

Knowledge and Counselling Skills of Community Health Workers for Promotion of Optimal Infant and Young Child Feeding (IYCF) Practices: A Review

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ABSTRACT

Community health workers (CHWs) are well-established as change agents for promoting health behaviour change among community members. However, their knowledge and counselling skills play an important role in effective promotion of optimal infant and young child feeding practices (IYCF). The present review reports IYCF knowledge and counselling skills of CHWs and existing gaps in promotion of optimal IYCF practices by them. Knowledge of majority ($\geq 80\%$) of CHWs was reported to be correct about timing for early initiation of breastfeeding, avoidance of pre-lacteal feeding, exclusive breastfeeding, continued breastfeeding during diarrhoea, fever and breast cancer, optimal duration of continued breastfeeding and age of initiation of complementary feeding. Fewer CHWs ($\leq 50\%$) correctly knew about timing for early initiation of breastfeeding in case of caesarean section, interval/ frequency of breastfeeding, breastfeeding complications and consistency of complementary feeds. Gaps reported in CHWs' counselling skills were inability to translate knowledge into messages or observe and interpret existing IYCF practices, failure to provide need-based advice and giving inappropriate advice. Therefore, besides provision of routine refresher trainings and on-job capacity building to improve the knowledge of CHWs' about IYCF practices it is equally important to make communication and counselling skills central to training and strengthening knowledge-sharing effectiveness of CHWs with focus on bringing about behaviour change rather than simply conveying messages.

Keywords: infant and young child feeding practices, breastfeeding, knowledge, skills, community health workers

INTRODUCTION

"Every infant and child has the right to good nutrition according to the 'Convention on the Rights of the Child'".^[1] Optimal Infant and Young Child Feeding (IYCF) in the first year could prevent almost one fifth of deaths in children under five years of age, saving the lives of over 8 million children by optimal breastfeeding alone.^[1,2] However, the global IYCF indicators are still at suboptimal level, with less than half (43%) being exclusively breastfed, almost a half (6-9 month olds)

receive breastmilk and complementary foods and less than a quarter fulfilling dietary diversity and age-appropriate feeding frequency criteria.^[1] Previous research has established the importance of nutrition education to improve maternal knowledge about IYCF practices^[3,4] and consequently nutritional status of infants and young children.^[5] Community health workers (CHWs) are agents of health promotion who positively influence the health practices of communities.^[6] Therefore, CHWs have been engaged in

provision of basic health services including promotion of optimal IYCF practices at the community level.

Optimal IYCF involves a set of complex behaviours including optimal breast feeding, timely introduction of complementary feeds, age-appropriate consistency, amount, frequency and dietary diversity of meals. Consequently, CHWs' knowledge, awareness, skills, practices, attitudes and motivation play an important role in effective counselling and delivery of messages related to optimal IYCF. [7-10] Therefore, the objective of this review was to determine the knowledge and counselling skills of community level health workers with respect to promotion of optimal IYCF practices in the community.

For the purpose of this review, *knowledge* referred to as awareness, understanding and information acquired through training, education or experience; *counselling skills* referred to verbal/ non-verbal skills that enhance communication and ability to advice; *community health workers (CHWs)* included community members who serve as links between health service providers and recipients by promoting health among families in their community setting. They are usually selected from the community where they serve after receiving some training at local level, but do not possess a formal professional certificate of nursing or medicine. [11,12] *Optimal Infant and Young Child Feeding (IYCF) practices* include feeding care practices of infants and children up to 2 years of age which have been associated with healthy growth and development among them. [13] The salient IYCF practices include 'early initiation of breastfeeding within 1 hour of birth; colostrum feeding; no pre-lacteal feeds (any fluid except breast milk or food like honey, *ghutti*, animal or powdered milk, tea, water or glucose water); exclusive breastfeeding for first 6 months of life (180 days); introduction of nutritionally-adequate and safe complementary (semi-solid) foods (preferably homemade) at 6 months;

increased consistency, frequency and energy and nutrient density of complementary feeds with age; and continued breastfeeding up to 2 years of age or beyond. [1,14,15]

METHODS

Literature search was carried out using Popline, PubMed, Scopus and WHO virtual health library and hand searching. A search strategy was developed based on Boolean logic using a combination of the following terms: *infant feeding, complementary feeding, breast feeding, breastfeeding, IYCF, community health worker*, CHW, health functionar*, health worker*, aware*, knowledge, skill*, attitude*, capacity, motivation, practice**. Publication dates between 1990 and December 2016 and English language were included as search limiters wherever possible.

RESULT

A total of thirty-two articles, published between 1995 and 2016, which assessed the knowledge, [7,8,10,16-38] attitudes/perceptions, [32,36,37,39-41] counselling skills [8,10,20,24,36,42-44] and practice [10,20,29,36,42,43] of CHWs for promotion of IYCF practices were identified for this review (Table 1). Majority of the studies (n=24) were conducted in India, [8,10,16,17,21-35,37,38,41-43] five studies in Africa (three in Nigeria, [18,36,44] one in Ethiopia, [7] one in South Africa [19]), one in Pakistan, [20] one in Bangladesh [39] and one in Cleveland USA. [40] Within India, six studies were conducted in Gujrat, [8,22,23,32,35,43] three in Maharashtra, [21,25,34] two each in Punjab, [10,38] Madhya Pradesh [27,31] and Karnataka, [30,42] one study each was conducted in Delhi, [16] Haryana, [26] Himachal Pradesh, [41] Uttar Pradesh, [28] Uttrakhand, [29] Orissa, [17] Andhra Pradesh [24] and Telangana. [37]

CHWs in the selected studies included *Anganwadi Worker (AWW)*, [8,10,16,17,23,24,30,32-34,37,38,41,43] *Accredited Social Health Activist (ASHA)*, [10,22,24-29,31,35,42] *Anganwadi Supervisor*, [21] *Anganwadi Helper*, [32] *Community Health*

Extension Worker (CHEW) [7,18,36,44] and Lady Health Visitor (LHV). [20]

Table 1. Description of studies included

Author	Country	Design	Population	Measures
Bhasin et al. 1995 [16]	North Delhi, India	Cross-sectional	83 AWW	• Knowledge and attitudes about infant feeding
Satpathy et al. 1995 [17]	Orissa, India	Cross-sectional	130 AWWs	• Knowledge of breastfeeding
Davies-Adetugbo et al. 1997 [18]	Ife South local government (ISLG) area, Osun State, Nigeria	Quasi-experimental	56 CHEWs	• Knowledge of breast feeding • Attitudes towards breastfeeding
Shah et al. 2005 [19]	Rural area of KwaZulu Natal, South Africa	Cross-sectional	16 CHWs	• IYCF knowledge
OlaOlorun & Lawoyin 2006 [44]	Ibadan, Nigeria	Cross-sectional	162 CHEWs	• Knowledge and attitude towards breastfeeding • Tangible support for breastfeeding
Zaman et al. 2008 [20]	Lahore, Pakistan	Single blind RCT	Lady Health Visitor (LHV)	• Knowledge, practices and counselling skills
Taksande et al. 2009 [21]	Gondia district, Maharashtra, India	Pre-test post-test	36 Anganwadi supervisors	• Knowledge and attitudes about Infant (breastfeeding and complementary) feeding
Mahyavanshi et al. 2011 [22]	Surendranagar district, Gujrat, India	Cross-sectional	130 ASHAs	• Knowledge, attitude and practice regarding child health under five years of age • Association of knowledge, attitude, practice with educational level and duration of services as ASHA
Goudet et al. 2011 [39]	Dhaka, Bangladesh	Qualitative cross-sectional	CHWs	• Perceptions of root causes of malnutrition among infants and children
Parikh & Sharma 2011 [23]	Vadodara district, Gujarat, India	Cross-sectional	17 AWWs	• Knowledge related to IYCF practices
Naidana & Surapaneni 2012 [24]	Krishna district Andhra Pradesh, India	Cross-sectional	315 ASHAs and AWWs	• Knowledge regarding common breast feeding problems • Advice given to mothers with breastfeeding problems
Thakre et al. 2012 [25]	District Nagpur, Maharashtra, India	Cross-sectional	94 ASHAs and 4 ASHA supervisors	• Knowledge, attitude and practices on IYCF
Sheela et al. 2012 [43]	Vadodara taluka, Gujrat India	Cross-sectional	50 AWWs	• Counselling skills
Furman & Dickinson 2013 [40]	Cleveland, USA	Qualitative	Mothers, family members, health providers	• Positives and negatives of breastfeeding • Perceived barriers
Garg et al. 2013 [26]	Rural Haryana, India	Cross-sectional	105 ASHAs	• Knowledge, awareness and practices of their responsibilities
Waskel et al. 2014 [27]	Bhopal district, Madhya Pradesh, India	Cross-sectional	772 ASHAs	• Knowledge and practice of their responsibilities
Chaturvedi et al. 2014 [8]	Dahod, Jamnagar, Patan and Surat, Gujrat, India	Cross-sectional	80 AWW	• Knowledge of IYCF • Practices • Ability to counsel and influence caregivers
Deka & Mathur 2014 [28]	Chirgaon area of District Jhansi, Uttar Pradesh, India	Cross-sectional	140 ASHAs	• Knowledge, attitude and practices towards newborn care
Mahajan & Kaushal 2014 [41]	Shimla, Himachal Pradesh, India	Cross-sectional	100 AWWs	• Knowledge, attitudes and beliefs regarding IYCF practices
Saxena & Kumari 2014 [29]	Doiwala, Dehradun, Utrakhand, India	Descriptive, Cross-sectional	168 ASHAs	• IYCF knowledge and practices
Fathima et al. 2015 [42]	Karnataka, India	Cross-sectional	300 ASHAs and 1800 mothers	• Beneficiary reported practices of ASHAs related to infant feeding
Kaur et al. 2015 [10]	Ludhiana, Punjab, India	Descriptive Cross-sectional	170 ASHAs, 10 AWWs, 10 ANMs and 10 Panchayati Raj Institution (PRIs)	• Knowledge of ASHAs regarding health problems prevailing in her area • Services being provided to the needy pregnant women
Khargekar & Geethalakshmi 2015 [30]	Davangere, Karnataka, India	Descriptive Cross-sectional	234 AWW	• Knowledge of IYCF practices
Kori et al. 2015 [31]	Gwalior, Madhya Pradesh, India	Cross-sectional	88 ASHAs	• Knowledge
Chandorkar & Miyawala 2015 [32]	Vadodra, Gujrat, India		Mothers, AWW and helper	• Knowledge and perceptions of the AWW and helper regarding IYCF practices

Table 1 to be Continued...				
Sondankar et al. 2015 [33]	Maharashtra, India	Cross-sectional	344 AWWs	• Knowledge
Shinde & Ranveer 2015 [34]	Maharashtra rural, non-tribal area of marathwada in Latur district	Cross-sectional	123 AWWs	• Knowledge and attitude regarding IYCF practices
Choudary et al. 2015 [35]	Jamnagar district, Gujrat, India	Cross-sectional	194 ASHAs	• Knowledge
Abebe et al. 2016 [7]	Mecha district, West Gojam, Ethiopia	Cross-sectional	96 CHEWs and 122 mothers of 12-23 months old children	• IYCF knowledge • Knowledge sharing effectiveness and its association with stunting among children
Samuel et al. 2016 [36]	Ibadan, Nigeria	Before and after clinic-based intervention study	124 health workers: CHEWs (59.7%), nurses (27.4%), community health officers (11.3%), and pharmacy technicians (1.6%)	• Knowledge • Attitudes to communicating with mothers during one-on-one individualised IYCF counselling
Ahmad et al. 2016 [37]	Hyderabad, Telangana, India	Cross-sectional	68 AWWs	• Knowledge and attitude regarding breastfeeding
Singh et al. 2017 [38]	Urban Patiala, Punjab, India	Observational and Cross-sectional	197 AWWs	• Knowledge and skills

AWWs-Anganwadi Workers, ASHAs-Accredited Social Health Activists, ANMs-Auxiliary Nurse Midwives, CHEWs-Community Health Extension Workers, CHWs-Community Health Worker

Knowledge of Community Health Workers

Breastfeeding and IYCF knowledge scores of CHWs were reported to be above 50% in six studies which calculated scores. [7,17,18,25,27,31] However, variability in IYCF knowledge existed between countries and within countries. The most commonly assessed indicators for knowledge were early initiation of breastfeeding and its importance, pre-lacteal feeding, exclusive breastfeeding, advantages of breastfeeding, breastfeeding complications, breastfeeding on demand and introduction of complementary feeds, while only two studies assessed other indicators. Figure 1 shows IYCF knowledge indicators correctly answered by CHWs (data from 21 studies) which assessed various IYCF knowledge indicators.

Commonly assessed indicators with respect to knowledge of CHWs were timing for early initiation of breastfeeding, [7,16-19,28,30,32-34,36] exclusive breastfeeding, [7,8,18,32,34-36,41] interval/ frequency of breastfeeding, [19,22,25,28,32,34,37,41] advantages of breastfeeding, [17,18,28,34,36] age of initiation of complementary feeding [7,8,29,36,41] and consistency of complementary feeds [8,29,36] (Figure 2). Majority of CHWs ($\geq 80\%$ CHWs) correctly knew about timing for early initiation of

breastfeeding (10 out of 13 studies), avoidance of pre-lacteal feeding (5 out of 5), exclusive breastfeeding (5 out of 8), continued breastfeeding during diarrhoea, fever and breast cancer (3 out of 3), optimal duration of continued breastfeeding (2 out of 3) and age of initiation of complementary feeding (3 out of 5). However, $\leq 50\%$ CHWs had correct knowledge of indicators such as timing for early initiation of breastfeeding in case of caesarean section (2 out of 2), interval/ frequency of breastfeeding (5 out of 8), breastfeeding complications (4 out of 4) and consistency of complementary feeds (2 out of 3).

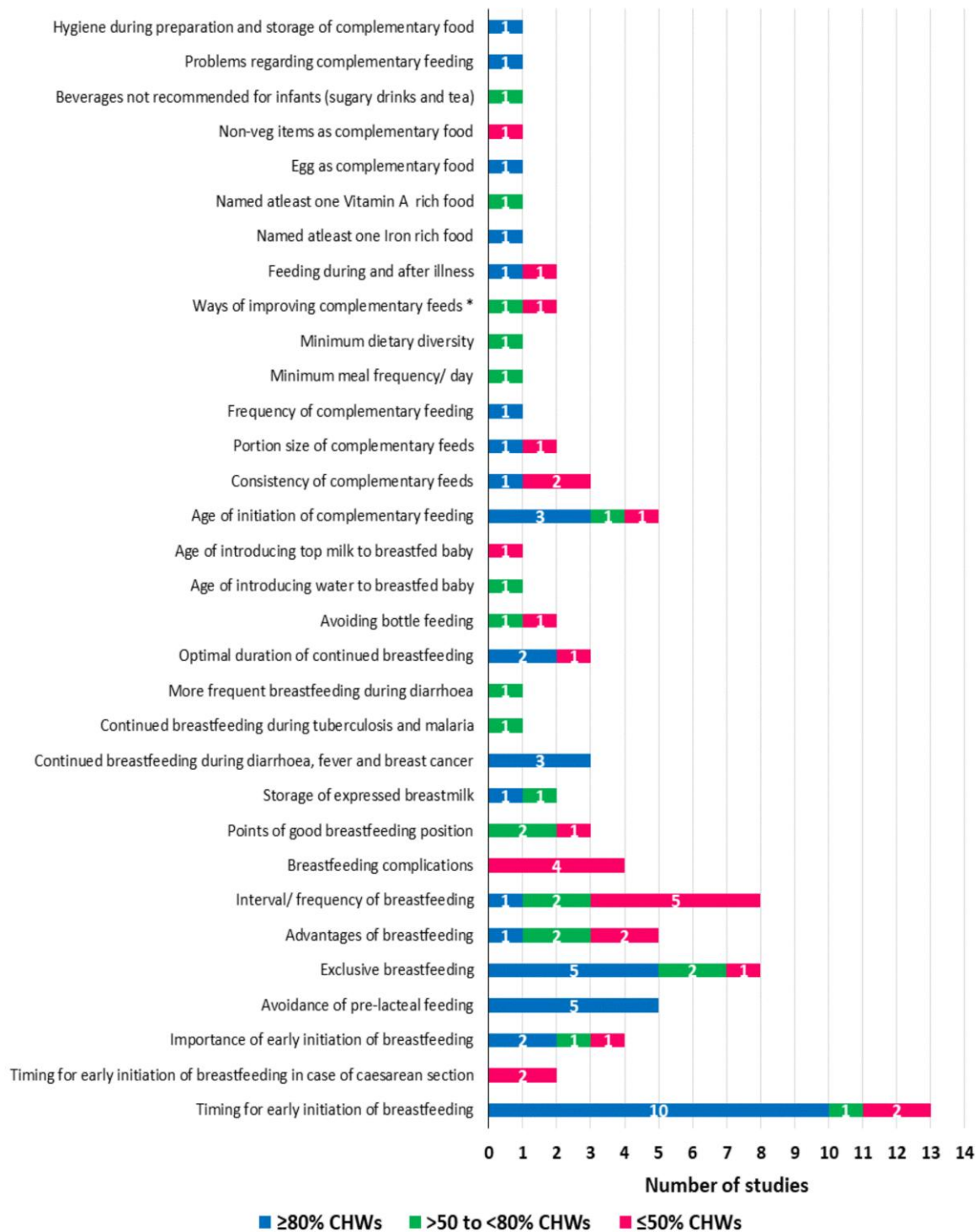
A study conducted in Nigeria in 2016 [36] showed that only 3% CHWs could mention 3 or more ways of improving complementary feeds, on the other hand, in another study from Gujrat, India conducted in 2014 [8] almost three-fourths and two-thirds suggested ways of improving *khichdi* in terms energy and nutrient density respectively. Furthermore, according to a study conducted in Uttarakhand, India [29] only one-third CHWs were aware that non-vegetarian food could be given as complementary food to infant.

Although around 40% (12 out of 30) studies [7,8,16,20-23,29,30,36,38,41] among those that assessed CHWs' IYCF knowledge studied their knowledge with respect to

complementary feeding, the number of complementary feeding indicators assessed was limited. Therefore there is need for

more research with respect to CHWs' knowledge about optimal complementary feeding practices.

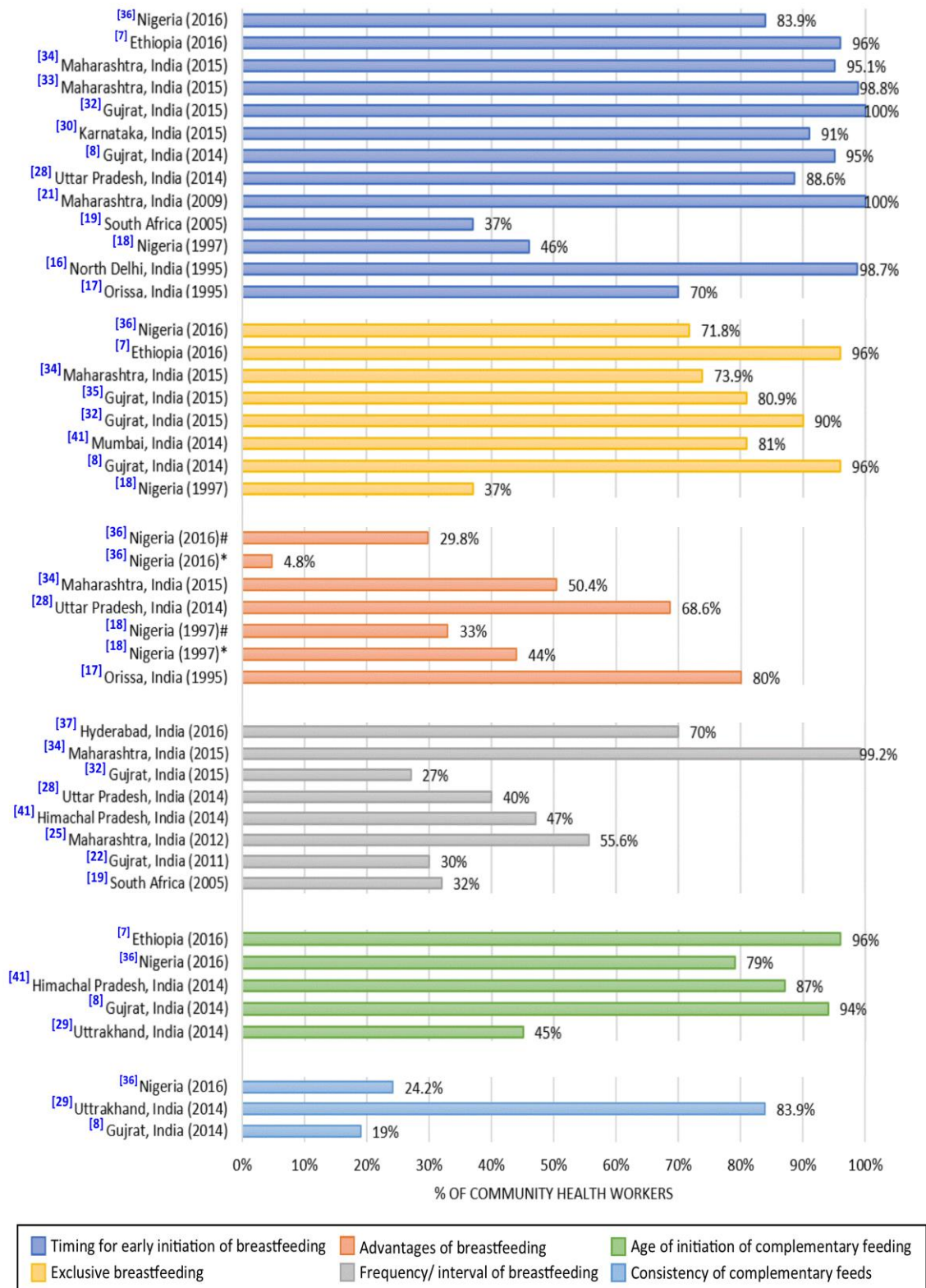
Figure 1. IYCF knowledge indicators correctly answered by CHWs



* in terms of nutrient and energy density

Note: The total length of each bar represents the number of studies (out of the 21 studies) ^[7,8,16-19,21-25,28-30,32-37,41] which assessed the particular IYCF indicator.

Figure 2. Percentage of CHWs who had correct knowledge of indicators related to breastfeeding and complementary feeding



Advantages of breastfeeding for mother, * Advantages of breastfeeding for infant

Note: The number of bars for each indicator reflects the number of studies (out of 33 studies reviewed) in which these indicators were assessed.

Counselling skills and practices of Community Health Workers

Counselling has been proven to be an effective method for improving knowledge, breastfeeding and complementary feeding practices of caregivers and further lead to better growth in young children. [45-47] However, focus on assessing counselling skills or promoting good counselling skills among CHWs is lacking as only eight [8,10,20,24,36,42-44] out of 33 studies reviewed assessed these skills in addition to knowledge on optimal IYCF practices. Beneficiaries reported receiving counselling by CHW on the following topics: early initiation of breastfeeding (84%), [42] exclusive breastfeeding (65%), [42] breastfeeding (9.3%), [36] infant feeding in HIV positive mothers (8%) [36] and complementary feeding (7%). [36] Majority of CHWs reported counselling regarding practical tips on breastfeeding (79%) and infant feeding options for HIV mothers (79%), however, less than half (46%) self-reported counselling mothers on complementary feeding practices. [36]

A considerable gap existed between CHW's knowledge and their counselling practice. A study conducted in Gujarat, India, [8] found that a majority of CHWs could not correctly apply their knowledge about IYCF practices during counselling sessions with mothers. Out of those CHWs who had knowledge of about IYCF practices, only around one-third actually advised mothers about the same during counselling session. Of those who had correct knowledge 35% were able to correctly advice on exclusive breastfeeding, 12% on portion size of the complementary feed, 20% on feeding frequency, 37% on consistency of meal and 30% on improving energy/ nutrient density of complementary feeds. [8]

Inability of CHWs to observe and interpret existing IYCF practices of the mother and infant could be another barrier in effective IYCF counselling. While observing feeding practices of mothers/

caregivers most CHWs looked for and correctly interpreted signs such as nutritious food (82%), frequency (78%), breastfeeding (52%), portion size (50%) and finishing meal adequately (48%). However, many CHWs didn't look for signs of hygiene during feeding (80%), breastfeeding during illness (58%), portion size (38%) and feeding frequency (20%). [20] In another study conducted in Gujarat, India [43] majority (88%) gave appropriate advice to mothers regarding breastfeeding, but only half of the CHWs observed the technique of breastfeeding and identified breastfeeding related problems faced by the mothers. A study conducted in Nigeria [44] showed that half of the CHWs scored low-moderate when their tangible support for breastfeeding to mothers was assessed. Incorrect advice was observed to be another barrier in promoting optimal IYCF practices. In a study conducted in Andhra Pradesh, India [24] around half of the CHWs incorrectly advised a lactating mother with mastitis to stop breastfeeding and consult the doctor, while only about 40% advised them to continue breastfeeding with both breasts, out of them only one-fifth advised to express the excess milk.

In addition to delivery of appropriate key messages on IYCF, using good communication skills are equally important for effective IYCF counselling. Most CHWs from Nigeria agreed that while communicating with mothers during one-to-one IYCF counselling mothers should be treated respectfully (94%) and be addressed by name (80%), technical language should be avoided (83%) and patience should be practiced (87%). [36]

Moreover, some common gaps in CHWs' counselling skills were failure in rapport building, inability to empathise, poor active listening skills, no use of verbal and non-verbal cues, ignorance to taking feeding history and inability to provide need-based advice. [8]

DISCUSSION

Optimal infant and young child feeding (IYCF) practices are critical to survival and optimal growth and development of infant and young children, however, the prevailing practices in the community are far from meeting the National and International Guidelines on optimal IYCF practices. In India, merely 42% infants receive breastmilk within one hour of birth [48] and not more than 65% of infants are exclusively breastfed during the first six months of life. [49] Complementary feeding rates (children 6-8 months receiving solid or semi-solid food and breastmilk) have drastically dropped from 53% to 43% in the last 10 years. [48,50] Among 6-23 months old children, only two out of every five (41%) are fed minimum number of times, almost one out of every five (22%) receive food with minimum dietary diversity and merely one out of every ten (11%) receive a minimum acceptable diet. [49]

CHWs work in close collaboration with mothers and families from their communities and are responsible for delivering nutrition and health related messages including appropriate IYCF practices. A study conducted in Uttar Pradesh, India [51] showed that breastfeeding initiation within first hour of life was significantly higher (odds ratio 1.97; 95% confidence interval 1.55-2.49) among mothers visited by CHWs with better knowledge than those with poor knowledge. It is of utmost importance that CHWs have scientifically correct and adequate knowledge and beliefs related to common health concerns and appropriate counselling skills for effective delivery of these messages. The review found that knowledge of CHWs varied across studies. Majority of CHWs ($\geq 80\%$) from most studies had correct knowledge in terms of certain IYCF indicators (mentioned in results section), however some other important IYCF indicators were correctly known by fewer ($\leq 50\%$). In addition, little evidence existed on knowledge of CHWs with respect to

complementary feeding practices. Similar findings were reported by a study from Brazil [52] where CHWs had limited knowledge on practice and promotion on breastfeeding due to lack of training courses.

In addition to sound technical knowledge, effective promotion of health messages by CHWs is based on their counselling skills. As per our review, IYCF counselling was provided by CHWs mainly on themes such as initiation of breastfeeding and exclusive breastfeeding. As reported by beneficiaries and CHWs there was limited counselling on optimal complementary feeding practices. An important barrier identified in promotion of optimal IYCF practices was inability of CHWs in translating their knowledge into messages during counselling sessions. [8] According to a study from Gujarat, [8] not more than 40% CHWs who had knowledge about some IYCF practices could deliver that knowledge during counselling sessions. Incorrect counselling or advice by CHWs is another barrier in promotion of optimal IYCF practices. It was observed in a study conducted in Andhra Pradesh, India (2012) that CHWs gave inappropriate advice to mothers in case of breastfeeding complications. [24]

Overall, a huge dissimilarity existed between CHWs' knowledge and their ability to translate knowledge into advice in counselling sessions. Poor communication skills, inappropriate knowledge and understanding and failure in providing need-based advice were important gaps in counselling skills of CHWs. [8] Additionally, CHWs' must have adequate aptitude, negotiation and leadership skills and motivation in order to become efficient counsellors. [10] Therefore, besides working to improve the knowledge of CHWs' w.r.t. IYCF practices it is equally important to address knowledge gaps with routine refresher trainings and on-job capacity building. Further, there is need for making communication and counselling skills central to training and strengthening

knowledge-sharing effectiveness of CHWs with focus on bringing about behaviour change rather than simply giving messages. Development of good communication aids for counselling sessions focusing on situation specific key messages may provide support to CHWs in effectively performing their role as agents for community health and nutrition promotion.

CONCLUSION

Most CHWs have correct knowledge on IYCF practices such as early initiation of breastfeeding, avoidance of pre-lacteal feeding, exclusive breastfeeding, continued breastfeeding during diarrhoea, fever and breast cancer, continued breastfeeding and age of initiation of complementary feeding. However, less than half of CHWs in most studies reported correct knowledge with respect to breastfeeding initiation after caesarean section delivery, breastfeeding advantages, breastfeeding interval/frequency, breastfeeding complications and consistency of complementary feeds. There is inadequate evidence on CHWs' knowledge of complementary feeding practices. Gaps exist in CHWs' counselling skills such as inability to translate knowledge into messages, failure in providing need-based advice and giving inappropriate advice. Therefore, there is need for more research on CHWs' competency in IYCF counselling. A paradigm shift in training is required with focus on counselling skills and strengthening knowledge-sharing effectiveness in addition to enhancing the knowledge of CHWs with respect to optimal IYCF practices.

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