Internship Training

At

Care India, Bihar

"Knowledge and Practice of IYCF Principles in Patna District, Bihar"

By

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Enroll No- PG/14/042

Under the guidance of

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Post Graduate Diploma in Hospital and Health Management
2014-16

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In recognition of having successfully completed her Internship in the department of

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(Nutrition)

And has successfully completed her Project on

Title-"Knowledge and Practice of IYCF Principles in Patna District, Bihar"

Date-14 May 2016

Care India, Bihar

He/she comes across a committed, sincere & diligent person who has a strong drive & Zeal for learning

We wish him/ her all the best for future endeavours

Mr. Sharad Chaturvedi

Deputy Director- Nutrition TSU

TO WHOMSOEVER IT MAY CONCERN

This is to certify that **Dr. Nidhi Tiwari** student of Post Graduate Diploma in Hospital and Health Management (PGDHM) from International Institute of Health Management Research, New Delhi has undergone internship training at **Care India Bihar** from 11 March 2016 to 14 May 2016 .

The Candidate has successfully carried out the study designated to him during internship training and his approach to the study has been sincere, scientific and analytical.

The Internship is in fulfillment of the course requirements.

I wish him all success in all his future endeavors.

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Certificate Of Approval

The following dissertation titled **"Knowledge and Practice of IYCF Principles in Patna, Bihar."** at **"Care India** is hereby approved as a certified study in management carried out and presented in a manner satisfactorily to warrant its acceptance as a prerequisite for the award of **Post Graduate Diploma in Health and Hospital Management** for which it has been submitted. It is understood that by this approval the undersigned do not necessarily endorse or approve any statement made, opinion expressed or conclusion drawn therein but approve the dissertation only for the purpose it is submitted.

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This is to certify that Dr. Nidhi Tiwari, a graduate student of the Post- Graduate Diploma in Health and Hospital Management has worked under our guidance and supervision. He/ She is submitting this dissertation titled "-Knowledge and Practice of IYCF Principles in Patna, District ,Bihar" at "Care India, Bihar" in partial fulfilment of the requirements for the award of the Post- Graduate Diploma in Health and Hospital Management.

This dissertation has the requisite standard and to the best of our knowledge no part of it has been reproduced from any other dissertation, monograph, report or book.

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CERTIFICATE BY SCHOLAR

This is to certify that the dissertation titled "Knowledge and Practice of IYCF Principles in Patna, District, Bihar and submitted by Dr. Nidhi Tiwari, Enrollment No PG/14/042. Under the supervision of Dr. Dhananjay Srivastava for award of Postgraduate Diploma in Hospital and Health Management of the Institute carried out during the period from 11 April to 14 May 2016. Embodies my original work and has not formed the basis for the award of any degree, diploma associate ship, fellowship, titles in this or any other Institute or other similar institution of higher learning.

Nidhi

Signature

FEEDBACK FORM

Name of the Student: Dr. Nidhi Tiwari

Dissertation Organisation: Care India, Bihar

Area of Dissertation: Public Health Nutrition under Nutrition TSU

Attendance: 100 %

Objectives achieved:

1. **Acquired deep understanding of functioning of care India , Bihar.**
2. **Completed assigned tasks.**
3. **Field visits and Survey**
4. **Acquired deep understanding of Health and ICDS department of Bihar.**

Deliverables:

Prepared repots on the assigned projects.

Field Visits and survey work.

Attended HSC meetings, VHSND.

Strengths:

- **Excellent leadership and Analytical skill.**

Suggestions for Improvement:

Signature of the Officer-in-Charge/ Organisation Mentor

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Dr. Nidhi Tiwari

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About care India-

CARE has been working in India for over 65 years, focusing on alleviating poverty and social injustice. We do this through well planned and comprehensive programs in health, education, livelihoods and disaster preparedness and response. Our overall goal is the empowerment of women and girls from poor and marginalized communities leading to improvement in their lives and livelihoods. We are part of the CARE International Confederation working in 90 countries for a world where all people live with dignity and security.

History

CARE in India grew out of a vision of ending poverty and social injustice, and it has been working in India for over 65 years. CARE came to India in June, 1946 when one of its co-founder, Lincoln Clark, signed the CARE Basic Agreement in New Delhi at the Office of Foreign Affairs. The agreement was limited to contributions of technical books and scientific equipment for universities and research institutes. In November 1949, the first Chief of Mission, Melvin Johnson, arrived in India to establish operations. Subsequently on the invitation of the then President of India, he developed a CARE India Food Package that caused a renegotiation of the CARE Agreement to include importation of food through Indo-CARE Agreement on 6 March 1950. The CARE Office during 1950's in Delhi was a hutment (a long, thin building) located in Janpath, Connaught Place. At one end of the building was the Australian High Commission to India (A.K.A. Embassy). At the other end was the Delhi Press. CARE was sandwiched between the two in a two-room office. The Government of India (GOI) rented the space to us for 50 rupees per month, approximately $10. The CARE office consisted of the office manager, the secretary, two clerks, a messenger, and a driver. Care had three additional offices and warehouses in India located in Bombay, Madras, and Calcutta — each office administered by an Indian national. The initial programs those days included assistance to educational institutions, relief camps and assistance to hospitals in form of books, laboratory equipments, tools supplies etc. When the Mid-Day Meal (MDM - school lunch) program started in 1960, state offices were established and the staff in Delhi and state offices increased. Since 1960's CARE has been supporting government's school feeding programs. CARE has been providing nutritious food for the beneficiaries of Integrated Child Development Services (ICDS) on the request of GOI since 1982. CARE supported the Government's ICDS in the states of Andhra Pradesh, Bihar, Madhya Pradesh, Odisha, Rajasthan, Uttar Pradesh and West Bengal. In 1998-99 the quantum of food support in India was worth Rupees 300 crores. The respective state governments had contributed towards the administrative cost so that CARE carried these programs smoothly in their respective states. As a part of support from USAID, CARE implemented a long term project named Integrated Nutrition and Health Project (INHP) from 1996 till 2010 and reached to about 1297 blocks in nine major states of India. Recognized worldwide for its contribution in disaster response and rehabilitation operations, CARE in India has supported the efforts of Government of India and individual state governments as and when major disasters occurred in the country. CARE has provided relief to several natural disasters since 1966 with Jammu and Kashmir floods 2014 and Hud

in Andhra Pradesh being the most recent. Some of our efforts include response to flood relief in West Bengal in 1979, cyclone in Andhra Pradesh in 1977 and in 1996, and earthquake relief in Latur, Maharashtra in 1993, and Odisha super cyclone in 1999. The list of our efforts to bring smiles back on the faces of those who lost all hopes during disasters is long. CARE India has made a considerable shift in its programming approach over the years. From direct service provision to enabling poor and vulnerable groups, CARE India has evolved into a rights-based organization in order to address underlying causes of poverty. Our focus is explicitly on the well-being, social position and rights of women and girls from tribal and Dalit communities (Key Population). CARE India's current 'Program me' approach stems from a redrawn vision, under which, working with partners on projects has been overlapped with holistic, long term, deep impact "programs" that work directly with key populations to ensure that the root causes of poverty and marginalization of people, particularly poor women and girls, are tackled strategically and collaboratively. While we believe we have a lot to feel proud of, we also recognize that today in India, there are more absolute poor and malnourished than it was 65 years ago! Recognizing that CARE India continues its transition seeking more appropriate paradigms of development to ensure that we remain a catalyst for change and contribute towards seeking a world of hope, tolerance and social justice, where poverty has been overcome and people live in dignity and security.

Vision/Mission

Vision

We seek a world of hope, tolerance and social justice, where poverty has been overcome and people live in dignity and security.

Our Mission

CARE India helps alleviate poverty and social exclusion by facilitating empowerment of women and girls from poor and marginalized communities.

Our Program-me Goal

Women and girls from the most marginalized communities are empowered, live in dignity and their households have secure and resilient lives. CARE India will accomplish this goal by working with 50 million people to help them meet their health, education and livelihood entitlements.

Using appropriate interpersonal styles and techniques to gain acceptance of ideas or plans; modifying one's own behavior to accommodate tasks, situations, and individuals involved.

Working Area-

CARE India has been working extensively in different parts of India. We work with grassroots initiatives, state and district governments, communities and individual from all over the country.

As of now, CARE India is present in 14 states of India. Our head office is in Delhi. Please see below for the list of the 14 states.

Programmes

CARE India, through well formulated and comprehensive programs, aims to achieve its long term commitments to key population groups. These programs on Health, Education, Livelihood, and Disaster Response and Preparedness are innovative in their approach. They involve strategic implementation and constant engagement with other stakeholders to achieve deep and sustainable impact in the lives of the specific populations.

To create lasting change, our programs work towards enhancing the empowerment of women and girls, and alleviating poverty. We are committed to:

Working with Dalits, Adivasi and other marginalized communities

Addressing the underlying social, political and economic causes of poverty

Working in the least developed areas of India

Education Programs

Education is the key to empowering women and girls, which helps bring about social equality. Girl's education program works on improving lives and providing opportunities for girls and women through increased participation in formal and alternative education systems. The program builds on innovative pilot projects and strategic partnerships developed by CARE over the last decade. CARE works closely with government-run schools and the different levels within the Government. CARE works to help girls' complete primary education and access formal schools through accelerated learning

methodology and provide academic support to enhance the quality of learning. Care also help nurture leadership skills amongst girls and offer alternative education opportunities for women and girls who have never been enrolled or have dropped out early from school.

Health Programs

Delivering healthcare to over a billion people is a very complex challenge. CARE India works in close collaboration with State and Central Government and other partner organizations to secure accessible and quality maternal and child healthcare among marginalized communities. We work towards identifying the root causes of healthcare challenges, provide innovative solutions, and help implement secure and quality healthcare services in India. CARE India believes that a healthy mother and a healthy baby is the route to a productive, developed nation. Hence, CARE has specially focused upon providing comprehensive solutions to address public health problems. We promote essential new born care and immunization, reduce malnutrition, prevent infant and maternal deaths and protect those affected by or susceptible to HIV/ AIDS and TB. CARE works closely with its partners to achieve good health care for everyone.

Livelihood Programs

CARE believes in helping individuals live a life of dignity. To achieve this, our livelihood programs focuses on generating sustainable livelihoods. This is done through capacity building, fostering community links and promoting small businesses. CARE India puts special focus on entrepreneurial ventures, which are owned by women. CARE through its livelihood programs promotes microfinance, Self Help Groups, capacity building and small businesses. It also fosters linkages between community collectives and financial institutions. CARE also focuses on improving the literacy, numeracy and critical thinking skills to promote sustainable livelihoods.

Disaster Preparedness Programs

CARE India works towards providing immediate relief and assists in the rehabilitation process of the affected communities in the aftermath of any calamity. We help communities build their capacity to better cope with and recover from disasters. Our foremost goal is to build resilience among the community and various stakeholders in case of any disaster. We work closely with communities, who have been affected by disasters, so that long term development of the communities with sustainable livelihood opportunities may be secured and they are better equipped in future.

Key Objectives

• Addressing the immediate needs of the most marginalized populations affected by disasters, while recognizing people’s fundamental right to a life with dignity

• Understanding the underlying causes of vulnerability

• Enhancing capacities to cope with disasters and adapt to climate change

• Integration of disaster risk reduction into the ongoing programs

Executive Summery

Addressing infant and young child under nutrition is a national priority. Promotion of optimal Infant and young child feeding practice has been recognized as an important intervention not only for preserving nutrition.

Objective-

This study had one primary objective which was to understand the communities' knowledge, and practice on IYCF in Patna District, Bihar.

Method- The cross sectional study design is used. The sample size used in this study is 200; quota sampling is used to collect the sample. The structured questionnaire is used for data collection. The analysis is done by using SPSS software, . The Knowledge and practice scale is developed and scoring is done. P value is also calculated.

Result- The population covered during the study in majority belongs to Hindu religion 98 % (196), The OBC cast is in predominance, and most of the respondents are from age group 21 to 25 yrs of age. there are only few sample 0.5 % (2) which belongs to Christian community and rest of the population are from Muslim 0.5 %(1) and Buddhist religion. The practice of early initiation of breastfeeding within first 1 hour after delivery is 69 %(138). There is a culture of pre lacteal breastfeeding practice in the villagers. 41 % of respondent use to give pre lacteal breastfeeding. The most common feed they prefer are plain water 136, (68%), the next most common feed is animal milk 60.5 % (121). No respondent of the village are using gripe water, and the practice of using powder milk 7 % (3) is very less. 74 % of respondent said that they start giving cereal based diet at the age of 6-8 months, 40% of the respondents during the study is used to add oil or ghee in the babies food which very essential for growth and development of the babies. The hand hygiene practice before feeding the child is around 45.5 %, which is very important, poor hand hygiene invite many infections , which one of the major contributor of child mortality and mortality. The mean knowledge score is 6 and practice score is 4.

Conclusion - Knowledge Score: 92.7 % of population falls under low and moderate categories of Knowledge. Practice Score: 91 %.of population falls under low and moderate categories of practice. Even all the delivery are institutional even though knowledge and practices are not satisfactory. Around 50% of mothers are members of SHG but there mean Practice score falls in low scale.

Chapter-1 : INTRODUCTION

''We know that shamefully large numbers of children in both wealthy and poverty-stricken regions suffer malnutrition: the malnutrition of excess amounts of inappropriate foods and the malnutrition of insufficient nutritious foods. As adults, we should feel embarrassed that so many small children are so poorly fed. We can change this situation, if we want to and many people are already working to this end. Good nutrition for children harmonizes with good nutrition for adults…and it would be good for the world if we worked to this end.''

—Gabrielle Palmer

Background

Nutrition interventions have been acknowledged as being among the most effective preventive actions for reducing mortality among children under the age of five years. Of these actions exclusive breastfeeding ranks first; being estimated as having the potential to prevent 13 % of all deaths in this age group while complimentary feeding water, sanitation and hygiene would reduce 6 % and 3 % respectively. (1) Optimal infant- and young child-feeding (IYCF) practices are crucial for nutritional status, growth, development, health, and ultimately the survival of infants and young children (2–4). Worldwide, suboptimal breastfeeding still accounts for deaths of 1.4 million children aged less than five years (under-five mortality). The timely introduction of complementary feeding can prevent almost 6% of under-five mortality (5). It was estimated that, if 90% of infants are covered with a package of intervention to protect, promote, and support the optimal IYCF practices, almost one-fifth of overall under-five mortality can be averted (5). The poor complementary feeding practices mean that many children continue to be vulnerable to irreversible outcomes of stunting, poor cognitive development, and significantly increased risk of infectious diseases, such as diarrhea and acute respiratory infection (4, 6,7).

This has a tremendous impact in a developing country, like India, with a high burden of disease and low access to safe water and sanitation. Even in developed countries, recent studies have underscored the role of IYCF practices in reducing child mortality (8,9).

The World Health Organization (WHO) recommends exclusive breastfeeding for the first six months of life with early initiation and continuation of breastfeeding for two years or more together with nutritionally-adequate, safe, age-appropriate complementary feeding starting at six months (10). The WHO and United Nations Children Fund (UNICEF) have articulated a global strategy for infant- and young child-feeding. Based on these guiding principles, the Government of India, in collaboration with international agencies, has adopted the culturally-acceptable IYCF guidelines, which were incorporated in the Integrated Management of Neonatal and Childhood Illness (IMNCI) Program me (11).

Optimal Infant and Young Child feeding Practice-

Optimal infant and young child feeding (IYCF) is evidence based measure for improving child nutrition and child survival. The "World Health Organization (WHO)/Unite Nations Children's Fund (UNICEF) Global Strategy for Infant and Young Child Feeding and the National Guidelines on Infant and Young Child Feeding 2010" (IAP) stress that for proper growth and development, infants should be exclusively breastfed with no other food or drink—not even water in the first 6 months of life .This must be followed by sequential addition of nutritionally adequate, preferably home-made semisolid and solid foods to complement (not to replace) breast milk, till the child is gradually able to eat normal family food after 1 year while breastfeeding is continued up to 24 months of age or beyond. Adequate nutrition for adolescent girls and pregnant and lactating mothers is also important for child nutrition.

The period after 6 months, when other foods are added is also referred to as weaning. Some wrongly interpret it as weaning the baby away from the breast. Complementary feeding is a better term than weaning.

Complimentary Feeding

It is the process of giving a child other food while continuing breastfeeding, when her or his nutritional demands can no longer be fulfilled by breastfeeding alone. Appropriate complementary feeding should be timely, culturally acceptable, nutritionally adequate, safe and responsive.

Timely Feeding

It is recommended that all infants must be exclusively breastfed for 6 months and adequate complementary foods should be added after that. Complementary feeding indicators in India are far from satisfactory. According to the National Family Health Survey 3 (NFHS-3), introduction of complementary feeding along with continued breastfeeding in children of 6–8 months is only about 55%. Addition of anything other than breast milk before 6 months is fraught with danger for the following reasons:

- Addition of foods and other liquids (including water, soup, juice, rice-water, dal-water, etc.) interfere with optimal breastfeeding. They may fill up the child's stomach and quench the thirst and consequently, may lead to less suckling at the breast with reduced milk production.

- Increased risk of allergic disorders due to allergens passing through the not yet fully mature gut of the infant. It takes about 6 months after birth for the intestine to become reasonably mature. Enzymes needed to digest foods other than breast milk are also produced around 6 months.

- The tongue-thrust reflex is active before 6 months. Infants tend to push out with the tongue anything other than liquids.

- Foods other than breast milk may result in more gastrointestinal and other infections and malnutrition. They may put unnecessary load on the kidney and lead to obesity, hypertension and coronary artery disease later in life.

- Less frequent suckling also increases the possibility of the mother becoming pregnant again.

Rationale

Infant and young feeding is a set of well-known, common and scientific recommendations for appropriate feeding of new-born and children under two years. The first two years of life provide a critical window of opportunity for ensuring children's appropriate growth and development through optimal feeding.

Addressing infant and young child under nutrition is a national priority. The ministry of Health and Family Welfare through its flagship program me, the National Rural Health Mission, Is committed to taking appropriate and adequate steps and contribute towards reduction of under

Early and exclusive breastfeeding along with appropriate and adequate steps and contribute towards reduction of under-nutrition in the children five years of age

Nutrition interventions have been acknowledged as being among the most effective preventive actions for reducing mortality among children under the age of five years. Of these actions exclusive breastfeeding ranks first; being estimated as having the potential to prevent 13 % of all deaths in this age group while complimentary feeding water, sanitation and hygiene would reduce 6 % and 3 % respectively. (1)

Good nutrition during the 1,000-day period between the start of a woman's pregnancy and her child's second birthday is critical to the future health, wellbeing and success of her child. The right nutrition during this window can have a profound impact on a child's ability to grow, learn and rise out of poverty. It also benefits society, by boosting productivity and improving economic prospects for families and communities.

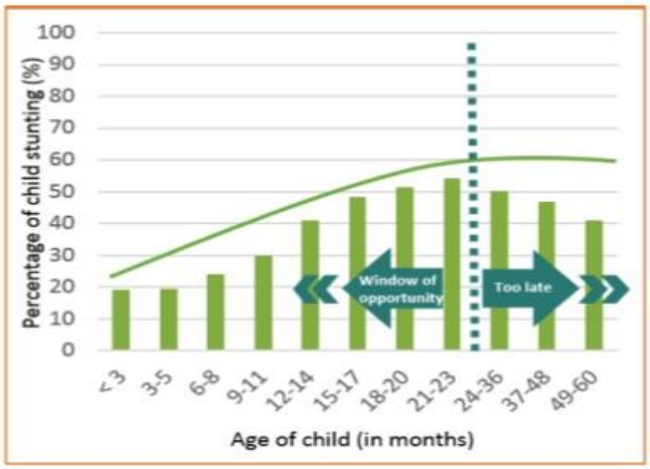

Fig-1.1 Showing window of opportunity of first 1000 days

Source- IFPRI Food Security portal partnership and policy dialogue in India: Emerging food security issues in Bihar (http://www.slideshare.net/southasia-ifpri/presentations)

Pregnancy and infancy are the most important periods for brain development. Mothers and babies need good nutrition to lay the foundation for the child's future cognitive, motor and social skills, school success and productivity. Children with restricted brain development in early life are at risk for later neurological problems, poor school achievement, early school

drop - out, low skilled employment and poor care of their own children, thus contributing to the intergenerational transmission of poverty.

Investments in improving nutrition for mothers and children in the first 1,000 days will yield real payoffs both in lives saved and in healthier, more stable and productive populations. In addition to its negative, often fatal, health consequences, malnutrition means children achieve less at school and their productivity and health in adult life is affected, which has dire financial consequences for entire countries. Children's whose physical and mental development are stunted by malnutrition will earn less on average as adults. One study suggested the loss of human potential resulting from stunting was associated with 20 percent less adult income on average. (12) Malnutrition costs many developing nations an estimated 2-3 percent of their GDP each year, extends the cycle of poverty, and impedes global economic growth.*(13) I*n contrast, well-nourished children perform better in school and grow up to earn considerably more on average than those who were malnourished as children. Recent evidence suggests nutritional interventions can increase adult earnings by as much as 46 percent. (14) An estimated 450 million children will be affected by stunting in the next 15 years if current trends continue.This is bad news for the economies of developing nations, and for a global economy that is increasingly dependent on new markets to drive economic growth.

Early and exclusive breastfeeding along with appropriate complementary feeding is now recognized as one of the most effective interventions for child survival particularly to address morbidity and mortality related o three major problems i.e. neonatal infections, diarrhea and pneumonia. While breastfeeding provides optimal nutrition to the child, improvements in complimentary feeding can substantially reduces stunting and related burden of disease.

Improvement in IYCF indicators in the country would require lots of research in the field of nutrition which will help in developing strategies to conquer the problem of malnutrition and its consequences. This dissertation is a small contribution in the field of nutrition to improve the nutrition status.

Socioeconomic and Demographic Profile of district Patna of Bihar

Patna district is the most populous amongst all the districts of Bihar. Patna is the capital city of the state of Bihar. This city is located on the banks of river Ganga and in the region which was earlier known as Magadh region. Patna is the largest town and headquarters of Patna district. It is mainly an administrative and educational center. Patna is surrounded by the districts of Saran, Vaishali, and Samastipur & Begusarai in the north Bhojpur district in the west, districts of Jehanabad, Lakhisarai & Nalanda in the south, and Begusarai district in the east.

Landscape of Patna –

District demographic profile (15)

Total population-5,838,465

Male- 52.7%

Female- 47.3%

Urban -43.1%

Rural 56.9 %

SC-15.8%

ST-o.2%

Others-84.1 %

Sex Ratio -0.23

No of villages -1,157

Literacy Rate-63.82

Patna ranks 337th amongst 599 district in India (District development index2015) (16)

Health Facilities in District-

Patna has a good network of health care delivery system. As per Bihar government organizational set up, the District is headed by a Deputy Commissioner, who is also the chair person of the Integrated District Health Society of Patna district. The District health set up of Bihar government is headed by the Chief Medical Officer followed by an Additional CMO as second-in-command. Chief Medical Superintendent looks after the Bihar government hospitals.

District Hospital- 01

No. of PHC- 24

No of APHC-60

The status of Nutrition in Patna (Source- Concurrent Household Health and Nutrition Survey (Round -7),concurrent monitoring and learning unit , CARE India-Bihar)

- 43.5% of children are stunted.
- 28.5 % children are wasted.
- 43.3 % children are underweight.

Immediate causes of under nutrition- (17 NFHS 4 20015-16)

- Children breastfeed within one hour of birth-(<3yr)% - 39.0 % (Source-NFHS 4 2015-16)
- Children exclusively breastfeed (0-6 month)-35.4%
- Children who received any solid /semisolid food in the last 24 hours (6-8 months in %)=32.0 %
- Children who achieve children with minimum diet diversity (6-23 months)=3.8 %

Disease burden-

- Children suffering from diarrhoea in the last 2 weeks (<5 yrs)- 3.8 %

- Children with diarrhoea treated with ORS (<5 yrs) %- 56.4 %
- Children showing symptoms of ARL (< 5yrs)-0.6 %

Aims and Objective -

The aim of this study is to understand the **"Knowledge and Practice of IYCF Principles in Patna District of Bihar.**

1. **To measure the knowledge and practice of mothers regarding Infant and young child feeding in Patna district of Bihar.**
2. **To measure the practice of mothers regarding Infant and young child feeding in Patna district of Bihar.**

CHAPTER: 2 REVIEW OF LITERATURE

Infant and Young Child Feeding (IYCF)-

Infant and Young Child Feeding (IYCF) is a set of well-known and common recommendations for appropriate feeding of new-born and children under two years of age.

IYCF includes the following Care practices: (18)

- Early initiation of breastfeeding; immediately after birth, preferably within one hour.
- Exclusive breastfeeding for the first six months of life i.e. 180 days (no other foods or fluids, not even water; but allows infant to receive ORS, drops, syrups of vitamins, minerals and medicines when required)
- Timely introduction of complementary foods (solid, semisolid or soft foods) after the age of six months i.e. 180 days.
- Continued breastfeeding for 2 years or beyond
- Age appropriate complementary feeding for children 6-23 months, while continuing breastfeeding.
- Children should receive food from 4 or more food groups –
    - Grains, roots and tubers, legumes and nuts;
    - dairy products ;
    - flesh foods (meat fish, poultry); eggs,
    - vitamin A rich fruits and vegetables;
    - other fruits and vegetables

And fed for a minimum number of times (2 times for breasted infants 6-8 months; 3 times for breastfed children 9-23 months; 4 times for non-breastfed children 6-23 months)

- Active feeding for Children during and after illness.

Infant and young child feeding (IYCF) practices, comprising of both breastfeeding and complementary feeding, rank among the most effective means to improve nutritional status and the survival of a child. About 35% of the under-five child mortality and 11% of the total global disease burden are due to under nutrition (19), with approximately 40% of these deaths occurring in developing countries including Sub Saharan Africa (20). Over 130, 000 estimated deaths that occur every year among children aged under five years in Tanzania (21) are due to poor feeding practices (22). Poor feeding practices in infancy and childhood result in under nutrition, contribute to impaired cognitive and social development, poor school performance and reduced productivity in later life (23).

The level of child under nutrition remains unacceptable throughout the world (24). It is estimated that, more than 195 million children under five years of age in developing countries are chronically undernourished (stunted), with 90 per cent of these children living in Africa and Asia (20). Although stunting is prevalent in these two regions, many children under five years are affected by stunting in Africa (40%) compared to Asia (36%) (20). The

level of childhood under nutrition varies across Africa, with a regional average of 40% of children under five years of age being stunted and 13% are wasted (24).
According to recent data from the RSOC 2014, 38.7 % of Indian children under the age of five are stunted, 19.8 % are wasted, and 42.5 % are underweight. (25) Therefore promotion of appropriate infant feeding practices especially in the first 24 months is vital in India.

Infant and young child feeding practices are multidimensional and age specific. The period between birth and 2 years is widely recognized as a critical period because of the need for appropriate nutrition to support the rapid rate of physical growth and brain development. (23). The nutritional needs of infants can be met through breastfeeding from birth up to six months of age and thereafter there is a need for other foods to provide additional energy and nutrients to support growth and development (20, 26). Apart from breast milk, other milk formulas are also used to provide nutritional needs for infants who are not breastfed (26).Thus, promotion of appropriate infant and young child feeding practices is fundamental to achieve a child's nutritional needs for optimal growth and development and consequently reducing child under nutrition and mortality (20). The World Health Organization (WHO) (27) recommends that all infants should be initiated with breastfeeding within one hour of birth and exclusively breastfed from birth until 6 months of life. Thereafter, infants should be introduced to nutritionally adequate and safe complementary foods with continued breastfeeding up to two years or beyond. These recommendations comply with the global strategy to improve infant and young feeding practices. The Global strategy for infant and young child feeding emphasized the need for comprehensive national policies on IYCF, ensuring that all health services protect, promote and support appropriate breastfeeding and complementary feeding practices (24).

Breastfeeding practices-

Breastfeeding (BF) is the feeding of an infant or young child with breast milk direct from the breast or expressed (18) and breastfeeding practices refer to the practices to be followed in breastfeeding a baby (18). The World Health Organization (WHO) (29) and the American Academy of Pediatrics (AAP) (30), recommend breastfeeding as the preferred method of feeding a baby because of its health benefits to both the child and mother. For the baby 0-5 7 months of age, breast milk provides almost all the necessary nutrients to meet growth needs (31) and several immunological factors to protect against infections and reduce mortality (31-33). Optimal breastfeeding is effective in protecting infants from common childhood illnesses such as diarrhea, pneumonia and other respiratory infections (34-36), the primary causes of child mortality worldwide.

The health benefits for breastfeeding mothers include lactation amenorrhea, early involution of the uterus, and enhanced bonding between mother and infant (31). Breastfeeding is less expensive than breast milk substitutes (31) from an economic perspective. In addition, breast milk is readily available at any hour of the day or night (37), and remains an important food until the children are two years (37). In light of these benefits, the new WHO infant feeding guidelines (24) recommend that infants should be initiated early on breastfeeding within one hour after birth; be exclusively breastfed from birth until 6 months of life; and to continue with breastfeeding for up to 2 years or beyond to achieve optimal growth and development of infants.
The WHO has developed two guidelines of indicators for assessing infant and young child feeding practices. The main purpose of developing these indicators was to have a common set of measures to assess IYCF practices, which can be used to collect data to evaluate the

progress of promotional programs. The first guideline was published in 1991 and it provided a set of indicators for assessing breastfeeding practices (see Table1:1 below) and only one indicator for complementary feeding i.e. the timely complementary feeding rate. This indicator provided information about whether complementary foods were consumed, but not about the quality or quantity of those foods. In response to concerns about lack of adequate indicators of complementary feeding, in 2002 WHO began a process to review and develop indicators of complementary feeding practices, which were validated in 2004 to reflect dietary quality and quantity, using existing data sets from 10 different sites in developing countries. The development of these indicators were finalized and in 2008, WHO published the new guideline with fifteen indicators (eight core and seven optional) which are currently being used to assess infant and young child feeding practices (38).
The core list includes new indicators for dietary diversity, feeding frequency and minimum acceptable diet among children aged 6-23 months. The new guidelines also provide additional information such as the acceptance of Oral Rehydration Solution (ORS) in the exclusive breastfeeding category. There was also some updated information on the criteria for inclusion in infants age e.g. exclusive breastfeeding is currently recommended for 6 months which was changed from 4 months. Similarly, introduction to complementary foods is now recommended to start at 6-8 months instead of 4-6 months. The changes in age group were also made on other indicators like early initiation of breastfeeding within one hour of birth; ever breastfed rate and bottle feeding (Table1:1). Some optional indicators in the 1991 guidelines (e.g. early initiation of breastfeeding within one hour of birth) are currently recommended as key indicators due to its protective effects against gastrointestinal infections (39) and reduction in the risk of neonatal deaths (19). More information regarding the guideline for assessing infant and young child feeding are outlined in the WHO documents (38,39 , 29).

Early Initiation of Breastfeeding –means breastfeeding all normal newborns (including those born by caesarean section) as early as possible after birth, ideally within first hour. Colostrums, the milk secreted in the first 2-3 days, must not be discarded but should be fed to new-born .As it contains high concentration of protective immunoglobulin's and cells. No pre-lacteal fluid Should be given to the newborn. (18)

Early initiation of breastfeeding within one hour of birth is vital as it facilitates emotional bonding of the mother and the baby (23) , determines the successful establishment of breastfeeding (23), and has a positive impact on duration of exclusive breastfeeding (40).

Furthermore, early initiation of breastfeeding within one hour protects the newborn from acquiring infection and reduces mortality in the newborn (41). A large cohort study undertaken in rural Ghana concluded that 22% of neonatal deaths could be prevented if all infants could be put to the breast within the first hour of birth (42). Similarly, a reduction of child deaths from 13 million globally in 1990 to 8.8 million in 2008 have been noted as partly due to the adoption of basic health interventions such as early initiation of breastfeeding (43).

In spite of these benefits, in many developing countries early initiation of breastfeeding rates were still unsatisfactory as compared to developed countries. The rates of early initiation of breastfeeding within one hour of birth in developed countries are high and

range from 75% in United States (44) to 92% in Australia (45). In contrast only one third of mothers initiated breastfeeding within the recommended first hour of birth in developing countries (46). According to Dibley et al (39) rates of timely initiation of breastfeeding among infants in some developing countries varied from 32% in Indonesia to 46% in Timor-Leste. Data from Pakistan revealed that early initiation of breastfeeding rate was only 27.2% for all newborns in 2007 (48). In most Sub-Saharan African countries levels of early initiation of breastfeeding within one hour of birth were below 60 per cent (26).
Early initiation of breastfeeding within one hour after birth is one of the strategies being promoted in India (18) for reducing under five mortality rate in order to achieve the Sustainable Development Goal (SDG). Recent data shows that breastfeeding was universal in India. However, only 35.5 % (NFHS-4 2015-16) of birth. The data of District Nutrition Profile and RSOC shows that 34.9 % in Bihar and 39.0 in Patna district. (NFHS -4 2015-16).(26,49,50). Which is below the national target of reducing infant mortality? Improved health care delivery systems and adequate health support such as breastfeeding counseling services to mothers could be the possible reason for higher early initiation of breastfeeding rates in many developed countries compared to inadequate health services in many developing countries.

Exclusive Breastfeeding (EBF)

"Exclusive breastfeeding" means feeding infants only breast milk from the mother (either directly or expressed) and no other liquids or solids with the exception of Oral Rehydration Solution (ORS), drops of syrup consisting of vitamins, mineral supplements or medicine prescribed by a medical doctor (18). WHO (24) made a global recommendation that all infants should be exclusively breastfed for the first six months of life to achieve optimal growth, development and health (24). Thereafter, to meet their evolving nutritional requirements, infants should receive nutritionally adequate and safe complementary foods while breastfeeding continues for up to 24 months or beyond. The current recommendation to continue exclusive breastfeeding from birth up to 6 months as opposed to the previous recommendation for exclusive breastfeeding (EBF) up to 4 months was based on scientific evidence showing that, exclusive breastfeeding up to 6 months has the largest potential impact on reducing mortality from the two biggest contributors of infant deaths:- diarrhea and pneumonia (19)
Benefits of exclusive EBF for 6 months compared to partial or non-exclusive breastfeeding have been extensively documented worldwide (19, 39, 51). Exclusive breastfeeding during the first 6 months of life reduces morbidity and mortality among infants and young children (19, 39, 51). Furthermore, it has been established that the deaths of 10% to 15% of children under 5 years of age in resource-poor countries could be prevented through EBF alone (19). A recent analysis of maternal and child under nutrition in developing countries by Black et al (19) established that non-exclusive breastfeeding in the first 6 months of life results in 1.4 million deaths and 10% of disease burden in children younger than 5 years of age. Furthermore, Black et al (19) found that the relative risks of all-cause mortality and pneumonia incidence were 13 significantly higher for non-exclusively breastfed infants. In addition, the study conducted by Kulwa et al (52) in Dar es Salaam region concluded that, most stunted children (88%) were not exclusively breastfed for the first 6 months. A pooled analysis by the WHO Collaborative Study Team (53) found that the risk of death from diarrhoea among partially breastfed infants aged 0– 6 months was 8.6 times higher compared to the risk for exclusively breastfed children. For those who received milk formulas, the risk of death was 25 times higher than those who were exclusively breastfed

(54). Despite the benefits conferred by breastfeeding, "exclusive breastfeeding for 6 months" as recommended by WHO (24) is still not widely practiced. The rates of EBF at 6 months are low in both developed and developing countries. The global rate of exclusive breastfeeding infants under 6 months of age is estimated to be less than 40% and only 39% of infants in the developing world were exclusively breastfed (20). Despite high rates of initiation of BF, EBF rates at 6 months in many developed countries were also very low. For example, only 12%, 7% and 14% of all infants aged 0-5 months were exclusively breastfed in United States (36), United Kingdom (46) and Australia (37) respectively. According to UNICEF (20), the percentage of infants aged 0-5 months who were exclusively breastfed in Sub-Saharan Africa was only 30% which falls below the 90% target which is associated with reduction of 10% of under-five mortality rate in developing countries (39). In India , EBF among infants under 6 months was 64.9% . at this rate seems to be better than the rates for other countries given above, this rate is still below the national target of 90% however the NFHS -4 2015-16 shows that EBF practice in Bihar is 53.5 % and Patna is 35.4 %.

Complementary feeding practices-

Complementary feeding (CF) refers to the process of introducing foods and liquids into a child's diet when breast milk is no longer sufficient to meet the nutritional requirements for optimal growth and development (18). An infant's need for energy and nutrients starts to exceed what is provided by breast milk alone from the age of 6 months, and complementary feeding becomes necessary to fill the energy and nutrient gap (18, 56). The complementary feeding indicators "Introduction to soft, semi-solid or solid foods", "Minimum dietary diversity", "Minimum meal frequency" and Minimum acceptable diet" described in this literature are based on 2008 WHO guidelines.

Introduction to complementary foods

The timely introductions of appropriate complementary foods promote growth and good nutritional status in infants and young children (57). Introduction to complementary foods refers to the time when infants start to receive soft, semi-solid or solid food after 6 months of life while continuing breastfeeding up to 2 years or beyond. In the 1991 guideline for assessing IYCF indicators (58), there was only one indicator reflecting complementary feeding-"timely complementary feeding" which measured the proportion of children aged 6-9 months who received breast milk and complementary foods. This indicator provided information about whether complementary foods were consumed during the past 24 hours in the 6-9 months age group and covered only breastfed children.

The lack of information on other important aspects of feeding such as the quality of the diet as dietary diversity made application of this indicator quite limited. It is on this basis that this indicator was revised to reflect the age range of 6-8 months and to include both breastfed and non-breastfed in the current guideline (25). In addition, three new globally agreed indicators for complementary feeding were introduced. These indicators better reflect the quality and quantity of food given to children aged 6-23 months, which include: minimum dietary diversity, minimum meal frequency and minimum acceptable diet. A country profile report for data on infants and young child feeding indicators by WHO, 2010 indicates that, the prevalence of timely introduction of complementary foods varies in many developing countries (36). The rate of introduction of complementary foods in South Asian countries is estimated to range from 56.7% in India to 93.4% in Sri-Lanka (59). In African countries the rates of introduction to complementary foods are estimated to be 80.6% in Kenya, Uganda (75%), Zambia (90.3%) and Malawi (82.9%) (25). In Pakistan the rate of introduction to complementary foods was low (36.3%) compared to other African countries

(48). For Bihar about 45.7% of infants are introduced to complementary foods at 6 months (RSOC 2014).

Poor complementary feeding practices such as too early and too late introduction to complementary foods do exist. Too early introduction of complementary foods before 6 months pre-dispose infants to reduced protective benefits of breast milk and more often the complementary feeds if contaminated with pathogens contribute to high levels of infant and childhood under nutrition, morbidity and mortality (61). Furthermore, introducing infants early with complementary foods is discouraged, as it is believed to be associated with excessive weight gain, which may results to childhood obesity in developing countries (61). Despite these risks, early introduction of complementary foods is widely practiced both in developed and developing countries for various reasons such as insufficient breast milk (62), demand to return to work among employed mothers (59) and misconception that breast milk alone is not enough to fulfill infant's hunger (63). The European literature on complementary feeding showed that high rates of infants are introduced to complementary foods and infant formulas before the age of 4 months (65, 66, 67). For example, in United Kingdom 55% of infants were introduced to solid foods by 3 months of age (68). The rate for early introduction of complementary foods in Australia was estimated to be 48.3% for children aged 0-23 months (54). In other industrialized countries rates of early introduction of complementary foods ranged from 16.4% in Germany (70) to 21% in Norway (56). Hotz and Gibson (69, 122) found that complementary feeding began early in Malawi and most of the complementary foods was mainly made from maize starch. Similarly, Mama bolo et al (71) found that supplementary feeds were being introduced at an early age in South Africa, with 56% of the infants receiving thin maize porridge by the end of the first month. According to TDHS 2004-05, complementary feeding starts at an early age in Tanzania and was recorded in 7% of infants under the age of 2 months, 32% of infants aged 2 to 3 months and 58% of infants aged 4 to 5 months (72). It has been further documented that the most commonly complementary foods introduced early in Tanzania include thin maize porridge, soft rice, cow milk and mashed potatoes/ bananas (73, 124-128). It is important to note that these foods may not fulfill the nutritional requirements for optimal health of the growing child. The delayed introduction of complementary foods is also a poor complementary feeding practice as and it is equally detrimental to the growth of infants and children. The practice of delayed introduction of complementary foods may put children at risk of under nutrition due to inadequate energy and other nutrients to support rapid growth, physiological maturation and development after 6 months of life. Delayed introduction of complementary feeding after the age of 6-8 months in children has been noted in Sub-Saharan Africa (73).

Nutritional quality of Complementary

Foods Complementary foods given to infants after six months of life need to be adequate in both quality and quantity in order to provide sufficient energy and nutrients to meet a child's growing needs (24). The guideline for complementary feeding for children aged 6-23 months states that complementary feeding should start at six months of age with the introduction of small amounts of food and food given should increase in quantity as the child gets older, while maintaining frequent breastfeeding (11, 18 and 24). The amount of complementary food offered to infants should also be based on the principles of responsive feeding and ensure that the quality of food and meal frequency are adequate to meet child's needs (74). The WHO guidelines (2008) recommend that complementary foods for infants after six months of age be made from seven food groups namely grains, roots and tuber; legumes and nuts; dairy products (milk, yogurt, cheese); flesh foods (meat, fish, poultry and

liver/organ meats); eggs; vitamin-A rich fruits and vegetables and other fruits and vegetables . Meals made from each food group provide adequate nutrients to meet daily nutritional needs for proper growth and development.

CHAPTER: 3 METHODOLOGIES

This chapter deals with the research approach, research design, setting, population, sample and sampling technique, development and description of the tool, data collection procedure, pilot study and plan for data analysis. This chapter gives a brief description of the methodology adopted for the study "An Assessment of the Infant and young child feeding pattern among mothers in Bihar, India."

Research Approach

A research approach suggest possible conclusion to be drawn from the data. In view of the problem selected for the study and the objective to be accomplished, a survey approach was considered as an appropriate research approach for the study.

Research Setting-

The study was conducted at Bihar. Bihar is situated in the eastern part of India with Patna as its capital. According to Census 2011, Bihar has a population of 104 million, making it the third most populous state in India. With a population density of 1,106 per sq km, the state is also one of the most densely populated. Almost 88.7 per cent of Bihar's population resides in rural areas.

Out of 38 district of Bihar, the Study is conduct at Patna district. Administratively the district is divided into six subdivisions, twenty-three blocks, 344 Panchayats and 1433 villages. Out of 23 blocks the study is conducted at 4 blocks of patna , In East , Barh block (Salalpur Village), In West , PaliGanj block (lalGang Sehra Village) , In South , Dhanarua Block (Sanda village) and in East, Maner Block (haldi Chhapra Village).

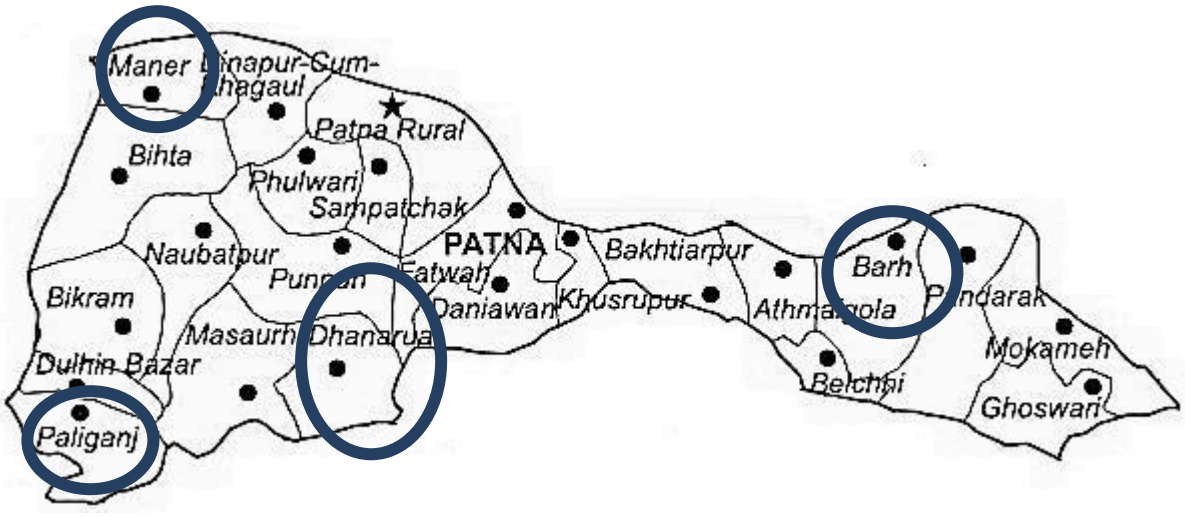

Fig-3.1 Map of Patna District

Research Design -

The research design selected for the study was exploratory in nature and a cross sectional design approach was adopted. It included collection of information and data directly from the subjects of the study through a predesigned questionnaire,

Target Population – Mothers of 0-23 months child

Sample – The sample were selected on the base of convenient quota sampling technique. Samples are selected on the basis of convenience and availability in the village. All samples were beneficiaries of Aganwadi centre and registered under the aganwadi House hold (grah bhet) register.

In absence of any previous study in the district, the lowest figure of all the IYCF indicators as reported in the NFHS-3 (i.e. 24.5% for early initiation of breastfeeding) was used for calculating the sample size. Considering 95% confidence level, 20% relative precision, and design effect 2, the yielded sample size was 616.

But due to lack time and resources total 200 samples was collected.

50 samples from each village were collected.

50 samples from each village is divided into following pattern.

The samples are divided into 4 age group

0-2 months – 10 samples

3 to 5 months – 10 samples

6- 8 months – 10 Samples

9 to 11 months – 10 samples

12 to 23 months – 10 samples from each village.

The bifurcation was done to collect samples from all ages.

Instrument Used- 1. Questionnaire

2. Focused Group Discussion

Data Analysis – Descriptive and Statistical analysis using SPSS software.

Outcome- Assessment of IYCF practices among the mothers of bihar , India .

Population- The population of this study are mothers of 0-23 month's children of different background (APL, BPL,, Different caste and category ,different education standard)

Population Size- 200

Criteria for selection of subject-

Inclusion Criteria –

- Mothers of children 0-23 months who are registered under the Aganwadi of above mention villages.
- The study participants who have given consent to participate in the study.

Exclusion Criteria-

- Study participants who did not give consent for the study.
- Mothers of 0-23 months children who are not able to understand and respond the questionnaire.
- Mothers of 0-23 month's children who are not registered in the Aganwadi centre of the respective village.
- Mothers of 0-23 months children, who are away from the village due to any reason.

Instruments used- Structured questionnaire was used as an instrument for data collection.

Construction of tool – The tool which is used for this survey was developed for LQAS+ survey for program management under Bihar technical support program, Care India. From this tool the feeding practice section is used as a tool for data collection.

Description of instrument- The tool is divided into VI section

Section -I Characteristic and house assessment

Section – II Personal Details

Section – III Details about children

Section –IV Breastfeeding practice

Section – V Knowledge questions

Section- VI Breastfeeding and complimentary feeding practice.

There are total 60 questions are in the questionnaire. Most of the questions are closed ended. Many of them are Yes / No and True or False type. There are some questions which can be skipped, which are not relevant.

Data collection Process-

Step – I The formal permission was obtain to conduct the study.

Step –II Investigator introduced herself to the study participants and also gave a brief idea about the study to be conducted.

Step – III Consent was taken from the study participants regarding. Their willingness for participation in the study

Step – Iv The Structured questionnaire was administered to the study participants, and thus the data was collected.

Data analysis Technique –

- The data collected was analyzed by using, descriptive statistical method.
- Descriptive statistics was used to describe sample characteristics in terms of frequency and percentage.

CHAPTER :4 RESULT

1. Socio-Demographic variable-

Characteristic	Paliganj (N=50)	Maner(N=50)	Dhanarua (N=50)	Barh(N=50)	Total
	F(%)	F(%)	F(%)	F(%)	F(%)
RELIGION					
Hindu	48 (96%)	**50(100%)**	**48(96%)**	50(100%)	196(98%)
Muslim	0 (0%)	**0(0%)**	**1(2%)**	0(0%)	1(0.5%)
Christian	2(4%)	**0 (0%)**	**0(0%)**	0(0%)	0(0%)
Buddhist	0 (0%)	**0(0%)**	**1(2%)**	0(0%)	1(0.5%)
CASTE					
SC	15((15%)	**14(28%)**	**19(38 %)**	24(48%)	72(36%)
OBC	30 (60%)	**30(60%)**	**28(56%)**	22(44%)	110(55%)
Gen	5(10%)	**6(12 %)**	**3(6%)**	4(8%)	18(9%)
HOUSE TYPE					
Kaccha	26(52%)	**23(46%)**	**35(70%)**	30(60%)	114 (57%)
Semi Pucca	17(34%)	**9(18%)**	**13(26%)**	11(22%)	50(25%)
PUCCA	7(14%)	**18(36%)**	**2(4%)**	9(18%)	36(18%)
SHG MEMBER					
yes	24(48%)	**21(42%)**	**27(54%)**	28(56%)	100(50%)
No	26(52%)	**29(58 %)**	**23(46%)**	22(44%)	100(50%)
LITERACY					
Yes	33(66%)	**21(42%)**	**28(56%)**	33(66%)	115(57.5%)
No	17(34%)	**29(58 %)**	**22(44%)**	17(34%)	85(42.5%)
EDUCATION STATUS					
primary	2(4%)	**2 (4%)**	**4(8%)**	5(10%)	13(26 %)
Middle	10(20%)	**3(6 %)**	**4(8%)**	12(24%)	29 (58%)
High School	17(34%)	**9(18 %)**	**17(34%)**	16(32%)	59(29.5%)
Graduation	4(8%)	**7(14%)**	**3(6%)**	0(0%)	14(7%)
AGE					
15-20 yrs	6(12%)	**4(8%)**	7 (14%)	4(8%)	21(10.5%)
21-25 yrs	40(80%)	**41(82%)**	38(76%)	46(92%)	165(82.5%)
26-30 yrs	4(8%)	**5(10%)**	5(10%)	0(14%)	14(7 %)

Table 4.1 Socio demographic profile of the study sample.

- The population covered during the study in majority belong to Hindu religion 98 % (196), there are only few sample 0.5 % (2) which belongs to Christian community and rest of the population are from Muslim 0.5 %(1) and Buddhist religion (1). It suggest that most dominant religion in the study sample belongs to Hindu religion.

- The population covered in this study is predominantly belongs to OBC 55 % (172) caste which is in majority present in Bihar also. The others are SC 36 % (72) and rest are general (% (18). There is no ST population in the sample.
- The literacy level of the sample population shows that majority of the mothers are literate (57%), while 43% of the mothers who are interviewed are illiterate.

- The graph shows that out of 200 respondents 42 % i.e (85) respondents do not receive any formal education, they are illiterate. However 30 % of respondents (59) are completed their high school, 15 % of respondents completed their middle education. & 7 % of respondents are graduate. Rest 6 % of mothers attained only educated up to primary education.

2. Percentage and frequency of correct response of Practice variables

Paliganj (N=50)		Maner(N=50)		Dhanarua (N=50)		Barh(N=50)		Total (N=50)	
F	%	f	%	F	%	f	%	f	%
PRACTICE OF EARLY INITIATION OF BREASTFEEDING									
34	68	32	64	36	72	36	72	138	69
PRACTICE OF GIVING PRELACTEAL FEEDING									
20	40	21	42	**25**	50	16	32	82	41
PRACTICE OF GIVING COW/BUFFAL/GOAT/OTHER ANIMAL MILK									
26	52	32	64	34	68	29	58	121	60.5
PRACTICE OF GIVING MILK MADE UP OF POWDER									
0	0	1	2	1	2	1	2	3	1.5
RACTICE OF GIVING PLAIN WATER									
35	70	34	68	30	60	37	74	136	68
PRACTICE OF GIVING BOILED WATER									
0	0	0	0	0	0	1	2	1	0.5
PRACTICE OF GIVING JANAM GHUTTI									
6	12	7	14	7	14	7	14	27	13.5
PRACTICE OF GIVING TEA									
10	20	16	32	15	30	19	38	60	30
BOTTLE FEEDING PRACTICE									
4	8	8	16	12	24	15	30	39	19.5
PRACTICE OF GIVING POWDER BASED CERAL MEAL									
4	8	3	6	1	2	6	12	14	7
SEPARATE BOWL FOR FEEDING THE CHILD									
16	32	21	42	22	44	21	42	80	40
PRACTICE OF ADDING OIL/GHEE TO MEAL BEFORE FEEDING IN LAST 24 HRS.									
16	32	21	42	22	44	21	42	80	40
PRACTICE OF HAND WASHING BEFORE FEEDING									
27	54	21	42	20	40	23	46	91	45.5

Table 4.2 Percentage and frequency table of correct response of practice variable.

- The practice of early initiation of breastfeeding within first 1 hour after delivery is 69 %(138). 52 respondents breastfeed their child within 1 hour to 1 day, only 8 respondents breastfeed their child on the second day. Rest 4 mothers do not remember the initiation time of the breastfeeding. Early iniciation of breast feeding within 1 hour is highest in Barh and Dhanarua block 72 % , Which is higher than other block.

- The table shows that there is a culture of pre lacteal breastfeeding practice in the villagers. 41 % of respondent use to give pre lacteal breastfeeding, which shows that partial breast feeding practice is very common.The paliganj block is performing well in compare to others blocks, in avoidance of pre-lacteal breastfeeding. Around 98 villagers i.e 49 % of are not practice any kind of pre lacteal feeds before breastfeeding. But 82 (49%) respondents used to give pre lacteal feeds before breastfeeding like animal milk, jiggery, Honey, water, jiggery, tea, ghutti etc.).
  on

- The most common feed they prefer are plain water 136 (68%), the next most common feed is animal milk 60.5 % (121). No respondent of the village are using gripe water, and the practice of using powder milk 7 % (3) is very less.

- 70 % (140)respondent's breastfeed their babies more than 10 times a day, out of which 20 % (40) respondents of child between 0-2 months give more than 10 times breastfeeding in last 24 hours. The 24 % (48) respondents breastfeed their of age group 3-5 months gives more than 10 breastfeeds per day.

- 74 % of respondent said that they start giving cereal based diet at the age of 6-8 months, 21 % of respondent replayed that they start giving cereal based semisolid food at the age of 3-5 months. It shows that majority of respondent start giving cereal based diet at the age of 3-5 months. However there are 3% and 2% of respondents who feed their children at 9-11 months and 12-23 months respectively.

- 40% of the respondents during the study is used to add oil or ghee in the babies food which very essential for growth and development of the babies.

- The bottle feeding practice is around 19 % in the paliganj district, Poor bottle hygiene is also one the very important cause of gastrointestinal infection.

- 40 % of the respondent used to feed their child in separate bowel which is recommended in IYCF practice.

- The hand hygiene practice before feeding the child is around 45.5 %, which is very important, poor hand hygiene invite many infections , which one of the major contributor of child mortality and mortality.

Knowledge of target mothers on IYCF Principles

Ideally, all infants and young children should be fed following Optimal IYCF practices:

1. Initiation of breastfeeding within 1 hours of birth;
2. Exclusive breastfeeding for six months (180 days);
3. Introduction of adequate and safe complimentary foods from 6 months of age.
4. Continued breastfeeding for two years and more.

Experience showed that many children in the world are not fed that way, leading to under-nutrition, morbidity and sometimes death. It is also not uncommon to see these optimal infant feeding practices further undermined during emergencies by factors such as donations of breast milk substitutes (BMS) or misconceptions surrounding the ability of mother to breastfeed their child, contributing in infant morbidity and mortality increases.

3. Percentage and frequency table of Knowledge variables.

Paliganj (N=50)		**Maner(N=50)**		**Dhanarua (N=50)**		**Barh(N=50)**		**Total (N=50)**	
F	%	f	%	f	%	f	%	f	%
Feeding within 1 hour of deliverly									
32	64	22	44	22	44	24	48	100	50
Exclusive breastfeeding till 6 months									
26	52	27	54	37	74	30	60	120	60
Cholustrum should be given to child									
47	94	43	86	45	90	43	86	178	89
Breastfeeding at least for 2 years									
38	76	36	72	41	82	40	80	155	77.5
Frequent breastfeeding produce more milk									
12	24	23	46	26	52	24	48	85	42.5
Breastfeeding sick child									
44	88	41	82	40	80	40	80	164	82.5
breastfeeding the child when mother is sick				unless dictors advice					
39	78	38	76	40	80	41	82	158	79
Duration of breastfeeding- until child spotaneously relase the breast									
40	80	39	78	35	70	41	82	155	775

Table 4.3 Percentage and frequency table of correct response of practice variable.

- The Knowledge level of the overall patna district in immediate feeding practice is just 50 % out of 200 respondent only 100 said that the correct practice of early initiation of breastfeeding, if we studied the block wise knowledge level distribution, the highest respondent are from Paliganj i.e 64 %. It is one of the very important indicator.

- The knowledge level of the exclusive breast feeding in the Patana district is 60 % (120). Which is also very important indicator for growth and development of the child.
- The knowledge of importance of colostrum in the infant life is very important for any mother when we studied this 89 % of respondent knows the importance of colostrum. The knowledge level of respondents of all blocks is 86 % and above which is quite good.
- The knowledge of breastfeeding for 2 years is around 77.5 in Patna distict , but when we studied the block wise status the 82 % of respondents living in Dhanarua is having knowledge of breastfeeding the child up to 2 years whereas Maner is only 72%.
- The knowledge of frequent breastfeeding produce more milk is very limited only 42.5% of Patna district. However the respondent living in Paliganj is only 24 %.
- Knowledge of Breastfeeding sick child in Patna is 82.5%. All the blocks of Patna is around 80 and above percentage.
- The knowledge question "Unless the doctor's asked to stop should mother continue breastfeeding revels that? 79 % mothers have knowledge to breastfeed their babies even they are sick unless the doctor's advice.

The result of the Knowledge and Practice Score

Knowledge				**Practice**			
Category	**Grade**	**Frequency**	**Percentage**	**Category**	**Grade**	**Frequency**	**Percentage**
0-4	**Low**	**42**	**21%**	**0-3**	**Low**	**93**	**46.5**
5-7	**Moderate**	**143**	**71.5%**	**4-6**	**Moderate**	**89**	**44.5**
8-10	**High**	**15**	**7.5 %**	**7-9**	**High**	**18**	**9**

Table: 4.4Knowledge and Practice score

Mean score of Knowledge and Practice vs Demography

Mean Score vs Demography			
	Frequency	Knowledge mean score	Practice mean Score
Hindu	196	5.58	3.72
Muslim	2	6	5
Christian	1	4.5	6
Buddhist	1	4	6
Caste			
SC	72	5.51	3.96
ST	0	0	.
OBC	110	5.54	3.76
Gen	18	5.94	2.94
House Type			
Kaccha	114	5.54	3.8
Semmi Pucca	50	5.94	3.44
Pucca	36	5.14	4.08
SHG Member			
Yes	100	5.61	3.62
No	100	5.52	3.9
	Age of mother		
15-20 yrs	21	5.76	3.1
21-25 yrs	165	5.53	3.92
26-30 yrs	14	5.71	2.93
	Education Status		
Illiterate	85	5.54	3.55
Primary	13	5.85	4.54
Middle	29	5.62	4.59

High School	59	5.42	3.73
Graduation	14	5.93	2.71

Table 4.5 : Mean score table of knowledge and practice vs demography

Mean Score table shows that Practice score in Christian and Buddhist is higher as but knowledge is low whereas knowledge score is high in Muslim. The knowledge score is highest in general but practice score is highest in SC. The knowledge and practice score of SHG and non SHG member are almost equal. It is found that knowledge and practice score of mother between age group of 21 to 25 years is high. There is no effect of education on knowledge and practice.

Table shows P value of Knowledge category and Practice category vs. Demography .

	Knowledge Category		Practice	
Characteristic	P Value	Degre of freedom	p value	Degree of free dom
Caste	0.993	12	0.511	4
SHG member	0.302	6	0.581	2
Education ststus	0.305	8	0.903	2

Table 4.6 : P value table of knowledge and Practice category Vs Demography

The table shows that there is a week relationship between knowledge score and practice score with demography.

CHAPTER 5 : Discussion

The present analysis examined the Knowledge and Practice of IYCF in Patna district bihar, using currently recommended WHO guideline and IYCF guideline of Ministry of health ,Government of India.

The study reveals that Breastfeeding is universal in Patna. Almost all women breastfeed their child. But the knowledge and practice level of breastfeeding in Patna distict of Bihar is poor as compare to the national and international level.

Poor infant and young child feeding (IYCF) practices remain the major cause of poor nutritional status in young children. Better understanding of the factors associated with poor IYCF is critical for planning nutritional interventions by targeting individuals, families and communities at risk of suboptimal feeding practices.

The IYCF Knowledge and Practice is when compared with the national average it is poor with regard to knowledge and Practice. The practice of early initiation of breast feeding is only 69 % which is quite better than the national average which is 45 % according to RSOC 2015-16.(49) report whereas When compared with national average . This difference might be attributable to differences in sample: all the samples are collected in this study is from the rural population only from the four blocks of Patna district, i.e . single district administration. A study in Ghana reported that 22% of all neonatal deaths could be prevented if all women could initiate breastfeeding within one hour of delivery (55). An epidemiological evidence of a causal association between early initiation of breastfeeding and infection-specific neonatal mortality has also been documented (56).

The Pre lacteal feeding practice is 41 % in this study. A study by Gupta et al(52) also has reported much results (10.2%). However, much similar prevalence has also been reported in studies by Salve Dawal et al (53) conducted in rural Maharashtra as 42.7%. Singh et al (54) has reported 52% in Mysore, Karnataka. The prevalence of pre lacteal feeding in the current study was quiet similar compared to the two above studies. The reason of pre Lacteal feeding practices are might be due to the lack of knowledge and awareness that pre-lacteal food in infants is now not recommended to be given below the age of six months, because of the risk of infection by *Clostridium botulinum*.

Because of associated exposure to pathogens and interference with successful breastfeeding, current recommendations strongly discouraged bottle-feeding (57). The proportion of bottle-feeding in the present study(19.5 %) was comparable with results of a study by Wamani *et al.* (58) but less than that reported by Pandey *et al.* from rural West Bengal (59).

Studies in Malawi revealed that children who were given foods according to the time schedule recommended by the WHO were found to be well-nourished compared to children who received complementary feeding early (25). The current recommendations advocated the introduction of complementary food after six months of exclusive breastfeeding (25). A positive association was observed between the intake of complementary food and the nutritional status in Yemen (60). A study in Bangladesh documented that the frequency, amount, energy-density, and diversity of food remained important issues in complementary feeding (11,25). The Indian guidelines on IYCF included minimum meal-frequency and amount per meal to compute age-appropriate feeding (25). Factors, such as characteristics of diet or child's appetite, are known to influence the frequency of complementary feeding . Although these were not measured in this study, it is unlikely that such factors could solely explain the observed deviance from recommendations.

In this study we found that the majority of mothers (78%) reported feeding their infants aged 6-8 months soft, semi-solid or solid foods. This prevalence is high in comparison with other neighbouring countries such as Kenya (71%) and Uganda (75%) (11) and in other developing countries (62).

Adding energy-rich (e.g. oil, butter/ghee) and nutrient-rich foods will able to meet the energy requirement of the baby. In this study The 40 % of the mothers used to add oil / ghee in babies meal.

The hand washing practice is around 45.5 % in this study , another study by Haielu wondim in Pakistan revels that the hand hygiene practice is poor 14.1 %.The fact behind the disparity of the number may be due to counselling related to hand hygiene practice in village. Poor hand hygiene is another major cause of mortality and morbidity in infants and children.

The majority of study participants had knowledge about EBF (60 %) which was poor to other studies conducted locally and in other countries. A study in Bedele, Ethiopia found that the majority of mothers (91.8 %) knew the importance of EBF (52). A study in Ambo Ethiopia found 90.8 % of mothers were knowledgeable about EBF (32)and a Nigerian study showed the majority (88.0 %) of the respondents had heard about EBF [8]. The knowledge of importance of colostrum in the infant life is very important for any mother when we studied this 89 % of respondent knows the importance of colostrum. The knowledge level of respondents of all blocks is 86 % and above which is quite good.

The main problems that came out from the present study were lack of knowledge and practice of IYCF. late initiation of breastfeeding, low rates of exclusive breastfeeding, and inappropriate complementary feeding practices. Giving water and ‘milk other than breastmilk’ to breastfed babies were the limiting factors for exclusive breastfeeding. As for inappropriate complementary feeding practices, late introduction, low frequency, and inadequate amount of solid or semi-solid food turned out to be the areas of main thrust.

CHAPTER 6 : CONCLUSION

- Knowledge Score: 92.7 % of population falls under low and moderate categories of Knowledge.
- Practice Score: 91 %.of population falls under low and moderate categories of practice.
- Even all the delivery are institutional even though knowledge and practices are not satisfactory.
- Around 50% of mothers are members of SHG but there mean Practice score falls in low scale.

Recommendation

- Knowledge, Attitude, and Practice of front line worker is important and need to be ASSESS as they are the main source of counseling and increasing awareness of mothers.
- There is need for the assessment of VHSND services and SHG services.

  Counseling quality during stay of institutional delivery, VHSND and functioning of SHG need to be review.

Limitation

- Generalization of this study within district of Patna or other district of Bihar is not possible as the sample group is as not truly representative of the whole population.
- Practices and Knowledge recorded on the basis of respondent answers. Reliability of answers are not assured. There may possibility of Recall bias and observer bias in the study.
- Weight-age to the items in the questionnaire not given while score based scaling done, all the items given equal score for correct answers.

APPENDIX

QUESTIONNAIRE FOR MOTHER OF CHILDREN AGED 0-2 MONTHS

Identification

District –
……..

Community Development Block-
……..

Name of the health sub centre-
……

Village-
…….

AWC Code-……

Name of AWC-
……..

Name (head of the household)-
……

Name of Respondent-
…

Relationship with head of the household-
……

Address-
……..

Introduction and Informed consent

Namaste,

My Name is Dr. Nidhi Tiwari and I am working with care India. I am conducting a survey about the Infant and young child feeding Practices. The information collected in this survey will help me to assess IYCF in Rural part of the Bihar which will help in my dissertation. The survey usually takes around half an hour to 45 minutes to complete. The information provided by you will be kept strictly confidential.

Participation in this survey is voluntary and, you may withdraw your participation at any time, however, we hope that you will take part in this survey since your participation is important. During the interview process if you ar not able to understand any question. Please feel free to ask me to repeat. The information that I am collecting is very critical for me To understand IYCF practice , so I request you to provide honest response.

At this time, do you want to ask me anything about the survey?

Interview Start time-……AM/PM

Section – I

House hold and respondent characteristics

Note- At first, I would like to ask you few questions related to your own characteristics and asses of your house

Q. No	Questions and filters	Coding categories	
1.	How many members are there in this household who usually live here?	No of members in the HH	
2.	What is your religion ?	1. Hindu 2. Muslim 3. Christian 4. Jain 5. Buddhist 6. Sikh 7. No Religion 8. Others……..	
3.	What is your Caste ?	1. Scheduled caste 2. Scheduled tribe 3. OBC	

		4. General	
5.	**Type of house?**	**1. Kachcha** **2. Semi-pucca** **3. Pucca**	
6.	**Are you a member of any self group**	**1. Yes** **2. No**	**Skip** **If no then Q. 12**
1.	**What things are discussed in SHG meetings?**	**1. Credit and savings - yes/No** **2. Livelihood-Yes/ No** **3. Birth preparedness and delivery- Yes/No** **4. New born care- Yes/ No** **5. Breast feeding and complimentary feeding- Yes / No** **6. Immunization – yes/ No** **7. Family planning- Yes/ No**	**1. Yes** **2. No**

Section - II

Note- Now, I would like to ask you some of the questions related to your personal details such as your age, education, occupation and also details about your spouse and children .

2.	**How old are you?**	**1. 15-20 yrs** **2. 21-25 yrs** **3. 26-30 yrs** **4. 31-35 yrs** **5. 36-40 yrs** **6. 41-45 yrs**	
3.	**Can you read and Wright?**	**1. Yes** **2. No**	
4.	**If yes : what is the highest standard of education completed ?**	**1. Primary** **2. Middle** **3. High School** **4. Graduation** **5. Post-graduation**	

Section III

Note- Now I will ask you some details about your children

	What is the name of your	**Name of the child** **…….**	

	youngest child		
	Is (Name) male or female	**1. Male** **2. Female**	
	What is the date of birth	**Date of birth** **……**	
	Did you register your pregnancy	**1. Yes** **2. No**	
	Did you receive any counselling regarding breastfeeding when you were pregnant?	**1. Yes** **2. No**	
	Source of counselling	**1. Doctor** **2. Nurse** **3. ANM** **4. ASHA** **5. AWW** **6. Other……..(specify)** **223366. Counselling not done**	
	Where did you deliver (Name) ?	**1. Medical Collage** **2. District Hospital** **3. SDH/FRU** **4. PHC** **5. CHC** **6. APHC/Sub Centre** **7. Any other government hospital** **8. Private hospital/Clinic** **9. At home** **10. Others**	
	How long after birth did you first put (name) to the breast.?	**Hours -** **Days -** **99. Never Breastfeed**	**If 99 then Q.**
	Did you breastfeed your baby before coming out of the labour room?	**1. Yes** **2. No** **3. Don't remember**	
	Did you or anyone else give (name) anything (such as Honey, water, tea, jaggery, animal milk, ghutti, etc)	**1. Yes** **2. No** **3. Don't remember**	

	before giving breast milk.		

Section –IV

Breast feeding practices

15.	**Check- have you breast feed this child?**	**1. Yes** **2. No**	
16.	**Are you currently feeding this child?**	**1. Yes** **2. No**	**If yes then Q.33**
17.	**How old was (name) when you stopped breastfeeding him/her?**	**Days** ☐	
18.	**Have you given any of these things other than breast milk to (Name) in the last 24 hrs?**	**a. Cow/buffalo/Goat/other animal milk – yes/ No** **b. Milk made up of powder – Yes/ No** **c. Plain water- yes/ No** **d. Boiled water- Yes/ No** **e. Janam Ghutti- Yes/ No** **f. Gripe Water- Yes/ No** **g. Tea- Yes/ No** **h. Honey- yes/ No** **i. Rice/Roti/or other mushy food- Yes/ No** **j. Sugar-salt water solutions (ORS)- Yes/ No** **k. Medicine- Yes/No** **l. Others – Yes/ No**	**Code Yes- 1 No-2**
19.	**How many times did you (name) breastfeed in last 24 hrs?**	**Number** ☐	
20.	**Did (Name) drink anything from bottle with nipple yesterday during day or night?**	**1. Yes** **2. No** **3. Don't Remember**	
21.	**Have you given**	**a.**	**1. yes**

	any of these things other than breast milk at any time to (Name)	**Cow/buffalo/Goat/other animal milk – yes/ No** **b. Milk made up of powder – Yes/ No** **c. Plain water- yes/ No** **d. Boiled water- Yes/ No** **e. Janam Ghutti- Yes/ No** **f. Gripe Water- Yes/ No** **g. Tea- Yes/ No** **h. Honey- yes/ No** **i. Rice/Roti/or other mushy food- Yes/ No** **j. Sugar-salt water solutions (ORS)- Yes/ No** **k. Medicine- Yes/No** **l. Others – Yes/ No**	**2. No**

Knowledge Questions

22.	**When brestfeeding should be initiated after birth ?**	**1. Immediately** **within hours 1Hours** **2. after 1 days** **99. Don't Know**	
23.	**Till what age child should be exclusive breastfeeding?**	**1.Till 3 months** **2. till 6 months** **3. till 1 year** **98. As long as it is needed** **99. Don't Know**	
24.	**Instruction- Whether the following statement is true or false.** **Breastfeeding should be continued at least upto 2 years.**	**1. True** **2. False** **99. Don't Know**	
25.	**Should the first condensed yellow milk (colostrum) that is produced after birth be given to the child?**	**1. Yes** **2. NO** **3. Don't Know**	
26.	**At what interval child should be breastfeed on a day ?**	**98. On demand as often as the child wants day and night** **1. Every 2 hours** **2.evry 4 hrs** **3. Every 1 hours** **4. 15 min**	

		5. every 30 min **99. Don't Know**	
27.	**While breastfeeding, how long the child should be allowed to continue sucking the breast?**	**1. Until the baby spontaneously releases the nipple.** **2. For a shorter time** **3. For a longer time.** **99. Don't know**	
28.	**Is it true that frequent feeding stimulates more milk production?**	**1. Yes** **2. No** **99. Don't Know**	
29.	**Breast milk protects from a child from which health problems?**	**1. Malnutrition** **2. Diarrhoea** **3. Pneumonia** **4. ALL** **5. 99. Don't know**	
30.	**Unless doctors asked to stop should sick mother continue breastfeeding?**	**1. Yes** **2. No** **99. Don't Know**	
31.	**If the child is sick, should breast-feeding**	**1. Yes** **2. No** **99. Don't Know**	
32.	**If the child is sick, should breastfeeding be continued.**	**1. Yes** **2. No** **99. Don't Know**	

For Mother of Children aged 6-23 months

(Breast feeding and complimentary feeding Practices)

33.	**Are you currently feeding your child?**	**1. Yes** **2. No** **3. Never breastfeed**	**If Yes then Q.57**
34.	**How old Name when you stopped giving breast milk?**	**1. Between 0 to 2 months** **2. 3 to 5 months** **3. 6 to 8 months** **4. 9-11 months** **5. 12- 23 months**	
35.	**How many times did you breastfeed**	**1. More than 10 times** **2. Between 5 to 10 times**	

	In last 24 hrs. ?	**3. Less than 5 times** **4. Not more than 2 times**	
36.	**Did (Name) drink anything from a bottle with a nipple yesterday during the day or night?**	**1. Yes** **2. No** **99. Don't Remember**	
37.	**From What age of (Name) did you start giving anything to eat or drink other than breast milk?** **(Note- Do not consider prelactal feed)**	**1.** **1. Between 0 to 2 months** **2. 3 to 5 months** **3. 6 to 8 months** **4. 9-11 months** **5. 12- 23 months**	
38.	**Are you giving cereal based semi-solid food to (Name)?**	**1. Yes** **2. No**	
39.	**From when and what age did you start giving any cereal based semi solid food to name?**	1.Between 0 to 2 months 2. 3 to 5 months 3. 6 to 8 months 4. 9-11 months 5. 12- 23 months 77. N0t yet 99. Don't remember	
40.	**Please record details of all the meals that child had in the last 24 hrs, Please ask for each meal** **A. Who feed the child this meal?** **B. Was the meal semisolid?** **C. Did meal contain rice/ roti / khichri?** **D. Was the child contain rice out of a separate plate or bowl**	**1. Mother** **2. Father** **3. Elder brother /sister** **4. Elder member of family** 1. Yes 2. No 1. Yes 2. No 1. Yes 2. No	

	or from someone else plate? **E. How much food was eaten by name during this meal? Details of the process of measurement is written**		

42.	**Did you add oil/ghee to the meal before feeding the (name) in the last 24 hrs**	**1. Yes** **2. No**	
43.	**Did you wash your hand before feeding last time**	**1. Yes** **2. No**	
44.	**If yes , what did you use?**	**1. Water only** **2. Water and soap** **3. Water and detergent powder** **4. ASH** **5. Soil** **6. Others**	
41.	**Do you give packed powder based meal to (name) brought from market? (like Cerelac)**	**1. Yes** **2. No**	

Bibliography

1. Lutter, C. (2003). Meeting the challenges to improve complimentary feeding. SCN News. United nations system standing committee on nutrition. A periodic Review of Developments in International Nutrition. Geneva, No-27;4-9.
2. Bhutta ZA, Ahmed T, Black RE, Cousens S, Dewey K, Giugliani E, et al. What works? Interventions for maternal and child undernutrition and survival. Lancet. 2008;371:417–40. [PubMed]

   Link - http://www.ncbi.nlm.nih.gov/pubmed/18206226

3. Black RE, Morris SS, Bryce J. Where and why are 10 million children dying every year? Lancet. 2003;361:2226–34. [PubMed]
4. Saha KK, Frongillo EA, Alam DS, Ariffen SE, Persson LA, Rasmussen KM. Appropriate infant feeding practices result in better growth of infants and young children in rural Bangladesh. Am J Clin Nutr. 2008;87:1852–9. [PMC free article] [PubMed]
5. Jones G, Steketee RW, Black RE, Bhutta ZA, Morris SS, Bellagio Child Survival Study Group How many child deaths can we prevent this year? Lancet. 2003;362:65–71. [PubMed]
6. World Health Organization . Complementary feeding of young children in developing countries: a review of current scientific knowledge. Geneva: World Health Organization; 1998. p. 237. (WHO/NUT/98.1).
7. Hop LT, Gross R, Giay T, Sastroamidjojo S, Schultink W, Lang NT. Premature complementary feeding is associated with poorer growth of Vietnamese children. J Nutr. 2000;130:2683–90. [PubMed]
8. Chen A, Rogan WJ. Breastfeeding and the risk of postneonatal death in the United States. Pediatrics. 2004;113:e435–9. [PubMed]
9. 8. Quigley MA, Kelly YJ, Sacker A. Breastfeeding and hospitalization for diarrheal and respiratory infection in the United Kingdom Millennium Cohort Study. Pediatrics. 2007;119:e837–42. [PubMed]
10. World Health Organization . Global strategy for infant and young child feeding. Geneva: World Health Organization; 2003. p. 41
11. Ministry of Health and Family Welfare. Integrated management of neonatal and childhood illness. Training module of health workers. New Delhi: Ministry of Health and Family Welfare, Government of India; 2003. pp. 74–5.

12. Grantham-McGregor, Sally, Yin Bun Cheung, Santiago Cueto, Paul Glewwe, Linda Richter and Barbara Strupp. "Development Potential for the First 5 Years for Children in Developing Countries." The Lancet.Vol. 369, Issue 9555. January 6, 2007. pp.60-704
13. *Horton, Susan. "Opportunities for Investments in Low Income Asia." Asian Development Review. Vol.17, Nos.1,2. pp.246-273. Horton, Susan, Meera Shekar, Christine McDonald, Ajay Mahal and Jana Krystene Brooks. Scaling Up Nutrition: What Will It Cost? (World Bank: Washington, DC: 2010*) Globally, the direct cost of child malnutrition is estimated at $20 to $30 billion per year. *(Food and Agriculture Organization. The State of Food Insecurity in the World 2004. (Rome: 2004)*
14. Hoddinott, John, John Malucci.o, Jere Behrman, Rafael Flores and Reynaldo Martorell."Effect of a Nutrition Intervention During Early Childhood on Economic Productivity in Guatemalan Adults." The Lancet. Vol. 371, Issue 9610. February 2, 2008. pp.411-416.
15. census of India .2011. Primary census Abstract. Accessed May4,2016,www.censusindia.gov.in/pca/default.aspx)
16. Census of India,2011.Houselisting and housing census Data . Accessed march 2 2016 ,WWW:censusindia.gov.in/2011census/hlo/HLO_tables.html.)
17.
18. Ministry of health and family welfare Government of India, 2013 ,Guidelines for enhancing optimal Infant and Young Child Feeding Practices. P 5-6.
19. Black RE, Allen LH, Bhutta ZA, Caulfield LE, de Onis M, Ezzati M et al. Martenal and Child Undernutrition: Global and regional exposures and health consequences. Lancet. 2008;371(9608):243-60.
20. UNICEF. Tracking Progress on Child and Maternal Nutrition. A survival and development priority. New York ,NY 10017,USA 2009.
21. Government of Tanzania and UNICEF. Situataion analysis of children and women in Tanzania. Dar es Salaam: Ministry of Health; 2009.
22. Ministry of Health Tanzania. Tanzania National Strategy on Infanta and Young Child Nutrition Implementation Plan 2004-2009. Dar es Salaam, Tanzania 2004.
23. Mukuria AG, Kothari MT, Adbderrahim N. Infant and Young Child Feeding Update. Calverton, Maryland: ORC Macro; 2006.
24. World Health Organization. Global strategy for infant and young child feeding. Geneva WHO; 2003.
25. World Health Organization. Strengthening action to improve feeding of infant and young children 6-23 months of age in nutrition and child health programmes. Geneva WHO; 2008.
26. Unicef.2013-2014.Rapid survey on children (RSOC).http;//wcd.nic.in/rsoc/21.rsoc_India.pdf
27. Rutishauser I.H. Food and Nutrition. In: ML W, editor. Food and nutrition Australia and New Zealand. 2nd ed. Crows Nest, New South Wales: Allen & Unwin; 2002. p. 302-11.
28. World Health Organization. Indicators for assessing infant and young child feeding practices. Part 3: Country Profile. Geneva WHO 2010

(http://www.unicef.org/nutrition/files/IYCF_Indicators_part_III_country_profiles.pdf)

29. World Health Organization. Indicator for assesing breastfeeding practices. Report for an informal meeting in June. Geneva: WHO; 1991 (http://www.unscn.org/layout/modules/resources/files/Indicators_for_assessing_breastfeeding_practices.pdf)

30. American Academy of Pediatrics. Breastfeeding and the use of human milk. Pediatrics. 2005;115 :496-506.

31. Leung AK, Sauve RS. Breast-feeding is best for babies. J Natl Med Assoc. 2005;97:1010-9

32. Raisler J, Alexander C, O'Campo P. Breastfeeding and infant illness: a close-response relationship. Am J Public Health. 1999;89: 25-30.

33. . Kramer MS, Chalmers B, HodNnett ED, Sevkovskaya Z, Dzikovich I, Shapiro S et al. Promotion of Breastfeeding Intervention Trial (PROBIT): a randomized trial in the Republic of Belarus. JAMA. 2001;285:413-20.

34. De Zoysa I, Rea M, Martines J. Why promote breast feeding in diarrhoeal disease control programmes? Health Policy Plan. 1991(6):371-9.

35. 27. Bachrach V, Schwarz E, Bachrach L. Breastfeeding and the risk of hospitalization for respiratory diseases in infancy: a meta-analysis. Arch Pediatr Adolesc Med. 2003(157):237-43.

36. 28. Wright AL, Holberg CJ, Martinez FD, Morgan WJ, Taussig LM. Breastfeeding and lower respiratory tract illness in the first year of life. Group Health Medical Associates. Br Med J. 1989;299(6705):946-9.

37. UNICEF. Infant and young child feeding. Dar es Salaam, Tanzania: UNICEF/URC/TFNC; 2009.

38. World Health Organization. Indicators for assessing infant and young child feeding practices. Part I: Defenitions.Conclusion of a consensus meeting held 6-8 November 2007 in Washington, DC, USA. Geneva WHO 2008.

39. Jones G, Steketee RW, Black RE, Bhuta ZA, Morris SS, Bellagio Child Survival Study Group. How many child deaths can we prevent this year? Lancet. 2003;362(9377):65- 71.

40. Perez-Escamilla R et al. Infant feeding policies in maternity wards and their effects on breastfeeding success: an analytical overview. American Journal of Public Health. 1994;84(1):89-97.

41. Edmond KM et al. Effect of early infant feeding practices on infection-specific neonatal mortality: ana investigation of causal links with observational data from Ghana. American Journal of Clinical Nutrition. 2007;86(4):1126-31.

42. . Edmond K, Zandoh C, Quigley MA, Amenga-Etego S, Owusu-Agyei S, Kirkwood BR. Delay Breastfeeding initiation increases Risk of Neonatal Mortality. Pediatrics. 2006;117:e380-e6.

43. UNICEF. State of the world's children New York: UNICEF; 2010 [cited 2016 3rd May]; Available from:http://www.who.int/pmnch/media/membernews/2011/20110301_unicef_2010_statewor ldchildren/en/index.html.

44. Centre for Disease Control and Prevention. Breastfeeding among U.S children born 1999-2007: CDC National Immunization Survey. U.S.A CDC; 2005.

45. Australian Institute of Family Studies (AIFS). Growing Up In Australia: The Longitudinal Study of Australian Children, Annual Report 2006-07. Canbbera: AIFS; 2008.

46. WHO. WHO Global Data Bank on Infant and Young Child Feeding. Geneva 2009.

47. Dibley MJ, Senarath U, Agho KE. Infant and young child feeding indicators across nine East and Southeast Asian countries:an analysis of National Survey Data 2000-2005. Public Health Nutrition. 2010;13(9):1296-303.

48. Hanif HM. Trends in breastfeeding and complementary feeding practices in Pakstan, 1990-2007. International Breastfeeding Journal. 2011;6(15):1-7

49. India health report on Nutrition 2015, PHFI.

50. District Nutrition profile 2015, Poshan lead by IFPRI.

51. 10. World Health Organization. Indicators for assessing infant and young child feeding practices. Part I: Defenitions.Conclusion of a consensus meeting held 6-8 November 2007 in Washington, DC, USA. Geneva WHO 2008. 11. World Health Organization. Indicators for assessing infant and young child feeding practices. Part 3: Country Profile. Geneva WHO 2010.

52. Gupta RK, Nagori G; A study on changing trends and impact of ante-natal education and mother's educational status on pre-lacteal feeding practices. J Pharm Biomed Sci., 2012; 19(19): 1-2.

53. Salve Dawal et al., Study of Pre Lacteal Feeding Practices and its Determinants in a Rural Area of Maharashtra. Sch. J. App. Med. Sci., 2014; 2(4D):1422-1427.

54. Singh J, Vishakantamurty DG, Charan PM; Breastfeeding practices among lactating mothers: problem and prospect in cross sectional study. Int J Health Allied Sci., 2012; 1(2): 54-58.

55. Edmond KM, Zandoh C, Quigley MA, Amenga-Etego S, Owusu-Agyei S, Kirkwood BR. Delayed breastfeeding initiation increases risk of neonatal mortality. Pediatrics. 2006;117:e380–6.
56. Edmond KM, Kirkwood BR, Amenga-Etegos S, Owusu-Agyei S, Hurt LS. Effect of early infant feeding practices on infection-specific neonatal mortality: an investigation of the causal links with observational data from rural Ghana. Am J Clin Nutr. 2007;86:1126–31.
57. Sachdev HP, Krishna J, Puri RK, Satyanarayana L, Kumar S. Water supplementation in exclusively breastfed infants during summer in the tropics. Lancet. 1991;337:929–33

58. Pan American Health Organization . Guiding principles for complementary feeding of the breastfed child. Washington, DC: Pan American Health Organization; 2003. p. 37.

59. Pandey GK, Hazra S, Vajpayee A, Chatterjee P. Breastfeeding indicators from a rural community in West Bengal. Ind J Public Health. 1997;41:71–4.
60. Jumaan AO, Serdula MK, Williamson DF, Dibley MJ, Binkin NJ, Boring JJ. Feeding practices and growth in Yemeni children. J Trop Pediatr. 1989;35:82–6
61. Hailu windom, IYCF KAP Survey Kohat distict Khyber pakhtunkhwa (KP) Province Pakistan. 20013;19
62. Arabi M, Frongillo EA, Avula R. Infant and young child feeding in developing countries *Child Dev*. 2012;83(1):32-45.
63. Mbada CE, Olowookere AE, Faronbi JO, Oyinlola-Aromolaran FC, Faremi FA, Ogundele AO, et al. Knowledge, attitude and techniques of breastfeeding among Nigerian mothers from a semi-urban community. BMC Res Notes. 2013;6:552.

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