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ORIGINAL ARTICLE

KNOWLEDGE & PERCEPTIONS OF ICDS ANGANWADI WORKERS WITH REFERENCE TO PROMOTION OF COMMUNITY BASED COMPLEMENTARY FEEDING PRACTICES IN SEMI TRIBAL GUJARAT

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ABSTRACT

Objective: To assess ICDS anganwadi workers' knowledge and perception regarding promotion and enhance community based complementary feeding practices.
Methodology: Total 17 anganwadi workers' (AWWs) from one semi tribal sector (covering approximately 850 children under three two years) of Vadodara district in Gujarat state, India were purposely selected. This study employed interview with AWWs as a principal method of data collection using a pretested semi-structured interview schedule. The entire interview was divided into 8 themes.
Results: The knowledge of AWWs with regard to key IYCF practices was average. None of the AWWs knew the complete rationale for promoting breastfeeding till 2 years and beyond. Merely 65% AWWs recommended food with thick consistency while 47% recommended liquid diets for children. These practices in fact are one of the primary reasons which can be attributed to low energy and protein intake during complementary feeding. As low as 18% AWWs advised giving small frequent feeds during illness and only 6% advised additional meal after illness. None of the AWWs recommended persistence in feeding the child with required quantity of food. Total 41% listed sickness as key reason for child not feeling hungry, missing out on the other two imperative reasons i.e. micronutrient deficiency and mouth lesion.
Conclusion: Overall knowledge and perceptions for promoting of community based CF practices was average amongst the ICDS AWWs with a percent score of 40%. The AWWs were aware of key IYCF practices, however the AWWs perceptions and knowledge with regard to the rationale applicable to the appropriate recommended CF practices being promoted was rather poor. This is noted to be a critical gap and needs to be addressed for equipping the ICDS frontline workers for effectively promoting successful adoptions of CF practices by community.

Key words: Complementary Feeding (CF) Practice, Anganwadi worker (AWW) Integrated Child Development Services (ICDS)

INTRODUCTION

Globally under nutrition contributes to nearly 35% i.e. three million deaths of children below five years of age [1]. Malnutrition among children below five years of age can only be prevented when policy, program, and budgetary actions are directed to children during prenatal life and

the first two years of life. Any intervention later will be ineffective. Moreover, there is now evidence that rapid weight gain after first two years of life increases the risk of chronic disease later in life [2]. The National Family Health Survey (NFHS) – III shows 40.4% of children below three years of age are underweight in India [3].

Stuting and wasting are mainly due to suboptimal complementary feeding and improves in most settings with focus on feeding frequency, energy density and adequacy of nutrients in the diet [4]. It has been established that early childhood nutrition is the single most important child survival intervention [5]. Improvement of complementary feeding (CF) through strategies such as counseling about nutrition for food-secure populations and nutrition counseling could substantially reduce stunting and related burden of disease [5]. Translating these two optimal infant and young child feeding practices (IYCF) to coverage of 90% is estimated to contribute to 19% reduction in deaths of children below five or saving 450,000 deaths in India[6,7].

In Gujarat state of India, although 41.1% of children below three are underweight 49.2% are stunted and 19.7% are wasted i.e. poor feeding practices is recognized to be a primary reason for the high level of malnutrition in Gujarat. In Gujarat state, as per the District Level Household & Facility Survey-III [8], only 19.5 percentage children 6-24 months met all the three following criteria of appropriate feeding i.e. of being breastfed within one hour of birth, exclusive breastfed (EBF) for the first six months and presently receiving solid and semi sold food. For those children who had started food supplementation while still breastfeeding, the median age in months at the time of other fluids, semi-solid food and solid food supplementation were 6.2 months, 8.3 months and 11.3 months respectively [8]. Further the NNMB [9] study showed that in Gujarat among children 1-3 years there is a wide gap in consumption of food against RDA ICMR. None of the vital food groups are consumed above 40% of RDA. There is a deficit of over 500 calories in the intakes of 1-3 years old, resulting in only 24% of calorie and protein adequacy.

In India ICDS anganwadi workers (AWWs), play a vital role in promotion of community based optimal CF practices in India. The present study was conducted to assess the knowledge and perceptions of AWWs in enhancing community based complementary feeding practices.

MATERIALS AND METHODS

The paper is a part of operational research study on "Capacity Building of ICDS Functionaries in Growth Monitoring and Promoting (GMP) & IYCF Practices: Impact on Nutritional Status of under Twos".

Total 17 AWWs of one semi tribal sector of Vadodara district were purposely selected for an in-depth interview. These AWWs catered to a population of approximately 850 children below 2 years of age. This study employed interview with AWWs as a principal method of data collection using a pretested semi-structured interview schedule. It included items which elicited responses in the form of pre-coded responses as well as those which had to be recorded by verbatim. The latter were subsequently coded into themes and sub-themes. "This provided a combination of structure and flexibility and hence a scope for bringing out standardized as well as unexpected responses". The questionnaire was prepared using the formats of the Breastfeeding Promotional Network of India (BPNI) for conducting in-depth interviews for community workers [10]. The terms and definitions for IYCF used were as per the National Guidelines on IYCF, 2nd edition (2006) [11]. The knowledge and perceptions of AWWs on CF was assessed based on the WHO ten guiding principles for CF [12].

The responses were quantified into number and percent score wherever possible and presented in tabular form. For these the entire interview was scored, 1 point (score) per AWW for each preferred response. Score for all 17 AWWs for each response was clubbed and percent score was calculated. Similarly average score for all themes and sub themes were calculated taking average of all response.

Each interview was scored of total 90 points (92 positive - 2 negative). Negative marking was done only in CF section while assessing knowledge and perceptions about type and consistency of food. These were only when AWWs listed thin liquid foods as CF. Further the score was divided into key 8 themes and converted into percentages score of total score i.e. 90 points.

Observation and discussion was based on important, essential, critical messages which needs to be communicated by community based change agents like AWWs in order to motivate and convince community to follow optimal CF practices.

OBSERVATIONS

Profile of AWWs

The 17 AWWs covered had varied profile with education ranging from 7 to 12 grades, age ranging from 29 to 53 years and experience between 1 to 25 years. All AWWs had received ICDS job & 11 were trained in IMNCI. The supervisor of sector has 24 years of experience and also had also received ICDS job and refresher training.

Key IYCF Practices

The knowledge of AWWs with regards to the three IYCF practices was average (Figure 1). The major gap was with respect to the knowledge related to CF. Many AWWs mentioned starting CF with thin liquid diet and most of them state partially, missing to mention continuation of breastfeeding till two years and beyond.

Complementary Feeding (CF)

The knowledge and perceptions of AWWs on CF was assessed based on the WHO ten guiding principles for CF

- **Initiation of Complementary Feeding & Continuation of Breastfeeding**

Initiation of CF on completion of 6th month is vital for prevention of undernutrition. All (100%) AWWs mentioned correct age of initiation of CF. Continuing breastfeeding till two years and beyond along with CF is equally important, however only 6% AWWs had knowledge regarding continuation of breastfeeding. None of the AWWs knew the complete reason behind continuation of breastfeeding which further represented a very poor capacity of AWWs to convince community to continue breastfeeding till two years (table 1).

Table 1: Complementary Feeding

Indicators	AWWs % Score (N=17)
Age of Initiation of CF	
After six months, seven months onwards	100 (17)
Reasons	
After 6 month of age mother milk only is not sufficient to meet growing infant needs.	76 (13)
Appropriate age of initiation of Family foods - Around 1 year	35 (6)
% Average Score	**70**
Continuation of Breastfeeding along with CF	
Two years and beyond	6 (1)
Up to 2 years	59 (10)
Reasons	
Provides vital source of energy and nutrients into 2nd year of life	-
1.1. Child can't eat everything so child gets all missing nutrients from mother's milk/child may not like all the kind of CF which is being offered to him	6 (1)
Provides fluids and nutrients *during infection*	-
1.2. child gets healthy / does not feel sick	12 (2)
% Average Score	10

***Note**: Only essential perceptions are presented in the table. The responses may add up to more than 100% due to multiple responses.*

In midst of this one AWW did mention "Child gets vitamins from mother's milk; child cannot have everything & might not like all kind of food"

- **Type and Consistency of Foods to be served as Complementary Foods**

The AWWs listed 9 out of 14 food groups listed in complementary foods list. A majority of AWWs recommended cereals (53%), pulses (71%), fruits (65%), and milk (41%) as CF. Food available at anganwadi centre (AWC) were also mentioned by 29% AWWs.

- **Frequency, Quantity and Consistency of Complementary Foods**

Although 65% AWWs recommended food with thick consistency, a large percent of AWWs (47%) also recommended liquid diets for children. The low energy and protein density in CF normally observed could be attributed to these perceptions.

The AWWs knowledge was average due to two major gaps in perceptions (table 2). Most of the AWWs recommended

– Introducing liquid diet at 6 month in place of dense food

– Recommending lesser quantity of food for children above 1 to 2 years

Table 2: Frequency, Quantity and Consistency of Complementary foods

Indicators	AWWs % Score (N=17)
Frequency of CF - 6 to 12 months	
Three times	47 (8)
If not breast feed than five times	47 (8)
Quantity of CF - 6 to 12 months	
One bowl (250 ml) each time	24 (4)
Consistency of CF - 6 to 12 months	
Mashed &/or thick / dense	76 (13)
Finger food by 8 months	-
Frequency - 1 to 2 years	
Five times	65 (11)
Quantity - 1 to 2 years	
One and half bowl each time	6 (1)
Half of adults	6 (1)
Consistency - 1 to 2 years	
Family food	94 (160
Quality of Complementary food for 6mts to 2 yrs	
1. Right consistency	12 (2)
2. Soft	76 (13)
3. Nutritious / calorie dense	29 (5)
4. Hygienic/boiled	47 (8)
Incorrect Response** - Thin/ Liquid/fruit juice	6 (1)
% Average Score	37

***Note**: Only essential perceptions are presented in the table. The responses may add up to more than 100% due to multiple responses.*

- **Feeding Children during and after Illness**

The WHO guiding principles for CF recommends: Increase fluid intake during illness, including more frequent breastfeeding, and encourage the child to eat soft, favorite foods.

During illness only 18% AWWs stated giving small frequent feeds and 6% advised on continuing breastfeeding. With regards to feeding after illness, only 6% AWWs advised an additional meal (table 3) which was very important as per the guiding principle of CF.

- **Methods to Promote/Encourage Complementary Feeding**

None of the AWWs demonstrated persistence in feeding the child with required quantity of food. Further none of them advised on experimenting with taste, consistency, food items to ensure that a child consumes required quantity of food. Most of AWWs only suggested that a child needs to be encouraged to eat (42%) e.g. with play, songs and story, comparing with other child who are eating, feeding child in company of other kids.

Showing affection, love, bribing child with ice cream, chocolates and toys, feeding in company of other or older kids, comparing and relation with other kids were most common methods (82%) recommended by AWWs to encourage child to eat.

Table 3: Feeding Children During and After Illness

	AWWs % Score (N=17)
Knowledge on Feeding Child During Illness	
Encourage the child to drink and to eat - with lots of patience, toys	12 (2)
Feed small amounts frequently	18 (30)
Give foods that the child likes	24 (4)
Give GLVs, Milk, fruits	41 (7)
Continue to breastfeed	6 (1)
Easily digestible foods like "*khichadi**"	29 (5)
Soft	24 (4)
Hygienic & fresh	24 (4)
Knowledge on feeding a child recovering from illness	
Feed an extra meal	6 (1)
Give an extra amount	18 (3)
Use extra rich foods / nutritious food/ fruits/ GLVS/ milk	29 (5)
Give extra breastfeeds as often as child wants	6 (1)
Continue breastfeeding	0 (0)
Routine food/ homemade food	24 (4)
Hygienic (food, hands and utensils)	12 (2)
% Average Score	18

***Note**: Only essential perceptions are presented in the table. The responses may add up to more than 100% due to multiple responses.*
**Khichadi means a* dish of rice and pulses

Table4: Methods to Promote/Encourage Complementary Feeding

Indicators	AWWs % Score (N=17)
Feed infants directly	12 (2)
Assist older toddlers eat	18 (3)
Feed patiently	6 (1)
Encourage, show affection / love/ Bribe child with ice cream, chocolates and toys /Feed in company of other / older kids, comparing and relation with other kids/learns from other kids	82 (14)
Talk to child during feeding	6 (1)
Behaviors regarding complementary feeding Appropriate	
Milk in cup rather than bottle to 2 year old	88 (15)
Talking to a 10-month-old child during meal	76 (13)
Showing affection to a 15 month old child know that he/she is loved while feeding him	82 (14)
Inappropriate	
Giving a 10-month child own bowl and spoon to eat alone	76 (13)
Keeping a 12-month old child from touching her food and plate	71 (12)
Spoon feeding and holding a cup for a 24-month-old, not allowing child to touch spoon	100 (17)
Knowledge on Encouraging Child to Completing The Served Portion	
Do not force feed the child	12 (2)
Try giving child food with different type	6 (1)
Encourage the child to eat eg with play, songs and story , compare with other child who are eating, feed child with other kids	29 (5)
% Average Score	44

***Note**: Only essential perceptions are presented in the table. The responses may add up to more than 100% due to multiple responses.*

The methods not listed included feed infants directly, assist older toddlers eat, being sensitive to hunger, being sensitive to satiety cues, feeding patiently, do not force the child, minimizing distractions during meals, maintaining eye contact while feeding. Further the AWWs were asked to grade various feeding behavior as appropriate and inappropriate. None of the AWWs could grade all 6 behaviors correctly. Most of the AWWs could grade 2-3 behaviors correctly (table 4). A very limited approach, knowledge and involvement of AWWs in promoting CF was evident.

- **Care during feeding**

All AWWs (100%) listed crying as an indicator of hunger, which showed that the awareness on earlier signs of hunger were not very good, since crying is one of the late signs of hunger.
AWWs listed sickness as the key reasons for poor appetite. Fever and micronutrient deficiency were listed by one AWW each.

One AWW state "Poor appetite is due to delay introduction of complementary, child not used to eating"

Total 11 care practices were identified which the caregivers could ensure while feeding the child (table 5). When assessed the AWWs on an average listed 2 practices.

DISCUSSION

In the current study, at first instance, looking at the responses of AWWs with regard to the key IYCF practices, it was noted that the AWWs have knowledge regarding the key IYCF practices. However the study indicates that the knowledge of AWWs is superficial which may not be helpful to the community to promote and enhance the key CF practices to its optimal level. The knowledge of AWWs with regard to the three IYCF practices was average; many AWWs mentioned starting CF with water and most of them failed to mention continuation of breastfeeding till two years and beyond.

Table 5: Care during Feeding

Care during feeding	AWWs % Score (N=17)
Notices progress and how much is eaten	47 (8)
Should not be throwing food on floor/eating from floor	18 (3)
Ensures cleanliness of dishes and utensils; the child's face, fingers, clean after eating; free from flies	76 (13)
Child has own bowl and utensil	6 (1)
Assists in self-feeding /completing food*	29 (5)
Provides a sociable setting, good environment	24 (4)
Provides physical support/contact	6 (1)
Expresses affection / Encourage and feed	6 (1)
Gives child time to eat at his/her pace / child should chew well	6 (1)
Signs or Actions of infant showing child is hungry	
Cries	100 (17)
Child sucks fingers	6 (1)
Reasons for child not feeling hungry	
Fever	6 (1)
Micronutrient deficiency	6 (1)
Child sick	41 (7)
% Average Score	20

Note: Only essential perceptions are presented in the table. The responses may add up to more than 100% due to multiple responses.

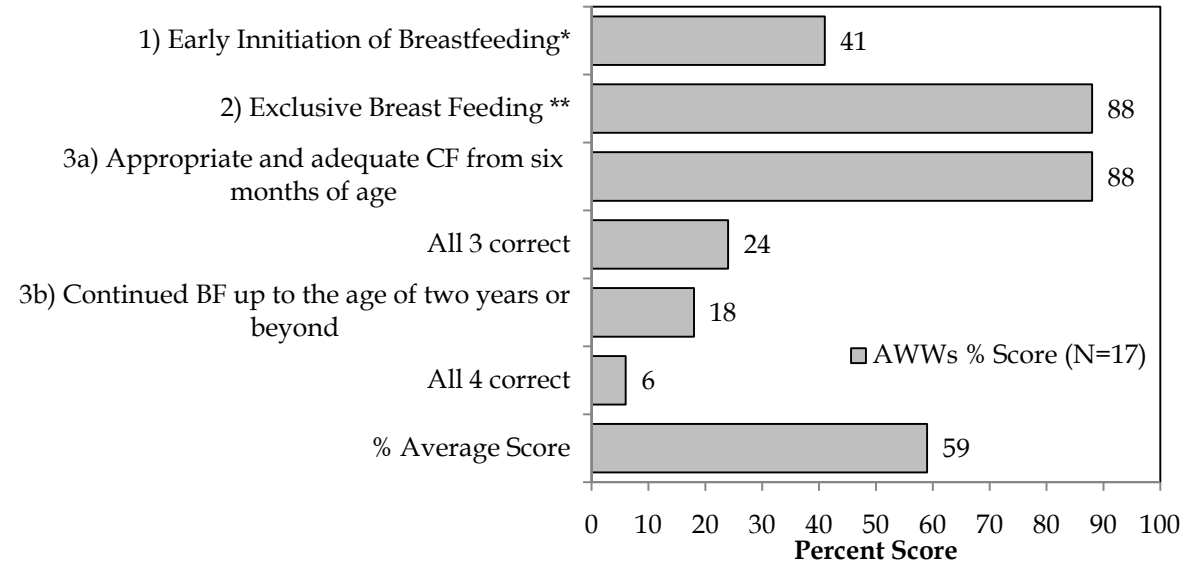

FIGURE 1: Knowledge on Key IYCF Practices

*Preferably within one hour (includes half hour responses).

** For the first six months i.e., the infants receives only breast milk and nothing else, no other milk, food, drink or water.

Note: *Percent score is % of total sum score of all AWWs out of 17 @ 1 point per AWW. Average Score is average of percent score*

Inappropriate CF is one of the major causes of malnutrition in young children in developing countries. Education about food recommended for young children is of great importance in the prevention of chronic malnutrition [13]. With regard to CF all AWWs (100%) stated the correct age of CF. However, only 6% knew the fact regarding of continuation of breastfeeding till two years. None of the AWWs knew the complete reason behind breastfeeding till 2 years and beyond, which further represented a very poor capacity of AWWs to convince community to continue breastfeeding till two years. Listing the type of food recommended as CF, AWWs listed 9 out of 14 food groups identified. Although 65% AWWs recommended food with thick consistency to be fed and a large percent of AWWs (47%) also recommended

liquid diets for children. These incorrect perceptions are possibly the contributory reasons for reinforcing incorrect belief of feeding liquid foods as CF to children resulting in low energy and protein density in CF. This immense gap in knowledge of AWWs needs to be addressed to bring about transformation in community based CF practices.

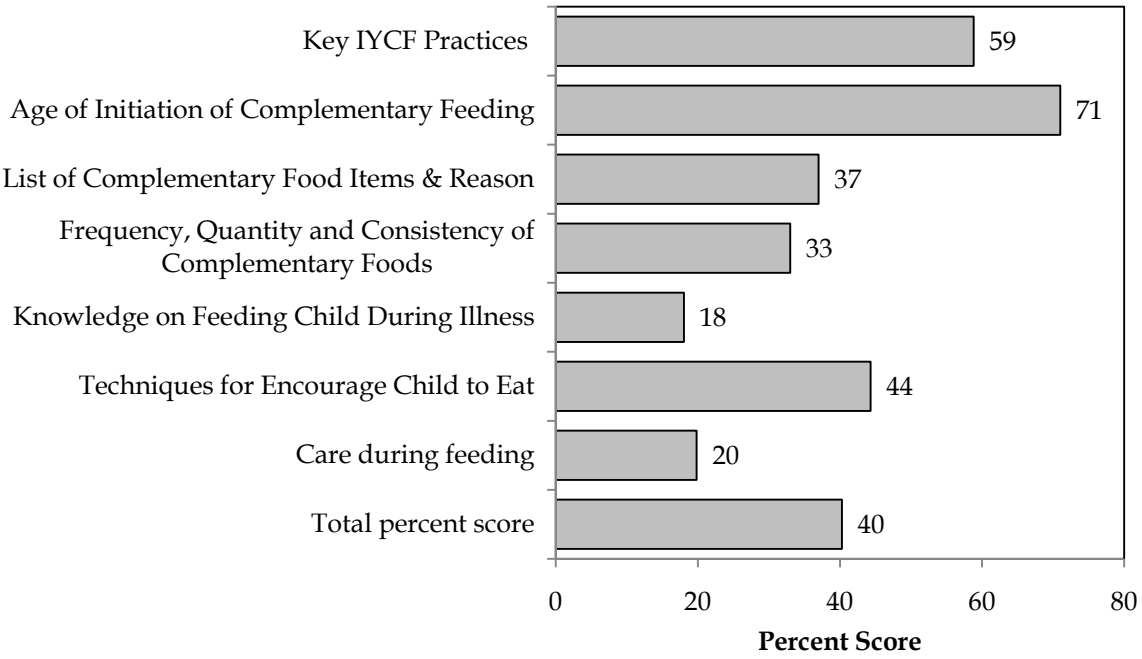

Figure 2: Knowledge and perceptions Score of AWWs

WHO recommends encouraging child to drink and eat during illness and provide extra food after illness to help child recover quickly [14]. In this study 12% AWWs recommended encouraging child to drink, 6% advised on continuing breastfeeding and 18% advised on giving small frequent feeds. Further only 6% AWWs advised on additional meal after illness.

There was a very limited approach, knowledge and involvement of AWWs in promoting CF. None of the AWW recommended persistence required by caregivers while feeding a child with required quantity of food.

According to ***UNICEF conceptual framework*** food, health, and care are all necessary, but none alone is sufficient for healthy growth and development [15]. All three elements must be satisfactory for good nutrition. Behaviors or practices related to how food is provided to children and fed to them have been found to influence nutrient intake [16]. Programmes that include care are likely to be effective in increasing nutrient intake and improving growth and development of children from birth to three years of age [17].

The knowledge on care during feeding was poor with AWWs listing average 2 of the 11 care practices identified. The perception of AWWs on early signs of hunger was limited to crying, which was in fact the last sign of hunger and at time not at all related to hunger. Prolonged EBF leading to micronutrient deficiency could be one of the reasons for poor appetite in child. Total 41% listed sickness as key reason for child not feeling hungry, and almost none listed the other two imperative reasons i.e. micronutrient deficiency and mouth lesion.

Overall the knowledge and perceptions of AWWs was very poor with average score of 40% (Figure 2). Similar study conducted in rural Vadodara also revealed similar average score of 42% among AWWs [17].

STRENGTHS

Although pre-coded, the questionnaire was open ended, so that the validity of data is high.

LIMITATIONS

Each AWW was interviewed only once at one point of time. In such a process AWW might have missed out sharing some knowledge and perceptions. To neutralize this as much a possible the observation and discussions are considered after clubbing the knowledge and perceptions of all AWWs and not based on one single AWW.

CONCLUSION & RECOMMENDATIONS:

Overall knowledge and perceptions for promoting of community based CF practices was average amongst the ICDS frontline workers (AWWs) with a percent average score of 40%. The AWWs were aware of key IYCF practices. However the AWWs perceptions and knowledge with regard to the rationale applicable to the appropriate recommended CF practices being promoted was rather poor. This is noted to be a critical gap and needs to be addressed for equipping the ICDS frontline workers for effectively promoting successful adoptions of optimal CF practices by community.

Regular reinforcement of training with on-job capacity building, follow-ups with regards to CF rather than just IEC (Information education and communication) on key IYCF messages is recommended. These might bring about discretion among the change agents (AWWs) between simply giving messages and science behind ***'bring about behavior change'*** in any community. This probably would accelerate prevention and reduction of undernutrition in community.

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