Socio-cultural and structural determinants of infant feeding practices: A retrospective qualitative focus group observational study in Kitwe, Zambia

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https://doi.org/10.51867/ajernet.7.1.55

ABSTRACT

Moderate acute malnutrition (MAM) continues to be a serious public health concern among infants in Zambia, despite the implementation of the WHO infant and young child feeding (IYCF) guidelines. This retrospective qualitative study examined the social, cultural, and structural factors that influence IYCF practices among mothers in Kitwe and their links to MAM during the first year of life. Ninety-six mothers of infants aged 3 months at the start and 9 months at the end of the study participated in longitudinal focus group discussions. Using a qualitative approach, data were collected from mothers and caregivers through interviews and focus groups, with emphasis on household, community, and cultural influences on feeding decisions. Reflexive thematic analysis identified six main themes: 1) The Negotiated Feeding Trajectory: From Intention to Early Introduction, 2) Cultural Logics: Water, Insufficient Breast Milk, and Herbal Wisdom; 3) The Social Architecture of Feeding: Grandmothers, Absent Fathers, and Peers, 4) The Material Boundaries of Choice: Economics, Work, and Health, 5) Maternal Experience: Eating Beliefs and Bodily Changes, and 6) Envisioning Improvement: Maternal Prescriptions for Change. Results showed that although mothers aimed for exclusive breastfeeding in the first 6 months, complementary foods were often introduced prematurely (sometimes as early as 3 months). The study reveals that social norms, family dynamics, and structural barriers, rather than lack of knowledge, hinder the adoption of recommended guidelines. Major reasons for early introduction included cultural expectations and advice from elders, especially grandmothers; perceived infant hunger or behaviors; economic challenges and limited food supplies; and maternal work pressures. While health workers' advice recommending complementary feeding at six months was valued, it was frequently ignored due to strong social norms and financial barriers. Traditional remedies were often used when biomedical treatments seemed ineffective, highlighting the persistent influence of cultural beliefs on infant care. Mothers proposed practical solutions, such as routine maternal health checks and improved economic support, to promote optimal feeding, emphasizing the need to address both social-cultural and structural obstacles. The study emphasizes that infant feeding behaviors in Kitwe are shaped by a complex interplay of social, cultural, and structural factors, not solely by knowledge. Feeding choices are influenced not only by medical guidelines but also by cultural beliefs, social networks, and caregivers' daily realities. Understanding these interactions is essential for developing locally appropriate, culturally sensitive interventions to prevent MAM. The findings call for culturally tailored, community-engaged strategies that involve elders, address household food insecurity, and support working mothers. This research demonstrates that infant feeding decisions in Kitwe are affected not only by maternal knowledge and adherence to health guidelines but also by social negotiations and structural barriers. It advocates shifting from mother-centred, information-only interventions to family-inclusive counselling, culturally sensitive behavior-change strategies, strengthened maternity protections, and stricter regulation of commercial influences. By linking infant feeding recommendations to real-life experiences of urban mothers, the study offers practical insights for creating nutrition policies that are socially grounded and structurally responsive in Zambia.

Keywords: Exclusive Breastfeeding, Infant Feeding Practices, Maternal Decision-Making, Moderate Acute Malnutrition, Socio-Cultural Determinants

I. INTRODUCTION

Infant feeding is a critical point where biological needs meet significant social and material influences. Globally, optimal infant and young child feeding (IYCF) practices, such as the World Health Organization's recommendation for exclusive breastfeeding during the first six months (Gluning et al., 2021; Bhutta et al., 2020), are considered essential for child survival and long-term health (WHO, 2003). Despite strong evidence and targeted policy efforts, adherence to these guidelines remains inconsistent, highlighting a substantial gap between public health goals and actual practices. This gap indicates that infant feeding is not only about individual knowledge or maternal choice but is heavily influenced by a complex network of external factors.

Zambia, like many countries, highlights this paradox. Although national policy frameworks align with global IYCF standards, epidemiological data show only limited adoption of these standards. The Zambia Demographic and

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Health Survey reported an exclusive breastfeeding rate of 73% for infants under six months, leaving many exposed to early introduction of complementary foods or liquids (Zambia Statistics Agency, Ministry of Health (MoH) [Zambia], & ICF. 2024). While this figure provides useful macro-level information, it hides the complex, dynamic, and specific factors that influence feeding choices at household and community levels. The city of Kitwe in the Copperbelt Province offers an important setting to explore these factors, characterized by rapid urban growth, strong cultural traditions, and socioeconomic stratification.

This study adopts a qualitative, long-term approach to examine the socio-cultural and structural factors influencing infant feeding practices in Kitwe, Zambia. It presents findings from a six-month follow-up focus group study with mothers, offering a rare retrospective view of how these factors develop and impact the baby during the first year. The analysis reveals that maternal agency is limited and shaped by a network of interconnected factors (Black et al., 2013; Victora et al., 2016; Rollins et al., 2022). These include deeply rooted socio-cultural norms, such as beliefs about breastmilk sufficiency and authority passed down through generations within kinship groups, as well as structural barriers like workplace policies, healthcare access, and the marketing environment for breastmilk substitutes (Victora et al., 2016). By examining these influences over time, the study highlights the ongoing interaction between cultural beliefs and material constraints, providing an important foundation for developing contextually appropriate public health strategies (Black et al., 2013). The primary aim of the study was to explore the socio-cultural and structural factors affecting infant feeding.

1.1 Statement of the Statement

Although Zambia has developed infant and young child feeding (IYCF) guidelines aligned with global recommendations, many infants still do not receive optimal feeding practices, resulting in poor nutrition outcomes, including moderate acute malnutrition (MAM). The reality is that a large number of children suffer from MAM, a condition that increases their risk of infections, delays cognitive development, and leads to long-term health issues (Gluning et al., 2021).

National data show that although breastfeeding is common, exclusive breastfeeding rates decline significantly before six months, and complementary feeding often begins early or inappropriately, highlighting ongoing gaps between knowledge and practice. The national surveys reported that about 73% of Zambian infants under six months are exclusively breastfed, with a median duration of only about 4.1 months, despite caregivers being aware of recommended practices (UNICEF, 2018). According to the Scaling Up Nutrition (SUN, 2022) report for Zambia, Copperbelt Province has the third-highest MAM rates, with Kitwe recording the highest numbers. The MAM rate in Kitwe is 35% (UNICEF Zambia, 2022).

Although most interventions focus on children under five and include nutrition supplementation, little effort seems to be made to incorporate sociocultural practices related to infant and maternal feeding, especially regarding weaning from 3 months to 9 months. This is due to the lack of evidence-based guidance for weaning in this age group (Victora et al., 2016; WHO, 2023). Additional studies in Zambia have indicated that, although caregivers often understand recommended practices, this knowledge does not always lead to behavior change, and the early introduction of complementary foods remains common across settings (Zambia Statistics Agency, Ministry of Health (MoH) [Zambia], & ICF. 2024).

Research from other parts of sub-Saharan Africa also shows that socio-cultural beliefs, norms, food taboos, and traditional practices strongly influence infant feeding decisions. The studies reveal that these often compete with biomedical advice (Aboagye et al., 2024; Victora et al., 2016). In Kitwe, urban and peri-urban dynamics, economic pressures, and strong family influences further complicate feeding choices. However, there is limited empirical evidence that clearly identifies the main socio-cultural factors driving maternal and infant feeding practices. This lack of context-specific understanding creates a barrier to developing culturally appropriate and effective nutrition interventions. Therefore, identifying the key socio-cultural determinants of feeding practices in Kitwe is essential for designing locally relevant strategies to improve child nutrition outcomes.

1.2 Research Objective

To profile the dominant socio-cultural factors shaping infant and maternal feeding practices in Kitwe.

1.3 Research Question

What are the dominant socio-cultural factors influencing infant and maternal feeding practices in Kitwe?

II. LITERATURE REVIEW

2.1 Theoretical Review

This study provides a critical review of peer-reviewed research on the factors affecting infant and young child feeding (IYCF) practices in low- and middle-income countries (LMIC) Lokossou et al. (2021). The existing data are

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divided into two main areas, often treated separately as socio-cultural frameworks and structural-economic constraints. This analysis demonstrates that although both types of research offer valuable empirical insights, their separation into theory and methods has resulted in a fragmented understanding of maternal behavior. Specifically, there is a lack of research examining the dynamic interaction between cultural norms and material structures over time. Consequently, this review highlights a significant empirical gap: the prevalence of cross-sectional study designs that cannot capture the evolving nature of feeding decisions. The ongoing longitudinal study in Kitwe, Zambia, directly addresses these theoretical and methodological gaps.

2.1.1 The Socio-Cultural Domain

A substantial body of evidence demonstrates the fundamental role of socio-cultural norms in shaping IYCF behaviors. Research across various LMIC settings consistently identifies culturally specific beliefs that directly oppose biomedical recommendations, Lokossou et al. (2021); Tugume et al. (2024). For example, the common practice of discarding colostrum and giving prelacteal feeds is empirically linked to beliefs concerning impurity, infant thirst, and the necessity of ritual cleansing (Mgongo et al., 2019; Prendergast et al., 2018). These practices diverge from WHO guidelines in the immediate postnatal period.

Furthermore, existing research challenges the idea that infant feeding is only a personal choice made by the mother. Instead, it is recognized as a collective household practice influenced by intergenerational authority. Studies demonstrate that elder female relatives, especially grandmothers, often wield more influence than healthcare providers, due to their cultural authority and experience (Bazzano et al., 2018; Pereira-Kotze, C., & Doherty, T., 2022). While this scholarship accurately situates behavior within local knowledge systems, it tends to favor cultural determinism. Such an approach can obscure maternal agency and fail to recognize how these norms are challenged, adapted, or reinforced by ongoing structural forces.

2.1.2 The Structural-Economic Domain

A well-established and interconnected body of literature emphasizes the role of political economy and material constraints in shaping infant feeding practices (Rollins et al., 2022). A common structural barrier is the conflict between exclusive breastfeeding and gendered economic participation: in many low- and middle-income countries (LMICs), both formal and informal labor sectors often lack sufficient paid maternity leave, workplace support for lactation, or flexible hours, leading to physical separation of mothers and infants and frequently resulting in the use of breastmilk substitutes (Hansen, 2016; Rollins et al., 2022). This economic environment intersects with the widespread influence of the commercial milk formula (CMF) industry. Critical public health research consistently shows that formula marketing strategies often violate the International Code of Marketing of Breast-milk Substitutes, medicalize infant feeding, increase parental anxiety about feeding choices, and portray breastmilk substitutes as symbols of modernity and scientific progress (Baker et al., 2021; Pereira-Kotze & Doherty, 2022). Importantly, these structural pressures do not operate in isolation: the success and acceptance of commercial messages are often mediated through, embraced by, or challenged within existing cultural schemas and social norms. A common critique of purely structuralist analyses is that they may underestimate how commercial and biomedical messages are interpreted, legitimized, or challenged within specific cultural contexts, and how caregivers actively negotiate these influences daily (Baker et al., 2021; Pereira-Kotze & Doherty, 2022; Rollins et al., 2022).

2.1.3 Critical Synthesis

The primary scholarly critique from this study highlights the persistent divide between cultural and structural factors, with notable exceptions such as the integrated ecological model used by some studies, which explore how these factors interact synergistically (Lokossou, 2021). For instance, how does economic insecurity increase reliance on intergenerational support, thereby reinforcing traditional norms (Lokossou, 2021; Victora et al., 2016)? Conversely, how does the cultural perception of CMF as "modern" accelerate its adoption among households seeking economic progress? A key methodological weakness is the heavy dependence on cross-sectional data. Surveys and single-time qualitative interviews offer a static view and fail to capture the dynamic process of infant feeding (Aboagye, 2024; Baker, 2024). They cannot show how the influence of a clinical injunction diminishes over time or how the set of influencing factors evolves when a mother returns to work. This leads to an incomplete and sometimes misleading understanding of causality.

2.1.4 Positioning the Current Study

The present research, titled “Socio-cultural and Structural Determinants of Infant Feeding in Kitwe, Zambia: Insights from a 6-month Follow-up Focus Group with Mothers,” aims to fill existing gaps. It makes two main contributions: First, it uses a longitudinal qualitative approach to observe how feeding practices and their perceived causes change over a key developmental period (Creswell, 2018). This long-term view is essential for understanding behavioral shifts and the evolving importance of different factors. Second, its theoretical framework is comprehensive,

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surpassing earlier, more limited approaches by exploring how socio-cultural norms and structural-economic constraints interact to shape maternal decisions. By considering maternal agency as an ongoing negotiation within these boundaries, this study strives to develop a more complete, dynamic, and contextually grounded model for understanding IYCF determinants (Lokossou, 2021). 2.5 Novel Contribution of the Study: The study goes beyond simply documenting feeding habits by placing them within a multi-level concentric framework that links infant nutritional outcomes (MUAC and WHZ) to maternal beliefs, household dynamics, and health system structures (Rollins, 2022; Victora, 2016). The key innovations include: 1) providing longitudinal evidence connecting weaning timing (3-6 to 6-9 months) to MAM prevalence, 2) illustrating the interaction between maternal embodied experience and structural health system influence, 3) integrating socio-cultural determinants into a cohesive multi-level theoretical model, and 4) moving beyond basic prevalence descriptions toward exploratory analysis.

III. METHODOLOGY

3.1 Study Design

This study employed a qualitative, prospective design with a retrospective focus, using focus group discussions (Creswell & Poth, 2018) to examine the social, cultural, and structural factors influencing infant feeding practices in Kitwe, Zambia. Data were gathered at six purposively chosen public health centers, involving 12 focus groups representing various socioeconomic backgrounds across the city (Patton, 2015). This setting provided access to mothers attending public health services, where infant feeding advice is routinely given.

3.2 Data Collection Period and Participant Sampling

Data was collected over six months, from May to November 2025. Participants included mothers who served as caregivers, recruited through maximum variation sampling at health centers during this period. The study focused on mothers of 3-month-old infants at baseline who had not yet begun weaning. The focus group discussions (FGDs) took place six months later, when most participants had either just started, were in the process of weaning, or had finished weaning. This criterion was essential to the study design, ensuring that participants had recently completed the entire weaning process from the neonatal stage to the transition to complementary foods. This approach enabled gathering reflective, detailed stories rather than just snapshots of ongoing experiences. In total, 96 mothers participated in 12 focus group discussions.

3.3. Data Collection Procedures

Before starting fieldwork, researchers obtained ethical approval from the University of Zambia Humanities and Social Sciences Research Ethics Committee (approval number HSSREC 00006464) and from the Ministry of Health (Creswell, 2018; UNICEF, 2021). All mothers provided written informed consent, including an explanation of the study's objectives. Participants unable to write gave verbal consent, while others took the consent forms home and returned them signed by their spouses. Participation was voluntary; they could withdraw at any time without penalty, and confidentiality measures were implemented, including the use of pseudonyms and secure data storage. Since retrospective discussions might evoke strong emotions related to feeding challenges and societal pressures, facilitators were trained to handle sessions with sensitivity and to provide information about local support services as needed.

The researchers conducted 12 focus group discussions (FGDs) across six health centers, with two at each location. Each session involved 8 to 10 participants. These FGDs were held in Bemba, following a semi-structured discussion guide arranged chronologically to gather detailed narratives about key stages: starting breastfeeding, experiencing breastfeeding, challenges and support during exclusive breastfeeding, decision-making, timing and methods for introducing complementary foods, and ongoing feeding practices. Each session lasted approximately 45 to 60 minutes, was audio-recorded with participants' consent, and included detailed field notes.

3.4 Data Analysis

Audio recordings of the FGDs were transcribed verbatim and then translated into English to ensure accurate interpretation. Data were analyzed using a six-step reflexive thematic analysis method, following Braun and Clarke’s (2016) guidelines, supported by NVivo software. NVivo helped organize, code, and explore the large volume of text data, making it easier to identify patterns across participants and groups. The process involved familiarizing oneself with the data by repeatedly reading transcripts to note nuances and context. Initial codes were created by combining deductive insights from existing research on infant feeding factors with inductive ideas from participant stories. These codes were then grouped, reviewed, and refined into clear themes through ongoing reflection and team discussions. Attention was given to timing patterns in the data (Creswell, 2018), and understanding how socio-cultural and structural influences affected feeding behaviors at different stages of the infant’s first year. This approach not only identified key themes but also offered insights into how caregiver experiences, household dynamics, and broader factors evolved over time (Aboagye, 2024).

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IV. FINDINGS & DISCUSSION

4.1 Findings

The study's main aim was to identify the key socio-cultural factors influencing infant and maternal feeding practices in Kitwe. The research question asked what these dominant socio-cultural influences are. To explore this, themes were formed that focus on particular aspects, such as cultural beliefs, social relationships and influence, decision-making processes, and their connection to broader socioeconomic conditions. Collectively, these factors shed light on the reasons behind deviations from recommended feeding guidelines, such as the practice of exclusive breastfeeding for 6 months. This section presents the thematic findings from the focus group discussions with mothers in Kitwe. The following are the themes.

[1] The Negotiated Feeding Trajectory: From Intention to Early Introduction:
[2] Cultural Logics: Water, Insufficient breast milk, and Herbal Wisdom
[3] The Social Architecture of Feeding: Grandmothers, Absent Fathers, and Peers,
[4] The Material Boundaries of Choice: Economics, Work, and Health,
[5] Maternal Experience: Eating Beliefs and Bodily Changes,
[6] Envisioning Improvement: Maternal Prescriptions for Change.

The findings reveal a complex reality in which infant feeding practices are shaped by the ongoing interplay of intention, cultural knowledge, social pressure, and material constraints. Verbatim quotes are presented in italics to emphasize the mothers' own voices and experiences.

4.1.1 The Negotiated Feeding Trajectory

From Intention to Early Introduction. Mothers generally expressed a desire to follow the recommended six months of exclusive breastfeeding. However, their stories reveal a consistent pattern of deviating from this goal, creating a unique path shaped by circumstances. *"I practiced exclusive breastfeeding,"* one mother said, reflecting the ideal norm. However, this intention was often broken early, usually within the first three months. Economic hardship was a common reason, as a mother explained: *"Due to economic constraints, I started mashing small biscuits into warm water and made porridge for my baby."* Perceptions of infant needs also led to early introduction, with crying seen as hunger that breast milk alone could not satisfy*: "When the baby could not stop crying, I started giving her bean soup because it is nutritious."* By four to five months, introducing semi-solids was a typical, socially supported milestone*. "I started feeding my baby light porridge at four months,"* said one participant, while another lamented*, "I tried to delay weaning my baby, but I could not go beyond five months."* This path often led to an earlier shift in the family's diet, sometimes beyond the mother's direct control. As one mother discovered, *"My child was introduced to nshima (corn thick porridge) without even me knowing,"* highlighting infant feeding as a shared community responsibility rather than just a maternal one.

4.1.2 Cultural Logics: Water, Insufficiency, and Herbal Wisdom

Feeding decisions were guided by a deeply rooted cultural logic that offered alternative explanations for infant health and nutrition. A core belief was that water was needed not only to quench thirst but also as a form of therapy. *"If the child has been crying, the elders will encourage the mother to give the child some water,"* one mother observed, while another mentioned *"salty water to ease constipation."* This practice directly challenges the biomedical rule against giving water to exclusively breastfed infants. A main reason for ending exclusive breastfeeding early was the culturally shaped idea that breastmilk alone was not enough. The belief that *"the child is not getting satisfied"* and that *"breast milk is not enough"* strongly justified introducing porridge. Additionally, a parallel health belief system relied heavily on herbal remedies. *"I used herbs on my baby when she had diarrhea. I used some herbs like curry mixed with water,"* shared a mother, indicating a preference for traditional knowledge in specific situations. Ambiguous cultural stories also influenced feeding timing, with mothers warned that early feeding could cause a child to *"be prone to a lot of diseases or even cause the brain to enlarge."*

4.1.3 The Social Architecture of Feeding: Grandmothers, Absent Fathers, and Peers

Infant feeding became a socially shared practice, with decision-making authority often limited to a network that restricted maternal independence. Grandmothers held significant influence, acting as gatekeepers of tradition. Their authority was expressed directly, such as when a grandmother gave "solid food to my child without my consent," and indirectly through the sway of experiential advice. In stark contrast, fathers were consistently described as absent from feeding decisions. *"They do not influence feeding decisions in any way,"* stated one mother, with another summarizing a familiar feeling of solitary responsibility: *"Most mothers said that if they have a child, that means they are on their own."* This gap increased the influence of peers and neighbours, who served as strong normative references. Fellow mothers, especially those met at clinics, were *"major influencers,"* with their practices closely watched and often copied. One mother admitted the power of social comparison, noting she was influenced *"when they shared what they were*

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feeding their beautiful babies." Health workers were respected, but their influence was usually limited to the clinic environment, competing with the constant, everyday authority of family and community.

4.1.4 The Material Boundaries of Choice: Economics, Work, and Health

Concrete structural conditions set the hard limits within which all feeding decisions were made. Economic hardship was the most common and fundamental barrier. Mothers showed a clear awareness of the gap between knowledge and possibility, with one saying, *"What the health facility teaches is very good… however, it is difficult to follow because of financial challenges."* Another summed up the issue: "Feeding depends on the economic status." Maternal employment created an unavoidable conflict with exclusive breastfeeding, forcing early dietary changes. *"I introduced my baby to porridge and nshima because I spend more time at work than at home,"* explained one mother. Maternal health and personal food security were also urgent concerns that directly affected feeding capacity. A mother's own nutritional status was a concern, as expressed by one participant*: "As a mother breastfeeding the baby… I do not have enough food myself."* Additionally, health concerns could lead to early weaning, with some believing that *"mothers with weak immune systems should stop breastfeeding their babies as soon as the babies develop teeth."*

4.1.5 Maternal Experience: Eating Beliefs and Bodily Changes

Mothers' narratives revealed that their beliefs about eating and bodily experiences during pregnancy and the postpartum period shaped their infant-feeding practices. Many women described pregnancy as a time of eating *"for two people, myself and the baby,"* a belief that justified eating more and influenced their expectations about bodily changes and maternal responsibility. Intense cravings and food aversions were frequently reported, with some mothers showing strong preferences for energy-dense foods and avoiding others due to nausea or discomfort (Lokossou, 2021). As one mother explained*, "I did not want to eat vegetables; I only wanted chips and sausage,"* while others shared that they were unable to tolerate certain foods even though they knew these foods were considered healthy.

These embodied experiences were not regarded as individual anomalies but as the normal and culturally accepted aspects of pregnancy. They influenced how mothers assessed their own nutritional adequacy and physical strength, especially regarding breastfeeding ability after birth. Several mothers linked their postpartum energy levels, appetite, and perceived milk production to what they had eaten during pregnancy, reinforcing the idea that maternal diet and bodily condition directly influence infant well-being (Tugume, 2024). *"My husband wanted a healthy baby, and he would buy me food from different places."* In this way, women's personal food experiences shaped broader ideas of maternal competence and readiness to care for their infants.

Importantly, these maternal eating narratives became part of a broader care system that extended beyond pregnancy into early infant feeding. Dietary struggles, cravings, and bodily discomfort influenced mothers' self-perceptions, confidence, and feeding expectations, shaping decisions about exclusive breastfeeding and the early introduction of complementary foods. Understanding maternal eating beliefs and embodied experiences, therefore, provides essential insight into how infant feeding practices are socially and biologically negotiated rather than solely driven by external advice or nutritional knowledge.

4.1.6 Envisioning Improvement: Maternal Prescriptions for Change

When asked to consider potential solutions, mothers consistently shifted their focus away from additional nutrition education and toward creating supportive environments that enable them to act on their existing knowledge. Instead of asking for more information, they emphasized economic empowerment as a crucial factor for improving infant nutrition, directly linking feeding practices to financial stability and household income security. As one mother explained, *"We are taught what to feed the baby, but if there is no money, you just give what is available."* Another participant echoed this sentiment, noting that *"sometimes you know the right food, but you cannot afford it, so you just manage."* These views align with evidence showing that poverty and livelihood insecurity greatly limit caregivers' ability to follow recommended infant feeding practices, even when they have enough knowledge (Ruel et al., 2018; Black et al., 2021). Mothers also articulated a strong desire for greater personal health agency, emphasizing the importance of understanding and monitoring their own health status as a foundation for effective caregiving. This was reflected in statements such as,

> *"A mother needs to know her own health first, because if you are weak, the baby will also suffer,"* and *"we should take responsibility to check ourselves, not only the baby."*

Such narratives emphasize that maternal well-being is closely linked to infant feeding success. Recent research also confirms that maternal nutritional status, perceived bodily capacity, and confidence in health influence breastfeeding persistence and decisions about complementary feeding (Victora et al., 2021; Rollins et al., 2022). Although guidance from health facilities was appreciated, mothers' lived experiences highlighted the limitations of information-based interventions in settings marked by poverty, limited time, and competing livelihood demands. One participant noted, *"At the clinic, they tell us what to do, but when you go home, reality is different."* Another participant added, *"You may want to follow the advice, but work and household pressures do not allow you."* These accounts

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reinforce the growing understanding that knowledge alone is insufficient to change infant feeding behaviors when structural and economic barriers remain (Bhutta et al., 2020; Pérez-Escamilla et al., 2023). Collectively, these maternal recommendations highlight the need for nutrition strategies that combine socio-economic support, maternal well-being, and agency with education, reflecting the daily realities that influence infant feeding practices in low-resource urban settings.

4.1.7 Opted Feeding Practices

Generally, mothers opted for preferred infant feeding practices because these practices were perceived as practical, socially acceptable, practically manageable, economically realistic, and protective against harm. Feeding decisions were embedded within a web of cultural meanings, social expectations, and power relations, highlighting that infant feeding practices were rational responses to context rather than simple departures from recommended guidelines. These results are summarised in Figure 1 below. These findings are summarised in the thematic map (*Figure 1*) below.

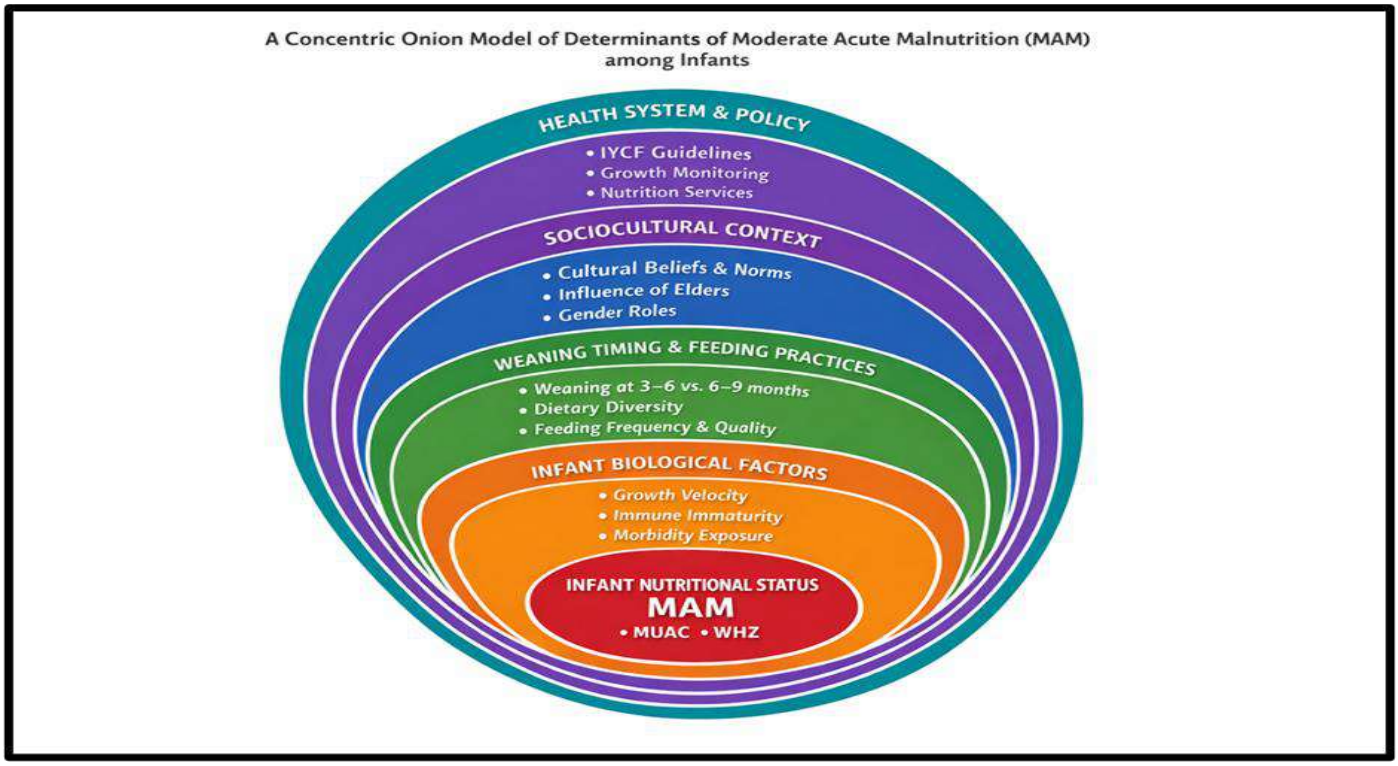


Figure 1

Concentric Onion Model of Determinants of MAM among Infants

The concentric onion model visually represents the multi-layered determinants of Moderate Acute Malnutrition (MAM) among infants, as observed in the study population in Kitwe, Zambia. This study employs a concentric onion model to examine the factors influencing moderate acute malnutrition (MAM) among infants in Kitwe. The model emphasizes infant nutritional status, assessed through MUAC and WHZ, and illustrates how broader structural and sociocultural influences shape it. It ensures theoretical coherence by linking research questions, variables, and methods within a multi-level explanatory framework. At the core of the model is the infant's nutritional status, operationalised through anthropometric indicators such as Mid-Upper Arm Circumference (MUAC) and Weight-for-Height Z-scores (WHZ). This central layer reflects the immediate manifestation of nutritional outcomes, including the prevalence of MAM observed at 3, 6, and 9 months, and provides a direct measure of undernutrition. The outermost layer, health system and policy, reflects the institutional environment where infant and young child feeding (IYCF) practices are regulated and supported. National feeding guidelines, growth monitoring programs, and MAM intervention strategies establish standards against which feeding behaviors are evaluated. This layer justifies the inclusion of a contextual analysis of service delivery platforms, such as under-five clinics and community nutrition services. The second layer, sociocultural context, captures prevailing cultural beliefs, gender norms, and intergenerational influences that shape maternal decision-making. This layer aligns with the Research Question, which explores the socio-cultural factors affecting infant feeding practices and maternal motivations. Qualitative research is especially suited for exploring this aspect. The third layer concentrates on weaning timing and feeding practices, translating them into behavioural exposures. Comparing infants weaned at 3-6 months with those weaned at 6-9 months allows analysis of differences in nutritional outcomes. Predictors such as feeding frequency, dietary diversity, and food quality are measurable indicators

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of nutritional risk. The fourth layer, infant biological factors, acknowledges that growth rate, immune maturity, and exposure to illness influence how feeding practices impact nutritional outcomes. This supports the collection of anthropometric and morbidity data. Overall, the model advocates for a mixed-methods approach and depicts MAM as a cumulative result of interacting structural, social, behavioral, and biological factors.

4.1.8 The Negotiated Agency

The qualitative results show that mothers sometimes know the recommended practices but do not always follow them due to family pressure, perceived insufficient breastmilk, or fears that the baby is not gaining enough weight. This demonstrates negotiated agency: mothers are not just passive recipients of policy; they interpret, modify, resist, or follow guidance based on their circumstances. The findings suggest that maternal feeding choices are best understood through the concept of negotiated agency. In Kitwe, mothers did not simply follow or reject health advice; instead, they navigated influences from family norms, economic constraints, and clinic messages. This dynamic between individual agency and societal structure helps explain the differences in the timing of complementary feeding and the resulting variations in MAM prevalence.

4.2 Discussion

This study reveals that there are more instances of MAM among mothers who religiously follow the dictum of not giving infants water and support exclusive breastfeeding for six months. It emphasizes that weaning should begin at six months. The findings show a systematic departure from global guidelines. The consistent early introduction of complementary foods, despite intentions to exclusively breastfeed, illustrates how communal norms override individual knowledge and influence practices. As documented elsewhere (Lokossou, 2021), feeding is a household decision, not solely maternal, but it occurs in a supportive environment with social support from friends and family. Supporting and practicing breastfeeding increases the likelihood that a mother will continue breastfeeding her infant. For example, the authority of grandmothers and the influence of peers create a social framework that limits maternal agency, making interventions aimed only at mothers less effective, Tugume (2014).

4.2.1 Cultural Beliefs

Crucially, cultural beliefs such as the necessity of water or the insufficiency of breastmilk constitute a coherent, alternative epistemology. These are not mere misconceptions but logical interpretations within local ontologies of infant care, as argued by Mgongo et al. (2019). Health education that dismisses the logic of not giving an infant water and buttresses exclusive breastfeeding for six months, and that weaning ought to be initiated at six months, fails to engage meaningfully with the lived reality of caregivers in Kitwe.

4.2.2 Structural-Economic Factors

Ultimately, structural-economic factors define the unavoidable boundaries of practice. Poverty and maternal employment are not just contextual factors but core determinants, as mothers clearly link their practices to financial constraints and work schedules. This reflects global analyses that identify infant feeding as a key indicator of inequality (Baker et al., 2021). Cultural practices, like early weaning, often arise as adaptations to structural violence, such as food insecurity or the absence of maternity protections. Therefore, improving infant nutrition requires moving beyond behavioral change models and focusing on the social and cultural skills related to infant feeding. Interventions must effectively integrate observed practices and beliefs, foster community dialogue with influential figures such as grandmothers, and advocate for policy changes (e.g., enforcing the Code on the marketing of breastmilk substitutes). Only by addressing the socio-cultural and structural roots of these practices can the gap between public health ideals and actual lived experiences be closed.

4.2.3 Prevailing Interventions

Based on the findings, we argue that the common interventions, which often focus on individual maternal behavior through education, are fundamentally misaligned with the reality that feeding is a community-driven practice shaped by intergenerational authority, peer norms, and severe economic insecurity. The cultural logics identified, such as the belief that water is necessary or that breastmilk is insufficient, form a coherent, alternative framework for understanding infant needs-one that health communication must engage with dialogically rather than dismiss. Ultimately, the pursuit of improved IYCF outcomes requires a paradigm shift from behavioural change models to structural intervention. This entails implementing synergistic strategies that address the root determinants of practice. Improving infant and young child feeding (IYCF) outcomes may require a pragmatic rethinking of the uniform application of the six months of exclusive breastfeeding, particularly in settings where structural and social realities already shape early weaning at three to four months. Rather than framing early complementary feeding as maternal non-compliance, this perspective recognizes the constraints imposed by economic hardship, maternal labor demands, household food insecurity, and deeply rooted sociocultural norms.

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Such a shift necessitates moving beyond individual behavior-change models toward structural, context-responsive interventions**.** This includes integrating nutrition-sensitive social protection to alleviate economic pressures, fostering community dialogue that positions influential actors, especially grandmothers, as partners in adaptive feeding practices, and strengthening regulatory frameworks to address the commercial drivers of early feeding. Policy flexibility that accommodates nutritionally appropriate early complementary feeding where exclusive breastfeeding is not feasible may therefore represent a more realistic pathway to improving child nutrition.

Link Between Practices and MAM: The study showed that infants weaned between 6 and 9 months had a higher rate of moderate acute malnutrition (MAM) than those weaned between 3 and 6 months. Starting complementary foods after six months created a nutritional gap, leading to growth issues consistent with the physiological limits of breastfeeding alone (WHO, 2003; UNICEF, 2021). Qualitative data indicated that socio-cultural norms, maternal perceptions of infant readiness, economic pressures, and WHO guidelines drove early weaning. This suggests that structural and informational factors more influence the risk of MAM than individual choices do. Overall, the findings highlight the importance of considering socio-cultural influences on both exclusive breastfeeding and timely complementary feeding from 3 to 9 months, providing context-specific insights for interventions aimed at reducing MAM in resource-limited environments.

V. CONCLUSION & RECOMMENDATION

5.1 Conclusion

The study aimed to investigate the social, cultural, and structural factors shaping infant feeding. It reveals that feeding practices in Kitwe challenge long-standing beliefs behind global infant and young child feeding (IYCF) guidelines, which recommend against giving water to infants and advise starting weaning at 6 months. These practices are not solely maternal choices but involve complex negotiations within social and structural contexts. Consequently, the evidence indicates a departure from international IYCF guidelines. These results highlight the need to rethink public health strategies by considering social, cultural, and structural influences that are not harmful. The main objective is to foster environments that enable optimal feeding rather than applying rigid, one-size-fits-all solutions. Achieving this requires integrated, equity-focused approaches that incorporate local knowledge to bridge the gap between policies and actual experiences.

5.2 Recommendations

Incorporate socio-cultural factors into nutrition programs: Infant feeding strategies should account for the roles of elders, peers, and cultural norms to ensure guidance is respectful and aligned with community values. Combine biomedical and traditional methods: Health messaging should recognize the use of traditional remedies while educating caregivers about safe, evidence-based practices.

Policy Recommendation: Involving grandmothers and other influential family members as partners in interventions can boost family and community engagement: Nutrition education should intentionally include grandmothers, fathers, and other key household influencers to link traditional practices with recommended infant feeding guidelines. *Practical strategies for Kitwe include:* Inviting grandmothers to participate in under-five clinic education sessions. Developing intergenerational dialogue forums within the community. Training respected elder women as community nutrition champions. Incorporating culturally respected stories that affirm elders' caregiving authority while updating feeding guidance. By officially recognizing grandmothers as co-caregivers in intervention design, programs can reduce intergenerational tensions and increase acceptance of socio-cultural messages.

Declaration of Interest

The authors declare that they do not have any known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Funding Declaration

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

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Appendices

Appendix 1: Codebook (NVivo-ready)

Each code has: name, short definition, inclusion criteria, exclusion criteria, and an illustrative quote from the transcript.

Code ID	Code name	Definition	Inclusion criteria (when to apply)	Exclusion criteria	Example quote (source)
C1	Exclusive Breastfeeding (intention/practice)	Mentions of exclusive breastfeeding or attempts to exclusively breastfeed (EBF)	Statements about practicing EBF, intentions to EBF, or stopping EBF	General breastfeeding comments without exclusivity reference	"I practiced exclusive breastfeeding." TRANSCRIBED DATA (1)
C2	Early Complementary Introduction	Introduction of liquids, semi-solids, or solids before 6 months	Mentions of yogurt, porridge, nshima, biscuits, etc., introduced <6 months	Complementary foods introduced at/after 6 months	"At 2 months, I started giving yogurt." TRANSCRIBED DATA (1)
C3	Cultural Beliefs about Feeding	Local/traditional beliefs influencing feeding (superstitions, expectations)	References to elders' advice, proscriptions, beliefs about brain/health	Biomedical rationales not tied to culture	"I was told that my child's brain will enlarge if I give her food at three months." TRANSCRIBED DATA (1)
C4	Use of Traditional Remedies	Use of herbs/traditional products for infant illness	Mentions of herbs, curry mixed with water, vaseline for ailments	Use of clinic medicines only	"I used herbs on my baby when she had diarrhea… I used some herbs like curry mixed with water." TRANSCRIBED DATA (1)
C5	Social Influencers — Grandmothers	Role of grandmothers/older women in feeding decisions	Statements where grandmothers direct or feed infants	General social influencer statements are not about grandmothers	"My grandmother gave solid food to my child without my consent." TRANSCRIBED DATA (1)
C6	Social Influencers — Peers/Clinic Mothers	Influence of neighbours/fellow mothers/clinic peers	Statements indicating imitation or advice from peers	Professional health worker guidance	"Fellow mothers at the under-five clinic had great influence… when they shared what they were feeding their beautiful babies." TRANSCRIBED DATA (1)
C7	Social Influencers — Fathers	Role/involvement of male partners in feeding decisions	Mentions of partner/father involvement or absence	Any reference to male-only household decisions not about feeding	"They do not influence feeding decisions in any way." TRANSCRIBED DATA (1)
C8	Health Worker Guidance	Biomedical advice from clinics/health workers	Mentions of recommendations, e.g., introduce porridge at 6 months	Cultural advice or elder advice	"They encourage introducing porridge at 6 months and nshima at 7 months." TRANSCRIBED DATA (1)
C9	Economic Constraint / Food Availability	Financial barriers affecting the ability to follow the recommended feeding	Mentions of not having enough food, cost, and reliance on biscuits/cheap food	Healthy food choices are not linked to cost.	"Due to economic constraints, I started mashing small biscuits into warm water…" TRANSCRIBED DATA (1)
C10	Maternal Work/Time Pressure	Work or busyness influencing feeding choices	Mentions of returning to work, time away from baby	Non-time-related reasons for change	"I introduced my baby to porridge and nshima because I spend more time at work than at home." TRANSCRIBED DATA (1)

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C11	Baby Behavior as Driver (crying/hunger)	Interpreting crying, lack of sleep, and appetite as hunger → change	References to "baby crying/hungry" prompting food	Infant behavior unrelated to feeding decisions	"He/she was crying for food whenever I was eating."
					TRANSCRIBED DATA (1)
C12	Perceived Nutritional Value	Food chosen for its believed nutrition/strengthening properties	Mentions of foods believed to make the baby strong or improve weight	Foods chosen for taste only	"Most mothers introduced various foods, though it became difficult for the child to go to the toilet." (implied)
					TRANSCRIBED DATA (1)
C13	Maternal Eating Beliefs (pregnancy/lactation)	Foods mothers eat/avoid during pregnancy and breastfeeding	Mentions of cravings, aversions, and eating "for two."	Infant feeding choices only	"I used to eat for two people, myself and the baby."
					TRANSCRIBED DATA (1)
C14	Hygiene & Environment	Perceptions of cleanliness reducing disease risk	References to hygiene, a clean home, and preventing sickness	Clinical determinants unrelated to the environment	"If a mother is clean… babies do not get sick even when they are weaned early."
					TRANSCRIBED DATA (1)
C15	Suggested Interventions / Solutions	Participant suggestions to improve infant nutrition	Calls for health checks, education, and economic support	Critiques without solutions	"Mothers should take it upon themselves to know their health status."
					TRANSCRIBED DATA (1)

Coding tips: apply multiple codes when text spans several concepts (e.g., a grandmother feeding nshima early for cultural reasons → C2 + C3 + C5). Use C8 when a passage explicitly cites clinic advice.

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