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Original Research Article

Caregiver knowledge, attitude and practices about early child development in Telangana, India: a cross-sectional study

Leena Gaikwad*, Zenia Taluja, Nanda Kishore Kannuri, Samiksha Singh

Indian Institute of Public Health, Hyderabad, Telangana, India

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***Correspondence:**
Dr Leena Gaikwad,
E-mail: drleenagaikwad@gmail.com

ABSTRACT

Background: Early childhood development (ECD) refers to the age-appropriate language, cognitive and socio-emotional growth in early years of life. For the very young, 0-3 years of age, parents and caregivers are the main source of stimulus and care. Poor socio-economic conditions may contribute to suboptimal parenting.
Methods: We assessed caregivers' knowledge, attitude and practice (KAP) regarding ECD in underprivileged regions of Telangana, South-India, using a structured survey, and qualitative interviews of frontline workers (FLWs).
Results: A large proportion of caregivers had appropriate knowledge and practices regarding nutrition and health: colostrum (>80%), breastfeeding (>94%), growth monitoring (>90%), immunization (99%), and health-seeking for the child (98%). Regarding early stimulation, caregivers knew and believed that reading (91%), playing (94%), storytelling and singing (79%) make the child intelligent; but were unaware that these activities should be initiated before 3 years of age, thus their practice of the same was also low. They expressed their love and affection (99%) well for the child, spent time (46%) and talked to the child (59%), but were not aware this contributes to cognitive and emotional development of the child. Major challenges in effective ECD care as per FLWs included parental attitude, mothers' agricultural work routine and language barrier.
Conclusion: We observed gaps in age-appropriate early stimulation and responsive care. While several good practices were rooted in tradition, caregivers were not completely aware not completely aware of the contribution of these practices to their child's development. Qualitative interviews with FLW show the need of culturally relevant interventions to empower caregivers regarding ECD.

Keywords: ECD, Responsive caregiving, KAP, FLW, Telangana

INTRODUCTION

There is an increased focus with growing research in the area of early cognitive development, there is increased focus on the significance of ECD. The early years of a child's life- from conception through 3-5 years of age, are most crucial with greatest opportunity for growth and development. Rapid brain development and sensitivity of brain architecture to the external environment during this period facilitates cognitive and social-emotional development. This ensures every child's right to survival and development, and promotes long-term economic productivity.[1]

As estimated, over 200 million children in developing countries do not reach their full potential in cognitive, language, and socio-emotional development, because of nutritional deficiencies, inappropriate feeding practices, chronic infections, and inadequate learning opportunities.[2]. This leads to a projected 20% loss in adult productivity in their countries.[3] Thus, a hindrance in ECD is a major public health problem and demands due attention towards nurturing care.[4]

Given this increasing consensus, the sustainable development goals have incorporated ECD, as a goal to achieve by 2030.[5] The same is based around the WHO nurturing care framework which involves promotion of health, nutrition, security, safety, responsive caregiving and early learning opportunities in children.[6] Integrated nurturing care interventions involving parenting and family support show significant child development outcomes, and have proven to be cost-effective.[7,8] The quality of home environment, amount of stimulation and learning activities influence the cognitive abilities of the child.[9,10] Despite the increasing recognition about the significance of ECD, policies in low and middle income countries are not directed towards the same, resulting in gaps within programs implemented to improve the welfare of young children.[11]

Though lauded for its effort to reduce child mortality rates from 60 per 1000 live births in 2004 to 34 per 1000 live births in 2016, India trails behind most countries in child health and nutrition outcomes.[12] Under-5 mortality rate of India is around 50 per 1000 live births. Only about 10% of children between the age of 6 months to 2 years receive an adequate diet, while 36% children under 5 years of age are underweight (weight for age). About 38% of children between 12-23 months still lack complete immunization.[13] However, data are lacking on the state of early childhood development in India. The evidence on the current state of parental practices and the quality of home learning environment, particularly related to promoting early childhood development is limited.[7,11]

The integrated child development services (ICDS) Scheme, started by the Government of India (GoI) in 1975, aimed to holistically meet the early childhood education and care needs through the common platform of the anganwadi center (AWC).[14] The national ECCE policy 2013 envisions the holistic and integrated development of the child, with focus on care and early learning at each sub-stage of the developmental continuum. However, none of these programs or policies emphasize on building the capacity of caregivers for assuring psychosocial stimulation and thus providing a conducive environment for ECD at the household level.[15,16]

With an aim to bridge this gap in knowledge and to assess the existing knowledge, attitude and practices around ECD, we conducted a survey with caregivers of 0-3-year-old children belonging to urban and rural Telangana. By elaborating the nuances of caregiving in both urban and rural sites, the study also serves as a basis for designing appropriate intervention for caregivers and front-line health workers to deliver nurturing care for ECD.

METHODS

Study design

We adopted a mixed-methods approach to conduct a descriptive cross-sectional study, involving a KAP survey of caregivers of 0-3 years old. Alongside, we conducted FGDs and IDIs for qualitative assessment with frontline health workers to assess the facilitators and barriers in effectively implementing ECD related activities.

Study population

Primary caregivers (mother or father or grandparents) of children between age group 0-3 years and FWs, namely Anganwadi worker (AWW) from department of women development and child welfare, accredited social health activist (ASHA) and auxiliary nurse midwife (ANM) from department of Health and Family Welfare, state of Telangana.

Study settings

We conducted the study in a rural district (Jogulamba Gadwal) and urban capital (Greater Hyderabad Municipal region) of Telangana. Jogulamba Gadwal is a new district carved out of erstwhile Mahbubnagar district which is one of the high priority districts for health and development for the state and nation.[17] Hyderabad city, on the other hand is among the fastest growing cities with large migrant and poor resettlement colonies. In every village and poor residential settlements within the cities, early childhood education, nutrition supplementation and growth monitoring in early years are provided through anganwadis, under integrated child development services (ICDS) scheme of the Ministry of women and child development.[14] We mapped the study area and selected respondents for the survey with the help of these AWC.

Sample size

We computed sample size considering 2 outcome indicators from national family health Survey-4 of district Mahbubnagar, parent district of Jogulamba Gadwal, 2015-16.[18] These are children under 6 months exclusively breastfed, 55.1%, and children under 5 years who were underweight, 34.5%. For descriptive cross-sectional design, for 95% confidence level, and 80% power, we estimated the largest sample size of 380 eligible children and their primary caregivers. Considering 10% non-response, we decided to include 400 caregivers, 200 in rural and 200 in urban area. In addition, 2 FGDs each with FLWs in rural and urban area were planned. For each FGD, 6-8 FLWs were present. In Jogulamba Gadwal district, 1 FGD was conducted in each block. In Hyderabad city, 1 FGD and two IDIs were conducted due to inadequate sample size for FGD.

Sampling

For the survey among caregivers, we purposively selected 2 blocks from Jogulamba Gadwal district for logistical reasons, and 10 AWC within each block. In urban area, we purposively selected 10 electoral wards and 2 AWC from each ward. Within each anganwadi catchment area, we randomly selected 5 children, and their caregivers. For qualitative interviews, we purposively selected FLWs from the survey area.

Development of tools

We used the WHO Nurturing care framework to develop the themes of a KAP survey questionnaire for caregivers. We also reviewed the questionnaires from the UNICEF studies in Solomon Islands and Bangladesh[10,19] for context of low- and middle-income countries (LMIC) and another UNICEF funded project from India and adapted them. The tool covered ECD aspects concerned with age groups: a) 0-6 months, and b) 6 months-3 years. We developed a questionnaire with closed-ended items with an 'other, specify' option for questions where we expected additional open responses. The domains and variables studied are listed in Table 1. The questionnaire was developed in English, translated into Telugu and back translated to check for appropriate translation. It was pilot tested and revised before use. We developed the qualitative interview guide for frontline workers based on the facilitators and barriers in implementing the ECD related activities. We built all tools to extract information on all ECD domains, and to triangulate the findings from different perspectives to help us form an in-depth understanding.

Data collection

Four research assistants having public health research experience received two days training for interview techniques and the use of data collection tools. They visited the homes of the sampled children and identified the eligible primary caregiver, obtained consent and conducted interviews under the supervision of two senior research assistants. Qualitative interviews were conducted by a trained senior research assistant, along with a notetaker. Informed consent was obtained for conducting and audio-recording the interviews.

Analysis

The research assistants entered the data into MS-excel. We analysed the data using frequency, percentage, and chi-square with the help of statistical software SPSS 20.0.[20] Presented the results using appropriate data visualization tools. Thematic analysis was used to analyse the qualitative data. The study was conducted from May to December 2019.

RESULTS

We conducted 227 structured surveys in rural and 200 in urban districts. Almost all the interviews were with the mothers. About 53% mothers from rural area and only 8% mothers in urban area were engaged in some employment (Chi-square, $p<0.001$); which included 5-8 hours of daily work for 80% and more than 8 hours for 20% in both the areas. In rural district 53% of mothers and 42% of fathers were illiterate compared to 13% and 12% from urban localities (Chi-square, p values <0.001), as shown in Table 2. Additionally, we conducted 3 FGDs and two IDIs with FLWs in study area.

Nutrition and health

Although 80% caregivers felt colostrum was important for the child's physical growth, only 15% knew colostrum could prevent the child from diseases. Majority 87% fed colostrum to their child (rural 81%, urban 92%, Chi-square, $p<0.001$). More than 98% caregivers believed that regular breastfeeding, feeding nutritious food, and keeping the child clean was important for child's healthy physical growth (data not shown in table).

As seen in figure 1, 42% caregivers in rural and 23% caregivers in urban areas always engaged in responsive feeding practices such as sitting with and encouraging the child while feeding, the remaining women did so sometimes. As shown in Table 3, 94% exclusively breastfed their infants for at least 6 months. An encouraging 90% or more mothers knew the weight of their child and whether their child was growing according to his age or not.

Regarding knowledge of signs or symptoms of childhood illness, all the caregivers mentioned 'birth defects' and about 80% mentioned 'high temperature'. Rural women in larger proportions compared to urban, listed 'drowsy' or 'cries too much' (85% vs 74%, $p=0.006$), and 'refuses to breastfeed' (49% vs 19%, Chi-square $p<0.001$). Only 41% of rural caregivers against lesser 26% urban caregivers knew nutrition was important for prevention of childhood diseases; a higher, 61% and 74%, rural and urban caregivers respectively, mentioned 'proper hygiene' and 'sanitation'.

Early learning opportunities

As shown in Table 4, large proportion of caregivers both from rural (85-89%) and urban areas (99-100%) knew that reading, writing, play and games and, 70% and 90% knew that telling stories and singing songs, are important in child's learning and development. However, only 16% in rural and 41% in urban knew that the brain develops fastest within first 2-3 year of age and consequently a small proportion knew that early stimulation fastest within the first 2-3 years can make the child more intelligent (32% rural vs 62% urban) and will have higher

chances of 'getting better paid' (35% rural vs 59% urban) in adulthood.

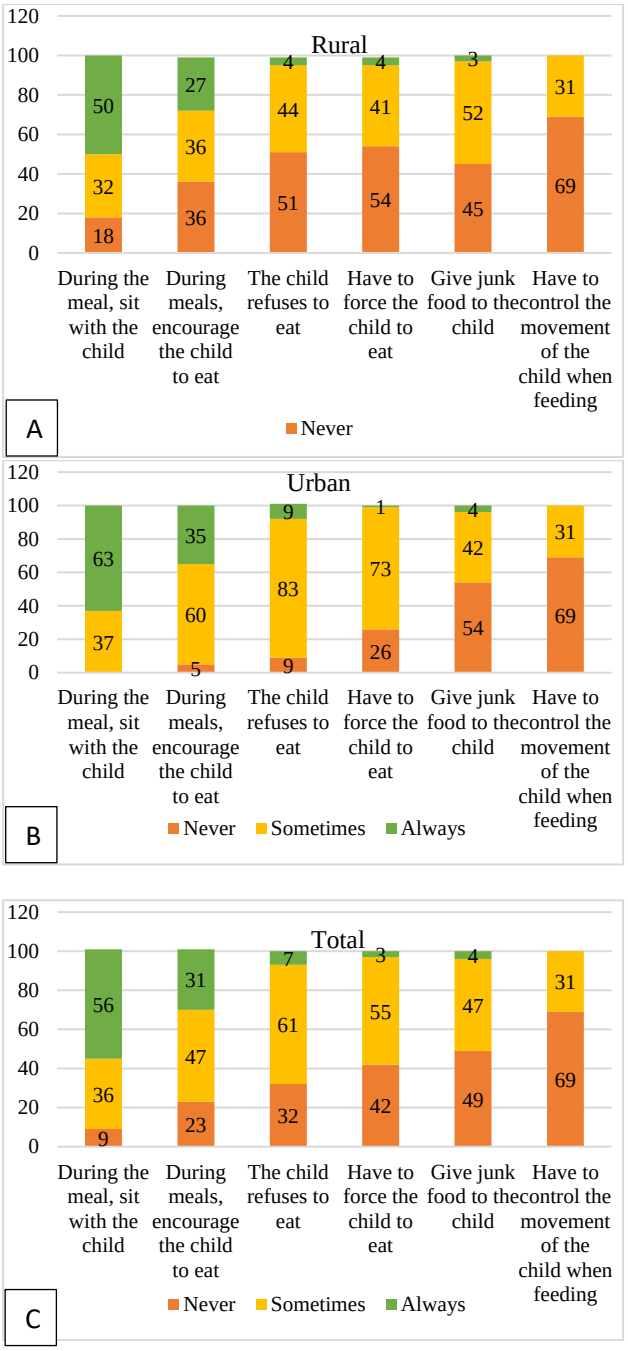

Figure 1: (A) Responsive feeding practices and child habits (%), rural, (B) responsive feeding practices and child habits (%), urban, (C) responsive feeding practices and child habits (%), total.

A very small proportion of caregivers (10% or less) thought that playing, telling stories, responding to child's questions and protecting them from danger between 0-3 years contributed to cognitive and emotional development. Interestingly, a large proportion in both areas showed affection and responsive communication with their children and two-thirds also sang lullabies. However, as many were not aware that this contributed to cognitive and emotional development. Only 24% rural compared to 35% urban caregivers had any reading or learning materials for a 2 to 3-year child at home.

Corroborating with the knowledge and attitude responses, even in practice about 60% or more caregivers never told stories or read to their children; rural more than urban. More than 50% never sang songs to their children; urban more than rural (Figure 2).

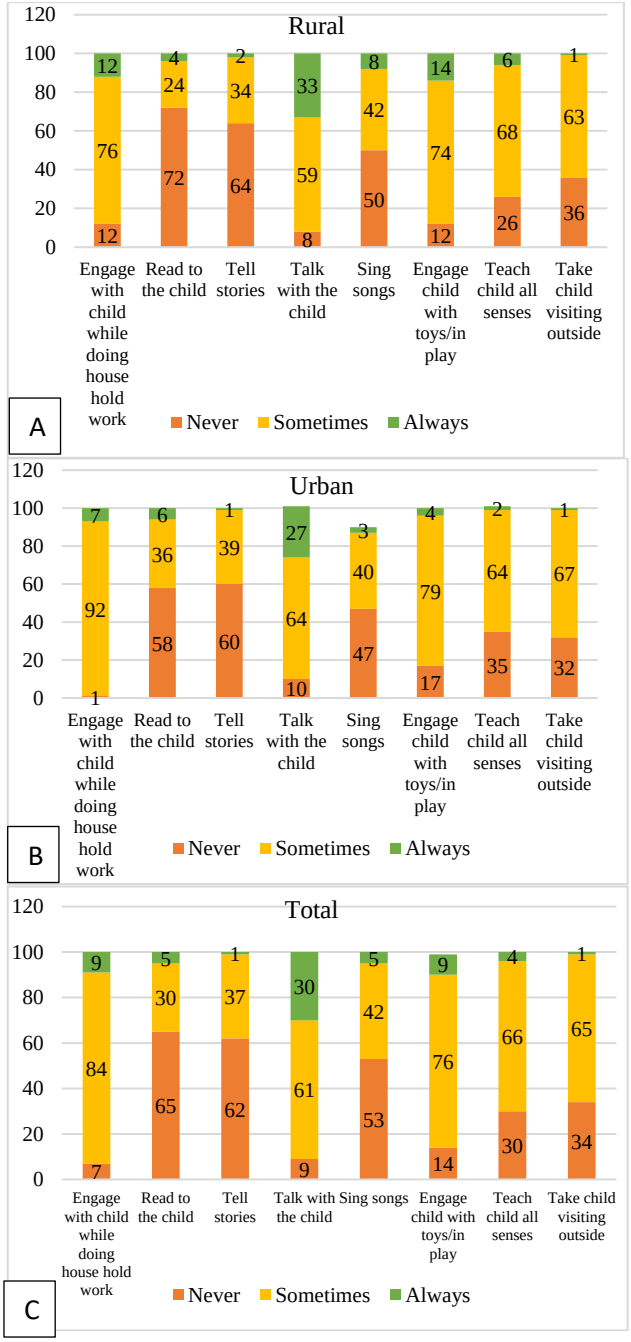

Figure 2: (A) Practices of caregiver regarding early learning of young children (%), rural, (B) practices of caregiver regarding early learning of young children (%), urban, (C) Practices of caregiver regarding early learning of young children (%), total.

Safety and security

About 90% caregivers kept a regular watch on the child and about 18% told them to stay away from harmful things such as jumping from height, while only 17% changed any physical infrastructure such as removing furniture, plugging switches to make it safe for the child to play indoors (Table 5). As a higher proportion of mothers worked from the rural areas, they often left their child alone, or under a neighbour's or Anganwadi's supervision in their absence.

The caregivers did not really understand how to discipline a 0-3-year-old child and when specifically asked about certain practices, 70% of them sometimes or more often praised the child for good behaviour and 30-35% ever slapped or shouted at the child.

Father's involvement in parenting of young children

All the mothers felt that fathers should have a role in raising and disciplining the child (Table 6). More than 90% of the fathers expressed love and affection to the child, played and walked with the child, and took him/her to the doctor when required. Half or lesser proportion of fathers helped the child in reading and learning and providing general care such as bathing, washing, feeding and massaging.

Experiences of field workers

Role of field workers in ECD

In India, AWWs and ASHAs are the frontline implementers of various components of programs aimed at early childhood development. Although from different departments, they provide some overlapping and complementary services.

When asked about the ECD programs being implemented in the area, the frontline workers expressed that they were not aware of programs by the specific name but components of ECD work were a part of different initiatives being executed in the region. They facilitated immunization program, meetings for pregnant and lactating mothers, counselling on nutrition, correct practice and benefits of breastfeeding, and monitored height/length and weight of children under 5 years.

The AWWs were involved in more diverse roles through center-based activities such as growth monitoring and progress cards, distribution of food equivalent to one meal for pregnant women and lactating mothers, counselling for child's growth and nutrition.[21] Their service mandate included early stimulation and learning activities for the children, but the actual practices were highly limited. Apart from these regular duties, AWWs were also expected to implement breastfeeding week, hand wash day, household survey along with the support of the ASHAs and new programs that the government declared.

The ANMs claimed that they did not know of any programs related to ECD. Their role was mainly limited to immunization of children facilitated by the AWWs, with focus on nutritionally weak, unimmunized and sick children.

Barriers in effective implementation of ECD from caregiver side

Parents attitude towards child's immunization and health services

As per the FLWs, despite communication drives, parents were unaware about the benefits of immunizing the child. The cultural beliefs of the elders in the family along with the post-immunization discomfort, resulted in avoidance of immunization practices. FLWs in urban areas focused more on the migrant population but faced a lot of resistance, as the migrants were not inclined towards getting children immunized or using government health services in the city despite telling them the benefits and the importance of the same.

"They won't come to us at all, they will say that they prefer home deliveries, they might even go to Bihar for deliver or they say 'I will go to a private hospital etc.'" (AWW, GHMC)

Language barrier

An interesting and poignant problem of language barrier was mentioned, especially in Hyderabad city. Since most of the population were migrants from the Hindi speaking states, there was a huge language barrier between the local Telugu FLWs and the caregivers, as a result they were unable to communicate the information and problems clearly to each other.

Delays in food delivery to AWC

The AWWs expressed their concerns around delayed food delivery of eggs and milk from the government's side. The AWWs were held responsible by the community members who accused them of either 'eating all the food or taking it home'. The government only provided dal, rice and oil, and the AWWs had to purchase vegetables from their own money that was reimbursed only once in a year.

Agricultural labour and the obstacles to consuming nutritious food

In rural Gadwal, the sustenance of most families depends on labour work performed in cottonseed fields. As a labour-intensive crop, cottonseed fields are occupied by both men and women who engage in long hours of work, from early morning to late evening, for a substantive part

of the year. Given the increasing number of women who engage in cottonseed work over the years, ASHA and AWW expressed the difficulty in regularly checking and providing services to pregnant and lactating women. While the supervisors instructed the FLWs to ensure that the mothers and pregnant women eat their lunch in the AWC, the workers claimed that it was an impossible task to convince the women to do so given their poor economic situation and the necessity to go to the fields.

"*They say- how can we miss our daily wage to sit here and consume food worth Rs. 50/-?' Send milk, eggs to their home but beneficiaries will not eat it. The elderly or people who are at home will eat everything*." (AWW, Gadwal)

To tend to the fields, the parents sometimes left the child/children with the elders at home. As a result, a few young children did not receive feed for 8-10 hours during the time the mother was in the field. Very often the elder child of the family missed school to take care of the younger child that the parents leave behind at home. During the labour-intensive season of cottonseed crossing, the children were mostly left unattended which hampered their development in the early years.

Exposure of children to harmful effects of chemicals and pesticides

Several parents, left with no choice, take their children to the agricultural field where the children get exposed to pesticides and other chemicals. The FLWs expressed that given the exposure of children to chemicals, parents often reported rashes on the hands and feet of their children.

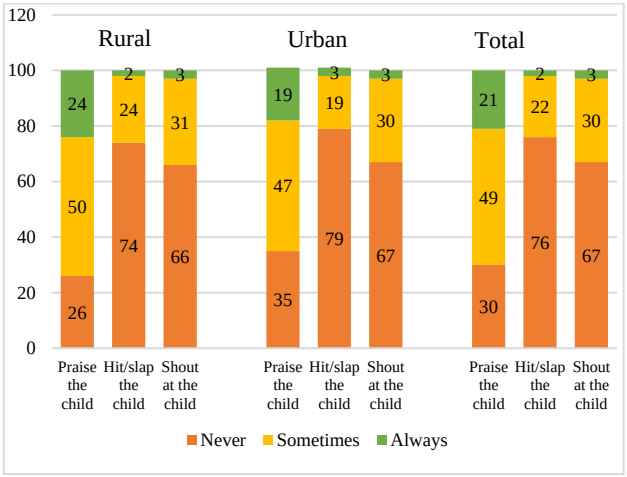

Figure 3: Practices to discipline the child (%).

Table 1: Themes and sub-themes for data collection.

Theme	Component
Health	Care during neonatal period, exclusive breastfeeding period, from 6 month-3 year (toddler) and appropriate treatment for children's illnesses Protecting young children from household and environmental dangers Hygiene practices to minimize infections Promotive and preventive health services
Nutrition (feeding and growth monitoring)	Exclusive breastfeeding Complementary foods Responsive feeding
Family, social support and responsive caregiving: responsive caregiving	Observing and responding to children's movements, sounds and gestures and verbal requests Monitoring children's physical and emotional development and milestones Protecting children against injury and the negative effects of adversity Responsive feeding Recognizing and responding to illness
Family, social support: opportunities for early learning	Child development practices Father's role in parenting Family support Leaving children in the care of others
Security and safety	Measures to protect child from injuries and adverse conditions Children being left in inadequate care

Table 2: Socio-demographic characteristics by location (%).

Indicator	Category	Rural n=227	Urban n=200	Total n=427	Chi-square, p value
Primary caregiver	Mother	221 (97.4)	200 (100)	421 (98.6)	-
	Father	1 (0.4)	0	1 (0.2)	
	Other	5 (2.2)	0	5 (1.2)	
Mother's education*	Illiterate	120 (53)	26 (13)	146 (34)	<0.001
	Primary/Sec	95 (42)	110 (55)	205 (48)	
	Grad/PG	11 (5)	64 (32)	75 (18)	
Father's education*	Illiterate	97 (43)	23 (12)	120 (28)	<0.001
	Primary/ Secondary	102 (45)	104 (52)	206 (48)	
	Graduate/ Post-graduate	26 (12)	72 (36)	98 (23)	
Another caregiver's education	Illiterate	5 (100)	0	5 (1.2)	-
Type of family	Nuclear	106 (47)	123 (62)	229 (54)	0.001
	Joint	121 (53)	77 (38)	198 (46)	
Caregiver employed	Mother	117 (52)	15 (8)	132 (31)	<0.001
	Father	224 (99)	198 (100)	422 (99)	0.532
	Other	0	0	0	-
Employed mother's working hours		N=117	N=15	N=132	
	0-4	5 (4)	2 (13)	7 (5)	0.095
	5-8	91 (78)	8 (53)	99 (75)	
	>8	21 (18)	5 (34)	26 (20)	
Employed father's working hours		N=224	N=198	N=422	
	0-4	0	3 (2)	4 (1)	0.001
	5-8	120 (54)	74 (37)	194 (45)	
	>8	104 (46)	121 (61)	225 (53)	

*Not applicable if parent not alive, different N.

Table 3: KAP of caregiver regarding nutrition and health of young children (%).

KAP	Rural n=227	Urban n=200	Total n=427	Chi-square, p value*
Knowledge: colostrum is good for the child	184 (81)	162 (81)	346 (81)	1.000
Practice: responsive feeding				
Mother fed colostrum to child right after birth	161 (81)	184 (92)	371 (87)	<0.001
Exclusive breast feeding to youngest child for first six months	219 (97)	192 (96)	403 (96)	0.80*
Other feed to child during first six months	7 (3)	8 (4)	15 (4)	1.000*
Practice: Monitoring child's growth				
Have Mother and Child Protection (MCP) card	217 (96)	191 (96)	408 (96)	0.962
Know the weight of child	207 (91)	192 (96)	400 (94)	0.045
Plotted the weight of child for the last 3 months	214 (94)	171 (86)	386 (90)	0.004
Child growing according to age	218 (96)	189 (95)	408 (96)	0.597
Knowledge: common signs and symptoms of childhood illness				
Birth defects	227 (100)	200 (100)	427 (100)	-
Is drowsy or cries continuously	192 (85)	147 (74)	339 (79)	0.006
Is very cold or hot	181 (80)	156 (78)	337 (79)	0.722
Does not suck or refuses to breastfeed	111 (49)	38 (19)	149 (35)	<0.001
Difficulty in breathing/doesn't cry	20 (9)	5 (3)	25 (6)	0.006
Develops yellowness in palms and soles	4 (2)	2 (1)	6 (1)	0.689
Has convulsions	13 (6)	3 (2)	16 (4)	0.023
Does not pass stool within 24 hours	1 (0.4)	2 (1)	3 (1)	0.602
Practice: responsiveness to signs of illness in child				
Take to doctor	221 (97)	194 (97)	415 (97)	1.000*
Give home remedies	16 (7)	31 (16)	47 (11)	0.008*
Take to faith healer	5 (2)	17 (9)	22 (5)	0.004*
Take to ASHA/AWW/ANM	13 (6)	6 (3)	19 (4)	0.240*
Nothing/wait for symptoms to reduce on their own	0	7 (3.5)	7 (1.6)	0.004*

Continued.

KAP	Rural n=227	Urban n=200	Total n=427	Chi-square, p value*
Knowledge: protection of child from illnesses				
Adequate food/ nutrition	92 (41)	51 (26)	143 (34)	0.001
Proper hygiene and sanitation	138 (61)	147 (74)	285 (67)	0.005
Routine immunization of the child	25 (11)	1 (1)	26 (6)	<0.001
Vitamins supplements	3 (1)	3 (2)	6 (1)	0.876
Nothing/not aware of	72 (32)	47 (24)	119 (28)	0.059
Practice: protection of child from illnesses				
Take your child to give vaccines/ injections at health centers	224 (99)	198 (99)	422 (99)	1.000*
Restrict giving any food to the child during illness	97 (43)	81 (41)	179 (42)	0.623

*p values by Fisher's exact test.

Table 4: KAP of caregivers regarding early learning of the young children (%).

KAP	Rural n=227	Urban n=200	Total n=427	Chi-square, p value
Knowledge: early stimulation and learning				
Play holds an important role in child learning and development	203 (89)	200 (100)	403(94)	<0.001
Reading/writing is important for the child	193 (85)	197 (99)	390 (91)	<0.001
The child can learn skills through games	197 (87)	200 (100)	397 (93)	<0.001
Telling stories/singing to your child is important for their learning and development	160 (70)	179 (90)	339 (79)	<0.001
Brain develops fastest during first few months of pregnancy and then between 2-3 years	37 (16)	81(41)	118 (28)	<0.001
80% of the human brain is developed by 3 years of age	39 (17)	77 (39)	116 (27)	<0.001
Simple talking, playing, story-telling with the child in first 3 years can make the child more intelligent	72 (32)	123 (62)	195 (46)	<0.001
Children receiving early stimulation for learning and responsive care have chances of higher paid jobs in adulthood compared to others	79 (35)	117 (59)	196 (46)	<0.001
Safe house hold, sanitation, good nutrition is essential for proper learning and development	126 (56)	162 (81)	288 (67)	<0.001
Attitude: child's healthy cognitive and emotional development, essentials				
Talking with child	137 (60)	115 (58)	252 (59)	0.556*
Spending time with the child	127 (56)	69 (35)	196 (46)	<0.001
Affectionate and warm behaviour	37 (16)	87 (44)	124 (29)	<0.001
Playing with child/ arranging play activities	23 (10)	15 (8)	38 (9)	0.396*
Telling stories	27 (12)	8 (4)	35 (8)	0.004*
Being sensitive and responding to child's questions	3 (1)	5 (3)	8 (2)	0.482*
Protecting child from danger	15 (7)	1 (0.5)	16 (4)	0.001
Practice: affection and responsive stimulation				
Mother kisses the child	226 (99)	200 (100)	426 (99)	1.000*
Mother hugs the child	226 (99)	200 (100)	426 (99)	1.000*
Mother cuddles with the child	226 (99)	200 (100)	426 (99)	1.000*
Encourage the child to mimic sounds	190 (84)	167 (84)	357 (84)	1.000*
Listen to the child when he/she make sounds/ talks	206 (91)	167 (84)	373 (87)	0.029*
Sing lullabies to make the child sleep	163 (72)	122 (61)	285 (67)	0.023*
Have any reading/ learning materials for the child at home	54 (24)	69 (35)	123 (29)	0.010

*p values by Fisher's exact test.

Table 5: Practice of caregivers regarding safety and security protection of the young children (%).

Characteristics	Rural n=227	Urban n=200	Total n=427	Chi-square, p-value
Safety: protecting children against injuries				
Keep watch on them	207 (91)	177 (89)	385 (90)	0.516
Tell them to take care (e.g. not jump from heights)	51 (23)	26 (13)	77 (18)	0.012
Don't let them go out	46 (20)	17 (9)	63 (15)	0.001
Don't let them play inside	5 (2)	8 (4)	13 (3)	0.399
Tie their hands and legs to keep them from doing harmful things	1 (0.4)	1 (0.5)	(0.5)	1.000
Remove/change the furniture, plugs etc. that can harm the child	34 (15)	38 (19)	72 (17)	0.301
Security: leaving the child unsupervised				
Routinely leave the child alone at home any time during the day	33 (15)	7 (4)	40 (9)	<0.001
Leave the child in another home for more than an hour	39 (17)	27 (14)	66 (16)	0.348*
Leave the child with another child (<10yrs)	21(9)	8 (4)	29 (7)	0.035*
Child goes to Anganwadi center in caregiver's absence	48 (21)	11 (6)	59 (14)	<0.001

*p-value from Fisher's exact test.

Table 6: Practices describing father's involvement in parenting activities for young children (%).

Activities	Rural n=227	Urban n=200	Total n=427	Chi-square, p value
Love and affection				
Father kisses the child	224 (99)	197 (99)	421 (98)	0.988
Father hugs the child	224 (99)	197 (99)	421 (98)	0.988
Father cuddles with the child	224 (99)	197 (99)	421 (98)	0.988
Taking child on lap	212 (93)	194 (97)	406 (95)	0.062
Responsive health and nutrition				
Taking child to doctor	217 (96)	187 (95)	404 (95)	0.623
Immunization	165 (73)	146 (73)	311 (73)	0.825
Feeding supplementary solid food	133 (59)	112 (57)	245 (57)	0.751
Early stimulation				
Playing and walking with the child	219 (96)	197 (98)	416 (97)	0.187
Behaving well with the child	181 (80)	175 (88)	356 (83)	0.051
Encouraging child to do good/new things	155 (68)	143 (73)	298 (70)	0.738
Explaining difference between right and wrong things	136 (60)	123 (62)	259 (61)	0.768
Helping child learn	133 (59)	136 (68)	269 (63)	0.090
Teaching how to read	82 (36)	101 (51)	183 (43)	0.005
General caregiving				
Putting to sleep	170 (75)	168 (84)	338 (39)	0.037
Brushing teeth/ washing face and hands/bathing/changing clothes	94 (41)	98 (49)	192 (45)	0.219
Massaging with oil	51 (23)	62 (31)	113 (27)	0.105

DISCUSSION

The study observed the KAP of caregivers related to ECD in rural and urban areas of Telangana. The knowledge, attitude and practices of caregivers were high in regards to health and nutrition, but were relatively lower for early stimulation and early learning opportunities. Although the parents seem to have some knowledge on stimulation and responsive learning and care, this appeared more culturally driven or acquired from sources other than the services from the FLWs, as the FLWs in our survey hardly mentioned working on this front. Barriers to implementation of ECD interventions for both ASHA, AWWs and ANMs included Parents' attitude towards immunization, language barrier, obstacles to nutritious food due to agricultural work, delays in food delivery to anganwadis by government, and exposure of children to chemicals and pesticides.

A high proportion (87%) of mothers fed colostrum and 94% exclusively breastfed their infants for at least 6 months. This is much higher than the National Family Health Survey-4 (2015-16), in which the percentages were 42% and 54.9% respectively.[13] The higher proportion could be attributed to the government initiatives for child health and also largely to the cultural importance of breastfeeding. This percentage was similar to a study from Rwanda, where more than 90% mothers exclusively breastfed their children between 0-6 months (MoH Rwanda, 2015), but was much higher than many other studies from developing countries (Solomon Islands-48%, Bangladesh-55%).[10,19]

Although very few caregivers self-reported routine immunization (6%) as an important factor for protecting a child from illnesses, almost all (99%) took their child for vaccination. However, our quantitative findings stand in contrast with the qualitative data where FLWs expressed their concerns regarding cultural resistance to vaccination.

Additionally, there were gaps between knowledge and attitude, and attitude and practices related to early stimulation and learning. Caregivers knew the importance of practices such as reading, playing, and story-telling, yet they had limited knowledge regarding their role in brain development within the first 3 years. A recent study in urban Bangladesh also reported that parents felt the importance of stimulation, but did not have specific information about how it affects child's development and about age appropriate stimulation and how it affects child's development.[23] This also suggests that the caregiving practices can be further increased with changes in the caregivers' attitude. The positive practices such as talking with the child may further be encouraged through the interventions involving both caregivers and child together through activities such as games, stories or singing.[24]

The interventions with focus on improving caregiver's knowledge and attitude have proven to be effective in improving the practices related to ECD.[25] Future interventions should emphasize enhancing knowledge and attitude of caregivers, and child-caregiver interactions. Group-based activities should be arranged alongside the home-based learning, providing caregivers opportunities for sharing, discussion and guided practice with children.[24]

In developing the interventions, it is significant to take account of the cultural context of the children and the care-givers, including both, the macro-systems of values and practices, and meso-levels of influence like local resources and norms of communities within which the families reside.[26] A common thread weaving through the discussions with the FLWs in the rural and urban settings was a challenge with communicating universalized messages of child care. The mothers and pregnant women in rural Jogulamba Gadwal have no escape from long days of work in agricultural fields because of their poor economic situation. The lack of choice also affects the health of the children who are sometimes carried to the fields and are exposed to harmful pesticides and chemicals, or left unattended which hampers their development in the early months and years. Similarly, the FLWs in urban Hyderabad expressed their concern about communicating important messages to migrant workers given different dialects, and their beliefs regarding medicine and immunization. Thus, for interventions to succeed it is important that the cultural meaning embedded in caretaking practices are taken into account. For instance, within the African context, it is not unusual for African parents to delegate responsibility of caretaking to the elder sibling. Having recognized the benefits of the elder sibling's role in caretaking practices which include developing social values, socio-cognitive skills and the overall development of the child, some ECD programmes in Africa involve older children to serve as facilitators for young children's development and learning.[27,28]

Globally, research shows that father's involvement (or lack thereof) is a crucial factor in child development and significantly affects functioning of children, mother and family.[24] In our study, father's involvement was higher in love and affection to the child and outdoor activities such as visiting doctor, immunization or playing and walking with the child, but was low for the early stimulation activities or routine care such as bathing, massaging or putting the child to sleep. Similar findings have been reported by studies done in other developing countries, with minimal involvement in child learning activities by father and keeping themselves limited primarily to health-seeking and outdoor activities.[10,19,22] Given that a higher proportion of mothers from rural Telangana work for living while also participating in the care of their children, it also accounts for added work to be performed by the mothers. This indicates the need to educate fathers and other caregivers in the family about the importance of their involvement in child care and its effect on child development.

Although the present study tried to maintain a sound methodology, there are some limitations of this study. We could not qualitatively assess the caregivers' perception about aspects contributing to ECD or the effect of culture on the caregiving practices. Additionally, we did not introduce situational factors such as child birth order and number of siblings in the analysis. Further studies considering these aspects might be required to understand their effect on the caregiving practices. While we used simple and inexpensive self-report method to assess knowledge, attitudes and practices that can be affected by social desirability bias, we tried to reduce the under-reporting of undesirable behaviours or overreporting of desirable behaviours by assuring confidentiality, and explaining to the respondents that there are no right or wrong answers.

Nonetheless, this study is an important and one of the early contributors to the emerging area of ECD in India, particularly bridging the evidence gap related to caregiver needs for responsive caregiving. ICDS program so far has focused more on nutrition and child survival, but has not effectively reached the early years (0-3 years) age group where the ECD interventions can be most effective.[29,30] Inadequate coverage of early learning and stimulation activities was also observed under the program.[31] This study reiterates the need to develop ECD interventions using existing evidence on the knowledge, attitude and practices of caregivers.

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