking after the children (Table 3: family support, quotes 3–6).

> "If they (sisters-in-law) are giving bath to their children, they will bathe mine too. If they are washing clothes, they will wash mine too. If I am not feeling well, they will share my work." (Pakistan; mother of a girl aged 13–24 months)

Feeding

Delayed initiation of breastfeeding

The initiation of breastfeeding was often delayed in both countries from several hours to several days. The reasons why this happened are illustrated in the subthemes "Honor in the first feed" and "Waiting for clean breast milk."

Honor in the first feed. In both India and Pakistan, there was an ingrained cultural norm of giving prelacteal feeds. In Pakistan, this took on a spiritual nature with a deeply held belief that it was honorable to be the first person to feed the baby and that the baby would take on some of the characteristics of the person who provided the first feed. In the quote below, the practice of giving ghutti (shop-bought prelacteal) or gadla (homemade preparation

of boiled jiggery, thymol, and water) was thought to clear the digestive system.

> "The child adopts the habits of the one who gives Ghutti." (Pakistan; mother of a 6-month-old child)
>
> "Ghutti is a family tradition. Honey clears the stomach. The Holy Prophet said honey has healing power." (Pakistan; mother of a 6-month-old child)

Further quotes are illustrated in Table 4 (honor in the first feed).

Waiting for clean breast milk. In Pakistan, women described being weak after the delivery, and others felt that they needed help to bathe after the delivery and before breastfeeding (Table 4: waiting for clean breast milk, quote 1). In India, the general perception was that there was no milk initially, so there was no point in putting the baby to the breast; again, many felt it was important to wash before feeding, and they could not do this as they were alone (Table 4: waiting for clean breast milk, quote 2).

> "He was born at 11 a.m. and at that time nothing was given because milk did not come in my breast. Next day after washing my breast I put him to breast." (India; mother of a 3-month-old boy)

In both countries, women described discarding colostrum as it was perceived to be unhealthy or dirty (Table 4: waiting for clean breast milk, quotes 3–5). In Pakistan, practices around colostrum varied from family to family; in some cases, colostrum was discarded, and in others, even though ghutti was given, colostrum was also given to the newborn. The quantity of colostrum discarded was not specified. In hospital deliveries, there were examples of early breastfeeding initiation but advice and practice were variable.

> "I breastfed my child within one hour after the delivery . . . . In hospital nothing else is given except breastmilk." (India; mother of a 5-month-old boy)

Continuing breastfeeding: beliefs and barriers

In the vast majority of respondents, mothers knew that breast milk was beneficial for the baby; in Pakistan, there was a concept that breast milk was a baby's right according to God.

> "One should breastfeed for 2 years, this is in Quran." (Pakistan; pregnant mother)

Though there was knowledge in the community that babies should be breastfed for 2 years, breastfeeding was often not exclusive. In many cases, mothers felt that their milk was not sufficient for the needs of the growing baby, resulting in the family starting "top-up" feeds (Table 4: continuing breastfeeding, beliefs, and barriers, quotes 1–4).

> "After a month and half my mother took the decision to top feed (top-up feed) because she (the child) cried." (Pakistan; mother of a 10-month-old child)

Alternative types of milk (cow, goat), water, and in Pakistan, gripe water, were given. There were very few examples of women reporting advice on breastfeeding from community-based workers. In India, the long duration of nonexclusive breastfeeding (over 18 months) was accompanied by a delayed introduction of complementary feeds (weaning) of infants.

Complementary feeding

The age at introduction, feeding interaction, and content of complementary foods varied between and within communities and was based mainly on wealth.

Introduction of complementary food. In India, there was a delay and, in many cases, an absence of introducing semisolid foods until the child was between 7 and 12 months of age. There was an emphasis on the child being old enough to eat, with some families waiting for the growth of teeth or for the child to start walking before introducing complementary foods; in contrast, weaning often started between 4 and 8 months in Pakistan (Table 4: introduction of complementary food).

> "When my child will be able to eat independently then I will give her (food) . . . or when she will be one and half years old then I will give her to eat."(India; mother of 9-month-old girl)

What to feed. About half of the families interviewed in Pakistan, especially those with more

resources, said that they did prepare complementary food for infants. Cerelac (Nestle)—a store-bought porridge mixture—was given especially in more affluent families; this was often mixed with other foods, such as boiled potato or banana (Table 4: what to feed, quotes 1 and 2).

> "I give them cerelac, porridge after 4–6 months of age." (Pakistan; mother of a child aged 0–6 months)

However, in the poorest families there were examples of children being weaned late and being given "junk" foods, such as packets of salty chips, tea whitener, and tea with sugar.

> "He likes to take biscuits and rusk with tea, otherwise all the time he eats is Slanty and chips." (Pakistan; mother of a child aged 13–24 months)

As in Pakistan, the type of complementary food in India was dependant on the affluence of the family (Table 4: what to feed, quotes 3–5). In richer families, mothers reported giving rice with curd (yogurt), dal (lentil soup), or khichri (rice and lentils cooked together). However, in the majority of families, milk (breast or cow/goat milk) was often the predominant food source up to 1 year of age, and no special semisolid complementary feeding diet was prepared. Some families gave the child biscuits or roti (bread) in addition to milk after 7 months.

> "When she was 7–8 months old I gave her biscuits to eat, if given in (her) hand she eats. I give small piece of roti in the morning, the time is not fixed to feed the child." (India: mother of a 9-month-old girl)

In India, there is a supplementary feed available free from the government. This flour supplement, called poshahar or atta, is available for pregnant and lactating women with children up to 6 months of age, and for children between 6 months and 3 years. However, its perceived lack of quality was a barrier to it being given to children (Table 4: what to feed, quotes 6 and 7). ASHAs and AWWs in India said that they knew what advice they should give to families on feeding and the introduction of complementary semisolid foods.

> "Exclusively breastfeed your child for first six months, after that whatever we prepare in our homes like daal, which should be well-cooked, can be given in the child's mouth, . . . spare some time and give mashed potato or whatever nutritious food is cooked in the house can be given." (India; interview with an Anganwadi worker)

However, this was not translated into practices in the community and mothers reported little or no advice on the introduction of complementary feeding (see also Table 4: what to feed, quote 8).

> "Anganwadi behenji did not tell me anything (about complementary feeding), nobody comes from Anganwadi." (India; mother of a 14-month-old boy)

Feeding interaction

Older children ate with the family and there were examples of children eating and being fed by adults (Table 4: feeding interaction, quotes 1 and 2). However, in the majority of observations in India, children were left to feed themselves, especially in the poorest households. In these families, there was often little interaction around feeding; children were often given a roti and the mother would then carry on with another activity.

> T's father gave her roti mixed with milk in a bowl . . . . Tara started eating by herself . . . ; she had food around her mouth and both hands with the food . . . . Then she went near her mother sat and again started eating by herself. (India; observation data of a child aged 18 months)

In Pakistan, semisolids were fed with a bowl and spoon to the child. However, eating by oneself was also seen as a marker of development (Table 4: feeding interaction, quotes 3 and 4).

Play and interactions

Making the most of opportunities

Families were busy and stretched; however, in both India and Pakistan, there were examples in both high- and low-resource families of interaction and some play with children. Though families often could not say exactly what their children learned by playing, play was felt to be beneficial (for older children), and something that was important to help children learn and become sharp.

> "When he rolls then we feel that he is learning something and his body also grows; he rolls, laughs, makes sounds (kilkaariyan kare) . . . and it seems he is learning . . . ." (India; mother of a 5-month-old boy belonging to a low asset–score family)

In Pakistan, mothers often linked play to physical and mental growth.

> "When they play or make something then they feel happy that we have done it, it means that they are mentally growing." (Pakistan; mother of a child aged 13–24 months)

However, some parents in both countries did not see the benefit of play, especially for younger children, and felt that this was only for older children.

> "M is too small, what she can play? She does not understand anything . . . . She does not play anything . . . ." (India; mother of a 3-month-old girl)

> "I do not give her (2-months-old child) any toy, she is very young, and she cannot grip anything." (Pakistan; mother of child aged 0–6 months)

During observations in family homes in India, interactions with children were often used to pacify or distract them.

> "After a few minutes P (girl aged 2 years) started crying, so mother (K) picked her up and put P near her. Then she put P's head on her lap and was sitting. . . .Then M (baby aged 5 months) started crying loudly; she cried for approximately 10 minutes. Mother put P on the bed and then started shaking M's jhoola (hanging cradle). After shaking M's jhoola, M stopped crying and slept again." (India; observation of two children: P aged 2 years and M aged 5 months)

Though not universal, mother in both India and Pakistan reported that they interacted with their babies while breastfeeding; this was supported during observations in both countries (Table 5: making the most of opportunities, quotes 1–4).

> During breastfeeding mother is continuously interacting with the child. She is responding to her baby's uttering "oooannnn," paying attention (looking at) to the child. The child is holding her mother's thumb and playing with her. (Pakistan; observation of a child 13–24 months of age)

Parents reported that bathing was done mostly in the open courtyard in front of or behind the house in an iron tub (tagari) during the warmer times of the day. Massage was thought to give health benefits and was a common practice in both India and Pakistan (Table 5: making the most of opportunities, quotes 5 and 6).

> "Earlier I massaged with Johnson's baby oil, now I do it with mustard oil, massaging the child's body with mustard oil keeps it warm." (India; mother of a 21-month-old boy)

Family play

In both Pakistan and India, there were examples of parents and the extended family interacting with the child. Parents described holding, comforting, tickling, and laughing with children (Table 5: family play, quotes 1–4).

> Mother has picked up the child, she is tickling him, child responds by hoonhoon, then smiles. (Pakistan; observation of a mother with her 5-month-old child)

When available, fathers also reported interacting with their children.

> "If we say 'come here little L', then he comes and sits in my lap. He does not speak anything yet, when he sees a cow or goat then he makes 'aoo-aoo' sounds and runs on his knees . . . .When he wants to drink something, he keeps looking at that thing and cries." (India; father of an 11-month-old child)

Learning new skills

From the Pakistan data, there were also occasional reports of parents specifically trying to teach their children new skills.

> "I talk to my child while sitting next to him, and make him sit with the help of a pillow. He will learn to sit quickly with this. I will make him walk by holding the table (like I did with other children)." (Pakistan; mother of a child aged 0–6 months)

In both countries, teaching new words to children was done by pointing out objects in the environment and naming them (Table 5: learning new skills, quote 1). This more formal teaching through play was rare.

Playing with toys

In Pakistan, compared to India, there was more of a culture of children playing with toys. The team found examples from field observations and parents also reported children playing with homemade objects, such as plates, glasses, scraps of cloth, bottle covers, empty bottles, pictures of animals, stuffed toys, and balls made by sewing pieces of cloth (Table 5: playing with toys, quotes 1–3). This play was often self-directed.

> "Whatever is available in home, utensils, etc., the child can throw and play, otherwise we do not have strength to buy." (Pakistan; mother of a child aged 7–12 months)

> "She has these pots (empty bottle of shampoo and lids). She plays with them while sitting on bed." (Pakistan; mother of a child aged 13–24 months)

Gadgets such as phones were used to distract children and listen to songs, and used as toys.

> "He (child) takes the mobile phone, listens to the songs and says, 'Hello, you alright,' speaks like that." (Pakistan; mother of a child aged 13–24 months)

In more affluent families in Pakistan, shop-bought toys were seen. However, the research team rarely saw these toys being played with.

Exploring my world

As children grew older (and as they became mobile), they increasingly explored their environment.

> "He plays with goats, gives grass to their children; we have pigeons; he throws sticks towards them and becomes happy." (Pakistan; mother of a child aged 13–24 months)

Parents encouraged siblings to play with each other. Older siblings became increasingly important and led the play; the belief was that the children would learn from their older siblings. Parents were often not part of this play. (Table 5: exploring my world, quotes 1–4).

> "By playing with other children, makes child sharp, his mind opened up." (Pakistan; father of a child aged 7–13 months)

Discussion

The findings from this study are particularly relevant for understanding childcare, feeding, and interaction in India and Pakistan and can be used to develop interventions that aim to improve growth and early child development in these countries. Aspiration as a concept was of primary importance to the families interviewed. A recent report from the Young Lives longitudinal study found that aspiration was an important factor in private school enrollment in Andra Pradesh.[26] However, aspiration needs to be considered in the context of the living conditions of families (i.e., a family's ability to realize aspiration).[27] The ability of families to invest time in their children was difficult owing to competing demands. Interventions that can tap into the aspiration of the family, while supporting the mother and freeing some of her time, may have a greater chance of success. The unrealistic demands made on mothers have implications for the effectiveness of any intervention that targets mothers without increasing the support around them.[28]

Research from India and Nepal has estimated that infants whose mothers initiated breastfeeding after 24 h had a 40–70% increased risk of death compared to those who were breastfed within the first 24 h, controlling for low birth weight, prematurity, and early illness.[29,30] Epidemiological studies are vital to highlight specific risk factors but they do not in themselves increase our understanding of why some mothers delay initiation of breastfeeding while others do not, nor do they help us to support early breastfeeding. The data presented here increase our understanding of the cultural beliefs that explain why mothers give prelacteal feeds and delay initiation of breastfeeding. Understanding the "why" helps programs develop interventions that address cultural barriers to any given health behavior. Rahman *et al.* have developed a technique using aspects of cognitive behavioral therapy that challenge these deeply held beliefs around breastfeeding.[31] These behavioral change techniques have been used successfully in the field of mental health in South Asia[32] and have been integrated into the SPRING intervention.

The 2005–2006 Demographic Health Survey and National Family Health Survey found high rates of late introduction of complementary foods with minimum food diversity across five South Asian countries, including India and Pakistan.[33] The formative research outlined supports these findings; data presented found, especially in poorer communities, that complementary feeding was started late and children were expected to self-feed. A key component of the nutritional messages advocated by health organizations on complementary feeding is related to responsive feeding.[34,35] Especially in India, there was little reported play or encouragement around feeding. From our research, health workers in India knew the messages to deliver on the introduction and encouragement of complementary feeds. However, families felt that they were not supported in this critical period. It is likely that community-based workers are either not delivering these key messages or else they are being delivered in a manner that does not resonate with the family. Supporting mothers to introduce appropriate soft complementary foods and use feeding as a time to encourage interactions could potentially improve both child growth and development.[36,37]

The World Health Organization (WHO)/United Nations Children's Fund (UNICEF) Care for Development Package encourages interaction and play directed by parents to encourage parental interaction and child learning.[38] In both India and Pakistan, families valued interaction and play with their children and could see the importance of this for their children's futures. However, children often played alone or with siblings, and there was little in the way of parent-directed play. Simply telling parents to play with their children is not enough. Further research is needed to see how community-based interventions can integrate play and interaction activities into the lives of families who may have limited personal resources to invest in these activities.

Previous studies in the subcontinent, grounded in formative research, with encouraging results have attempted to improve child development and growth.[39,40] Although these previous intervention studies can inform intervention development, the formative research itself is often not published. This paper highlights broad areas of interest around care, feeding, and play, rather than a nuanced between- and within-country analysis. However, this is important when considering areas and beliefs to target and positive behaviors to support when developing an intervention.

Conclusion

The current qualitative research study has illustrated some of the key behaviors around child feeding, play, and interaction in rural Rajasthan, India, and the Rawalpindi District in Pakistan. Key findings included aspirations of families in the study areas for their children, late weaning of children especially in India, and the lack of opportunities and adult encouragement for children to play in the communities. Development and evaluation of culturally appropriate, scalable interventions to support families and enhance child development and nutrition in communities, such as those studied, are urgently needed.

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Conflicts of interest

The authors declare no conflicts of interest.

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