

Inappropriate Weaning Practices, A Cause of Malnutrition among under 5 Children; the Way Forward

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ABSTRACT: It has been established that malnutrition is one of the leading causes of death for many of the world's infants, accounting for over a third of the world's under 5 deaths. The incidence of malnutrition in the first two years of life has been directly linked with inadequate maternal breastfeeding and inappropriate complementary feeding practices, along with high infectious disease levels. Complementary feeding otherwise known as weaning is described as the process that starts when breast milk alone is no longer sufficient to meet the infants' nutritional requirements. Therefore, other foods and liquids with continued breastfeeding are required to meet the infant's nutritional needs for proper growth and development. The food given to children during their weaning period is very crucial as an inadequate or inappropriate complementary diet will significantly inhibit the child's optimum growth, health and cognitive development in the future. Consequently, a complementary food should be healthy, adequate and should start timely. Complementary feeding has been recognized to be one of the most often compromised and wrongly practiced in a child's developmental stage. Inappropriate weaning practices which are characterized by the untimely introduction of complementary foods and inappropriate food choices play a considerable role in this malnutrition crisis. Cultural and societal influences play a significant role in shaping weaning practices, which in turn have significant effect on child nutrition. These factors have negative and positive influence on weaning practices, such as malnutrition among under five children. It is crucial to recognize and address these factors in order to ensure optimal nutrition and growth for this vulnerable group worldwide.

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INTRODUCTION

Inappropriate weaning practices have emerged as a significant contributor to the prevalence of malnutrition among under 5 children. Early introduction of weaning has an immediate effect on the health of infants in economically developing countries because of factors such as lack of availability of suitable alternatives to breast milk, microbial contamination of foods and fluids, and displacement of breast milk by less nutritious alternatives. On the contrary, the late introduction of complementary foods can trigger disturbance leading to malnutrition (WHO, 2022).

Malnutrition remains a global health concern especially in developing countries like Nigeria. Inappropriate weaning practices contribute significantly to malnutrition,

as untimely introduction of complementary foods, improper selection of food groups, and inadequate feeding frequency and portion sizes can result in nutrient deficiencies (Giulia, 2022).

Laying good foundation for good health in the child future required proper child nutrition which can be achieved through adequate maternal nutrition during pregnancy, exclusive breastfeeding and appropriate weaning practices. A balanced diet is critical for the growth and development of infants (Ajimal, 2022).

According to World Health Organization, the nutritional needs of all infants are perfectly met from birth to four /six months of age by exclusive breastfeeding but as the infants reaches the age of four to six months, breast milk

is no longer sufficient to fully cover their nutritional requirements as the infants need more energy and nutrient for growth and development. This energy and nutrient deficit must be covered by administering semi-solid food along with breast milk, a process called weaning or complementary feeding. WHO defined weaning or complementary feeding as the addition of energy as well as non-energy containing fluids, non-human milk and semisolids or solids to children's diet which covers the time from six months to 18 - 24 months of age.

Appropriate weaning practices is the process of introducing soft, semisolid, and / or solid foods by the age of six months with age optimal minimum dietary diversity, minimum meal frequency, and continued breast milk feeding. This process can also be referred to as gradual introduction of infants to adult foods while gradually withdrawing breast milk. Weaning is a process, not an event as the child is not abruptly taken off breast milk but gradual process. Natural weaning happens as the infants starts to accept increasing amount of complementary feeding although still breastfeeding on demand (Mohammed, and Ogunsuyi, 2016).

Aliyu et al. (2019), stated that the weaning period which usually corresponds with the eruption of the child major dentition implies that the child is ready to chew.

Weaning period is a very susceptible period in child development, as it is the phase essential nutrients are needed for the growth and development of the child. Optimal infant feeding practice is an important factor in determining the child's growth and development. It was recommended by WHO that mothers who are healthy should breastfeed their babies exclusively for up to six months before introducing complementary feeding. This is because at this age breast milk will no longer be sufficient to meet the infant's nutritional needs especially for energy and micronutrients (Udoh and Olukemi 2016).

Inappropriate weaning practices can lead to malnutrition and associated health problems among this group. Infants are predisposed to malnutrition as a result of poor quality of weaning foods, improper feeding and weaning practices and these can also predispose the infants to growth retardation, infectious diseases and high mortality rate (Rahul et al., 2018).

According to World Health Organization report, approximately 45% of all deaths of the under five children are related to malnutrition. Malnutrition is also seen as a serious health issues among the under 5 s in developing countries like Nigeria as it increases the morbidity and mortality rate of this vulnerable group of people.

UNICEF (2017) reported that one in every three under 5 s children are malnourished globally while 165 million are underweight, 101 million are stunted and 52 million were wasted.

Weaning related malnutrition in infants has been attributed to inappropriate complementary feeding practices and it underlies more than one-third of under 5

child mortality in Nigeria. Therefore, addressing the influence of inappropriate complementary feeding practice on nutritional status of infants can be an important approach to reducing the burden of child malnutrition (Udoh and Olukemi 2016).

It is important to note that starting the right nutrition with the mother during pregnancy to the infant second birthday has a profound impact on the future health, wellbeing, and success of the child. This right nutrition can be achieved through proper maternal nutrition during pregnancy, exclusive breastfeeding and appropriate weaning practices (Zelege, 2017).

It has been identified by, WHO that inappropriate weaning practices such as late initiation of complementary foods, inappropriate food choices, and lack of diverse food groups are contributing factors to malnutrition among under 5 s children. Other factors include cultural beliefs, lack of knowledge, and poor access to nutritious foods further exacerbate the problem of this age group (WHO, 2019)

In Nigeria, more than 50% of infants are introduced to complementary foods before the age of 6months and these foods are often of poor nutritional value which is mostly inadequate in terms of energy, protein and micronutrients such as iron, zinc, iodine and vitamin A (Federal Ministry of Health, 2005). There is also low feeding frequency for the child during complementary feeding period and the qualities and quantities of foods given are usually less than that required by the child for the age. Thus, complementary feeding process has been associated with major changes in both macronutrient and micronutrient intake of children resulting in childhood malnutrition. Irreversible impairments in children attaining full potential of physical growth, cognitive development, and health status have been linked to childhood malnutrition especially during the first two years of life. (Zelege, 2017).

In order to prevent malnutrition and its consequences the WHO recommends early initiation of breastfeeding, followed by exclusive breastfeeding for the first 6months of the child life and introducing complementary feeding timely which should be adequate in amount, frequency, consistency and variety to address the nutritional needs of the growing child at age 6months with the child continuing breastfeeding up to age 2 years.

Consequently, bringing a positive change in weaning practices, a multi-faceted approach is essential such as extensive public health education programs that target caregivers and communities, improved access to resources, and enhanced healthcare services.

Objectives:

1. To understand appropriate weaning practices.
2. To identify the factors influencing weaning practices and their association with malnutrition.

3. To identify gaps in knowledge and awareness regarding appropriate weaning practices.
4. To propose interventions and strategies for promoting optimal weaning practices and preventing malnutrition among under 5 children.

Concept of weaning practices

Introduction of complementary feeding, or weaning is the period where infants are gradually introduced to solid foods, with a progressive reduction of breastfeeding or bottle-feeding. The initiation of breast feeding and the timely introduction of adequate, safe and appropriate complementary foods in conjunction with continued breast feeding are of prime importance for the growth and development, health and nutrition of infants and children. Weaning practices are all the activities carried out by nursing mothers during the process of weaning which is the gradual introduction of solid foods to an infant's feeding schedule with the ultimate aim of replacing breast milk or formula milk with adult diet. Adequate nutrition is fundamental to a child's health especially during the early years as this is the period of rapid growth. The first 1000 days of life, starting from conception to the infant's second birthday, are crucial for development. This period offers the basis for laying foundations for good health, growth, and neurological development. Unfortunately, this critical window period is trivialized especially in low - middle income countries which bear the greatest burden of child malnutrition with accompanying high rates of morbidity and mortality (Zelege, 2017). Weaning represents a crucial nutritional moment in the growth and development of infants, and it can also affect future health.

The transition from exclusively breastfeeding to the introduction of solid foods other than milk is one of the most critical stages in a child's development (Giulia, 2022). According to the World Health Organization (WHO), the introduction of complementary food otherwise known as weaning should begin when exclusive breastfeeding can no longer provide sufficient nutrients and energy for the child's growth and development. Breast milk is considered sufficient to ensure proper child growth and development up to age six months, thereafter other foods are to be introduced. Infants are traditionally first introduced to solid foods using spoon-feeding, following strict weaning timing and schedules with specific foods designed to provide the child with all the nutrients needed for growth and development. Weaning an infant is a gradual process. The American Academy of Pediatrics (AAP) recommends feeding infants on only breast milk for the first 6 months after birth and combination of solid foods and breast milk until the infant is at least 1-year-old. Weaning is referred to as the process of introducing and making the child accustomed with soft, semisolid, and/or solid foods gradually to replace breast/formula feeding.

Appropriate weaning practice is the process of introducing soft, semisolid, and/or solid foods by the age of 6 months with age optimal minimum dietary diversity, minimum meal frequency, and continued breast milk feeding. This weaning period is from six months of age to two years and it is the most critical growth period for the child, as nutrition deficiencies may result to short term and chronic long-term health problems in the child's life.

Traditionally, Weaning is described as gradual withdrawal of the infant from breast feeding i.e. when breast feeding is gradually replaced by semisolid food. This gradual shift from exclusive breastfeeding to family foods is referred to as complementary feeding and complementary feeding is defined by World Health Organization (WHO) as the addition of energy as well as non-energy containing fluids, non-human milk and semisolids or solids to children's diet which covers the time from 6 months to 18 – 24 months of age (WHO). Consequently, a complementary food should be healthy, adequate and should start timely. Complementary feeding has been recognized to be one of the most often compromised and wrongly practiced in a child's developmental stage. Early initiation and improper weaning practices are common practices in cultures around the world. While some mothers give their children other diet apart from breast milk right from birth, others delay additional diet until more than nine months, with either case resulting into over or under-nutrition (Afolabi et al., 2021).

Weaning practice is an important period in a child's life as it marks the transition from exclusive breastfeeding to complementary feeding and is the period of introducing the child to other foods while gradually reducing the child dependency on breast milk. It is the provision of any nutrient containing foods or liquids other than breast milk. The weaning period which usually corresponds with the eruption of the child's major dentition implies that child is ready to chew. (Aliyu et al, 2019)

The weaning period is a very susceptible phase in child development, as it is the phase essential nutrients are needed for the growth and development of the child. Optimal infant feeding practice is an important factor in determining the child's growth and development. It was recommended by World Health Organization that mothers who are healthy should breastfeed their babies exclusively for up to 6months before introducing complementary feeding. This is because at this age breast milk will no longer be sufficient to meet the nutritional requirements of the child especially for energy and micronutrients (Udoh and Olukemi 2016).

The WHO consequently recommended that complementary feeding should be timely, adequate in quantity, have variety, of appropriate frequency and consistency using a variety of foods combination to accommodate the nutritional needs of the growing child while continuing breastfeeding.

According to Esan et al (2022), in their study on complementary feeding pattern stated that most infants

(62.5%) were introduced to complementary foods at 3–5 months old and water (43.3%) at 3 months of age. The main food item given to the infants on commencement of complementary feeding was formula food (45.9%) followed by fermented cereal gruel (37%). The timing of introduction for different food items revealed that in contrast to the use of fermented cereal gruel (23.8%), fewer children were introduced to iron-rich foods (15.1%) and fruits (11%) at 6 months to a year old. More than three-fifth (62.5%) of the respondents had commenced complementary feeding to their infants between 3 and 5 months while an excess of two-fifth (43.3%) of the respondents started giving their children water to drink at 3 months of age. Nurses and nutritionists in primary health care centers should take the lead role in educating mothers about the need for exclusive breastfeeding for the first 6 months of life and appropriate complementary feeding for ages 6–24 months.

Weaning is to be commenced as the child shows signs that a baby is developmentally ready for solid foods. These include:

- sitting up well
- good head control
- can hold food in their mouth
- willing to chew
- can pick up food and put it in their mouth
- Curious at mealtimes and keen to get involved.

Types / techniques of weaning practices

Weaning techniques may be abrupt or gradual. In abrupt or sudden weaning techniques, breastfeeding is stopped sharply and quickly. This sometimes is due to unexpected situation, medical emergency or a mother may decide to stop breastfeeding. This technique is more disadvantageous and can be adopted due to reasons like medication, illness, hospitalization or surgery, separation from mother as a result of work or new pregnancy.

There are three main types of weaning practices and these are:

Traditional weaning: spoon-feeding purees to start with and gradually progress to mashed up food with chunks over the next couple of months followed by finger foods. It's much easier to monitor how much baby has actually eaten rather than dropped on the floor and the diet is nutritionally balanced. Iron rich foods in particular can be difficult for young babies to chew if not pureed. Traditional weaning is generally less messy particularly in the early days when mothers or caregivers are in control of the spoon (Esan et al, 2022).

Baby Led weaning (BLW): letting baby take the lead by giving them pieces of food of whatever the rest of the family are eating. Food is cut into smallish chunks, and

baby feeds himself, rather than being spoon-fed. BLW babies tend to be more adventurous and less fussy in their eating habits. There is no need to stress about introducing food with lumps as baby is exposed to a variety of textures from the start. Babies are more likely to participate in family mealtimes from an early age where family can all eat at the same time, rather than having to spoon feed baby. Allowing them to feed themselves is felt to be an important part of their development, helping with hand-eye coordination and the pincer grip. Times spent in preparing purees are saved. It is easier for mothers with older children as baby can just eat a small portion of the meal prepared for their siblings.

Combination weaning: a mixture of the above approaches, some meals involve purees, other meals involve finger foods where baby can feed themselves. The baby learns to both chew and swallow from the start. There's less chance of the baby rejecting textured, lumpy foods if they've been eating finger foods which require some chewing from the start (Hibberd, 2019).

Inappropriate weaning practices as a cause of malnutrition among under 5 children

Tette et al. (2016). stated in their study that inadequate or inappropriate weaning practices which is characterized by inadequate quantities, qualities and inappropriate combination of complementary foods in addition to ineffective feeding practices have been found to pose a serious nutritional risk to infants well-being including growth failure, stunting, delayed sexual maturation, impaired cognitive and intellectual development, and impaired immune system. The incidence of malnutrition in the first two years of life has been directly linked with inappropriate weaning practices along with high infectious disease levels.

Infants are predisposed to malnutrition as a result of poor quality of weaning foods, improper feeding and weaning practices, which in turn predisposed the infant to other health challenges. Malnutrition and its related effects have lingered on despite publicity on the proper pattern of weaning as mothers and caregivers have not really improved on their weaning practices (Afolabi et al, 2021).

Inappropriate weaning practices contribute significantly to malnutrition among children under the age of five. Nurses have a pivotal role in addressing this issue through education, support, and collaboration with other stakeholders. It is essential to continue improving nursing practice by staying updated, being culturally sensitive, adopting sustainable strategies, and conducting research to enhance interventions. Through these efforts, we can work towards reducing malnutrition and its lifelong consequences among under 5 children.

What are appropriate weaning practices?

It is crucial to ensure appropriate weaning practices that provide a balanced and nutrient-rich diet during this critical period to safeguard the nutritional status and overall health of children under five.

There are several appropriate weaning practices that can help prevent malnutrition among children under the age of five:

Introduction of Complementary Foods: Starting around six months of age, introduce solid or semisolid foods alongside breastfeeding or formula feeding. These complementary foods should include a variety of nutrient-rich foods like fruits, vegetables, whole grains, proteins (meat, poultry, fish, eggs, legumes), and dairy products.

Timely Initiation: It is essential to start complementary feeding at the appropriate age, around six months. Starting too early or too late can increase the risk of malnutrition.

Gradual Transition: Help children transition gradually from a liquid diet (breast milk or formula) to solid foods. Initially, offer soft mashed or pureed foods and gradually introduce more textured and varied foods based on their developmental readiness.

Adequate Frequency and Quantity: Ensure that complementary foods are offered at least 2-3 times a day to meet the child's increasing nutritional needs. The portion sizes should be appropriate for their age, gradually increasing as they grow.

Nutrient Density: Offer foods that are rich in nutrients to ensure adequate intake of essential vitamins and minerals. Include a variety of foods from different food groups to provide a balanced diet.

Safe Preparation and handling of food: Ensure good hygiene practices during food preparation and handling to prevent contamination and food borne illnesses.

Responsive Feeding: Pay attention to hunger and fullness cues of the child. Responsive feeding involves feeding in a manner that is sensitive to the child's cues, allowing them to control the amount they eat. Forcing or pressuring a child to eat can lead to negative feeding experiences and potentially contribute to malnutrition.

Promote Healthy Feeding Environment: Create a positive and encouraging atmosphere during mealtimes, where children can explore different tastes and textures. Encourage family meals and role modeling healthy eating behaviors.

Limit Sugary and Processed Foods: Avoid giving

excessive sugary snacks, sugary drinks, or processed foods that lack nutritional value. These foods can displace healthier options and may lead to nutrient deficiencies.

Continued Breastfeeding: Continue breastfeeding alongside complementary feeding until age two or beyond if desired by the mother, as breast milk continues to provide essential nutrients and immune protection.

It is important to seek the assistance of healthcare providers or nutrition experts for individualized guidance on appropriate weaning practices based on the child's specific needs, cultural practices, and local dietary patterns (Zelege, 2017).

Factors Influencing weaning practices and their association with malnutrition

In many developing countries, cultural beliefs, myths, and traditional practices have a strong influence on weaning practices. These cultural factors can restrict the variety and quality of foods introduced during weaning period, leading to nutritional deficiencies. Additionally, socioeconomic factors, such as poverty, limited access to nutritious foods, and inadequate healthcare services also contribute to poor weaning practices. Inappropriate weaning practices can have significant negative effects on the nutritional status of children under the age of five. These factors can vary across different cultures, societies, and individual beliefs.

Maternal knowledge: Mothers' knowledge regarding infant feeding practices, including appropriate time to introduce complementary foods, nutritive value of foods, and perceived benefits of breastfeeding, directly affect weaning practices. Studies have shown that low maternal knowledge can lead to inappropriate weaning practices and increased risk of malnutrition.

Socioeconomic status: Socioeconomic factors, such as education, income, and occupation, can significantly impact weaning practices. Mothers with higher socioeconomic status generally have better knowledge and access to resources, leading to more appropriate weaning practices and reduced risk of malnutrition.

Cultural beliefs and practices: Cultural beliefs and norms surrounding infant feeding play a crucial role in weaning practices. These beliefs can influence the timing and types of complementary foods introduced, breastfeeding duration, and the role of traditional practices, which can impact malnutrition outcomes.

Availability and accessibility of nutritious foods: The availability and accessibility of nutritious foods, such as fruits, vegetables, and animal-source foods, can affect weaning practices and subsequent malnutrition.

Limited access to diverse and nutrient-dense foods may lead to inadequate complementary feeding and increased risk of malnutrition.

Maternal and family feeding practices: Maternal feeding behaviors, including the introduction of complementary foods, feeding frequency, and meal patterns, influence weaning practices. Family dynamics, such as pressure from family members to introduce certain foods or feed the child according to traditional practices, can also impact malnutrition outcomes.

Nutritional deficiencies: A mother's diet during pregnancy and breastfeeding can greatly impact the nutrients available to her child during the weaning process. Lack of essential nutrients such as iron, vitamin D, calcium, and protein can lead to deficiencies in the child, affecting the growth and development. Deficiencies in these essential nutrients result in malnutrition of the under five children.

Health system support: The presence of effective health systems, including healthcare providers, community health workers, and nutrition programs, can positively influence weaning practices. Adequate support and counseling help mothers make informed decisions, adopt appropriate weaning practices, and prevent malnutrition (A Moran et al., 2022).

It is important to note that these factors interact with each other, and their influence may vary in different contexts. Understanding these factors is essential to develop effective strategies to improve weaning practices and prevent malnutrition.

Possible effects of inappropriate weaning practices on under 5 children

Malnutrition: Inappropriate weaning practices may lead to inadequate nutrient intake, resulting in malnutrition. This can manifest as under-nutrition (being below the ideal weight-for-age), stunting (being shorter than the average height-for-age), or wasting (being below the ideal weight-for-height).

Vitamin and mineral deficiencies: If the weaning process does not include a variety of nutrient-dense foods, children may experience deficiencies in essential vitamins and minerals. This can compromise their overall growth and development, and lead to health issues like anemia (iron deficiency) or rickets (vitamin D deficiency).

Increased risk of illness: Poor nutrition due to inappropriate weaning practices weakens the immune system, making children more susceptible to infections and diseases. They may experience more frequent episodes of diarrhea, respiratory infections, and other illnesses.

Cognitive development delays: Inadequate nutrient intake can affect brain development, leading to cognitive delays and impairments in children. They may experience difficulties in learning, problem-solving, memory, and overall intellectual development.

Increased risk of chronic diseases: Improper weaning practices and poor nutrition during the early years of life can set the stage for the development of chronic diseases later in life. These may include obesity, diabetes, cardiovascular diseases, and even certain types of cancer.

Long-term growth and development impairments: Inappropriate weaning practices can have lasting effects on a child's growth trajectory. They may fail to reach their full growth potential, resulting in lifelong consequences such as shorter stature or reduced physical and mental capacities (Ajmal, 2022).

Identifying the gaps in knowledge and awareness regarding appropriate weaning practices among under 5 s children

Lack of knowledge about the timing of introduction of solid foods: Many parents may not be aware of the appropriate age to start introducing solid foods to their child's diet. This can lead to premature or delayed introduction of foods, which can have negative consequences on the child's nutritional needs.

Limited understanding of appropriate food choices for weaning: Parents may lack knowledge about the types of foods that are appropriate for weaning. This can result in the introduction of inappropriate or unhealthy foods, which may not fulfill the child's nutritional requirements.

Insufficient awareness of the importance of diverse and nutritious foods: Parents may not fully understand the significance of providing diverse and nutritious foods during the weaning process. This lack of awareness can lead to a limited variety of foods being introduced, which may not meet the child's nutritional needs.

Lack of knowledge about appropriate food textures: The transition from pureed to solid foods involves introducing different textures to the child's diet. Parents may lack knowledge about the appropriate textures to introduce at each stage of weaning, which can affect the child's ability to adapt and develop their chewing and swallowing skills.

Inadequate awareness of food allergies and intolerances: Parents may not be well-informed about common food allergies and intolerances in young children. This can result in the introduction of foods that

may cause adverse reactions in sensitive individuals, leading to digestive issues or allergic reactions.

Limited understanding of proper food hygiene and storage: Parents may not be aware of the importance of proper food hygiene and storage during the weaning process. This can increase the risk of foodborne illnesses and contamination, which can have negative health implications for the child.

Lack of knowledge about appropriate portion sizes: Parents may have limited knowledge about portion sizes appropriate for under five children, leading to overfeeding or underfeeding. Both scenarios can adversely affect the child's growth and development.

Insufficient support and guidance from healthcare professionals: Parents may not receive adequate guidance or support from healthcare professionals regarding appropriate weaning practices. This lack of professional advice can contribute to the knowledge gaps and misunderstandings surrounding weaning practices (Mahalakshmi, 2023). Addressing these gaps in knowledge and awareness is crucial for ensuring that under 5 s receive nutritionally adequate and age-appropriate foods during the weaning process. It is important to provide accessible and accurate information to parents, along with support from healthcare professionals and community-based interventions aimed at promoting appropriate weaning practices.

Proposed interventions and Strategies for promoting optimal weaning practices and preventing malnutrition among under five children

The following strategies focus on providing targeted interventions and support to families and communities to ensure proper nutrition during the weaning period thus preventing malnutrition among under five children.

Nutrition education and counseling: Providing parents and caregivers with information and advice on appropriate weaning practices, including the introduction of nutrient-rich solid foods and the importance of a balanced diet.

Improved feeding practices: Promoting responsive feeding techniques, such as appropriate positioning, avoiding distractions, and recognizing hunger and satiety cues, to ensure adequate nutrient intake and prevent overfeeding

Promoting exclusive breastfeeding: Exclusive breastfeeding for the first six months of life is crucial for the optimal growth and development of a child. Efforts are focused on advocating and supporting exclusive breastfeeding practices among mothers, including

providing education, counseling, and improved access to support services. This strategy has been proven to reduce malnutrition and improve child survival rates.

Implementing appropriate complementary feeding practices: At six months of age, complementary foods need to be introduced alongside breastfeeding to meet the nutritional needs of the child. These foods should be diverse, nutritious, and hygienically prepared. Strategies include providing education and counseling to caregivers on appropriate complementary feeding practices, promoting locally available nutritious foods, and offering cooking demonstrations.

Improved maternal nutritional status: Adequate maternal nutrition during pregnancy is a vital key for laying good nutritional foundation for good health in the child future especially during the weaning period.

Strengthening community-based approaches: Community-based programs play a critical role in addressing malnutrition among young children. Strategies involve training community health workers to provide counseling and support to caregivers, establishing community growth monitoring systems, and promoting community-led initiatives to address underlying causes of malnutrition such as poverty and food insecurity.

Utilizing mobile technology: Mobile technology has emerged as a powerful tool for delivering nutrition interventions. SMS reminders, mobile applications, and interactive voice response systems can be used to provide education, counseling, and support to parents and caregivers. These platforms can help overcome barriers to access, reach remote areas, and improve adherence to recommended practices.

Integrating nutrition into existing programs: It is crucial to integrate nutrition interventions into existing health, agriculture, and social protection programs. By incorporating nutrition-sensitive approaches, such as promoting agriculture practices that improve availability and accessibility of diverse nutrient-rich foods, and ensuring social protection programs address the underlying determinants of malnutrition, improvements in weaning practices and nutrition outcomes can be achieved (Ruel et al., 2018).

Food supplementation: Provision of nutrient-dense foods or fortified products to children at risk of malnutrition, especially those from low-income households or areas with limited food availability. Nutrients can be added deliberately to food in order to meet the demand of increased intake requirements of under five children as it targets restoring nutrients lost through food processing (Food Fortification).

Community-based support programs: Engaging communities in promoting optimal weaning practices through group discussions, home visits, and peer support to address cultural and contextual barriers to appropriate infant feeding.

Strengthening health systems: Improving access to healthcare services, particularly in marginalized populations, by enhancing the capacity of healthcare workers, establishing functional referral systems, and ensuring the availability of essential nutrition supplies (Imdad, 2019).

Implications for nursing practice

Historically, cultural norms and lack of knowledge have fostered inappropriate weaning practices, such as early introduction of solid foods, inadequate breastfeeding, and reliance on inappropriate foods. These practices can lead to under-nutrition, deficiencies in essential nutrients, and increased susceptibility to infections.

In recent years, there has been increased awareness and efforts to promote appropriate weaning practices. Various organizations, including the World Health Organization (WHO) and UNICEF, have developed guidelines promoting exclusive breastfeeding for the first six months, followed by the introduction of nutritious complementary foods. But malnutrition among under five children and its effects still lingers on despite the publicity on the proper pattern of weaning, mothers and caregivers have not really improved on their weaning methods.

Health professionals, including nurses, have a crucial role to play in providing education and support to mothers and caregivers about correct weaning practices. In order to prevent malnutrition linked to inappropriate weaning practices, nurses should:

- Educate mothers and caregivers about the importance of exclusive breastfeeding for the first six months and adhere to recommended breastfeeding practices, appropriate timing for introducing complementary foods, and selection of nutritious foods.
- Establish support groups or networks where mothers can share their experiences, receive guidance, and learn from each other.
- Conduct regular assessments to ensure proper growth, evaluate feeding practices, and identify any nutritional deficiencies.
- Collaborate with other healthcare professionals, community leaders, and policymakers to raise awareness, implement effective interventions, and advocate for policy changes supporting appropriate weaning practices.

While progress has been made in promoting appropriate weaning practices, challenges still exist. Moving forward, nursing practice must focus on several key areas:

- **Continual Education:** Nurses should stay updated with the latest evidence-based guidelines and continuously educate themselves on best practices.

- **Cultural Sensitivity:** Understanding cultural beliefs and practices around weaning is essential to tailor interventions accordingly.

- **Sustainable Strategies:** Nurses should advocate for sustainable strategies, such as community-led interventions and empowerment of mothers, to ensure long-term success.

- **Research and Evaluation:** Further research is needed to understand the specific challenges faced in different communities and develop targeted interventions based on local contexts.

Conclusion

In conclusion, effective weaning practices involve gradual introduction of nutrient-rich and age-appropriate complementary foods in addition to continued breastfeeding. The World Health Organization (WHO) recommends initiation of complementary feeding at around six months of age, along with breastfeeding, and also emphasizes the importance of a diverse and nutrient-dense diet for optimal growth and development of infants. Interventions to improve weaning practices and reduce malnutrition among under 5 children include education and counseling for caregivers, community-based feeding programs, and promotion of locally available nutrient-rich foods. These interventions have shown promising results in improving child nutrition outcomes in various settings.

Therefore, appropriate weaning practices are crucial for preventing malnutrition among children under five. Understanding the impact of early or late introduction of complementary foods, nutrient density, feeding frequency, and diversity is essential for developing effective interventions and promoting optimal growth and development in this vulnerable age group

Recommendations

These recommendations aim to address both individual and structural factors contributing to malnutrition among under five children, promoting healthy weaning practices and reducing the prevalence of malnutrition.

To the mothers and caregivers

1. **Exclusive breastfeeding:** Encourage mothers to exclusively breastfeed their infants for the first six months of life and continued for two years with adequate complementary feeding. Breast milk is the best source of nutrition and provides essential antibodies and nutrients to protect against malnutrition.

2. **Timely introduction of complementary foods:** At six

months, introduce appropriate complementary foods while continuing breastfeeding. It is important to start with nutrient-rich, mashed or pureed foods such as fruits, vegetables, grains, and legumes.

3. Balanced diet: Gradually transition the child to a balanced diet that includes different food groups, providing protein, carbohydrates, fats, vitamins, and minerals. Encourage the consumption of nutrient-rich foods, such as lean meats, fish, eggs, dairy products, whole grains, fruits, and vegetables.

4. Adequate quantity and variety: Ensure that children are receiving enough food in terms of quantity and variety. Offer small, frequent meals and snacks throughout the day to meet their nutritional needs.

5. Hygiene and food safety: Promote proper hygiene and safe food handling practices, such as washing hands before preparing or feeding the child, using clean utensils and containers, and storing food properly.

6. Mothers should attend infant welfare clinic where they will be taught proper weaning diet, methods of weaning through demonstration.

To the Health care team

1. **Nutritional counseling:** Provide education and counseling to mothers and caregivers on appropriate weaning practices and the importance of nutrition for their child's growth and development. This can include workshops, individual counseling sessions, or community health initiatives.

2. **Regular growth monitoring:** Implement regular growth monitoring to identify early signs of malnutrition. This can be done through routine check-ups at healthcare facilities or by trained community health workers.

To the Government

1. **Enhanced social safety nets:** Address underlying socio-economic factors that contribute to malnutrition, such as poverty, food insecurity, and limited access to healthcare. Implement social safety nets, such as cash transfer programs or food subsidies, to support vulnerable families and ensure they can afford nutritious foods for their children.

2. **Strengthening healthcare systems:** Invest in building a strong healthcare system that provides comprehensive services, including nutritional support, counseling, and early intervention for malnourished children.

3. **Community involvement:** Engage communities in

promoting and supporting optimal weaning practices. This can include establishing community-based support groups, peer-to-peer education, or community-led initiatives to raise awareness about the importance of nutrition for children.

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