

# Qualitative studies of infant and young child feeding in lower-income countries: a systematic review and synthesis of dietary patterns and their determinants

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**Abstract:** Continued high rates of both under- and over-nutrition in low- and low-middle-income countries highlight the importance of understanding dietary practices such as early and exclusive breastfeeding, and dietary patterns such as timely, appropriate complementary feeding—these behaviors that are rooted in complex cultural ecologies. A systematic review and synthesis of available qualitative research related to infant and young child dietary patterns and practices from the perspective of parents and families in low income settings is presented, with a focus on barriers and facilitators to achieving international recommendations. Data from both published and grey literature from 2006-2016 was included in the review. Quality assessment consisted of two phases (CASP guidelines and assessment using GRADE-CERQual), followed by synthesis of the studies identified, and subsequent thematic analysis and interpretation. The findings indicated several categories of both barriers and facilitators, spanning individual and system level factors. The review informs efforts aimed at improving child health and nutrition, and represents the first such comprehensive review of the qualitative literature, uniquely suited to understanding complex behaviors leading to infant and young child dietary patterns.

**Keywords:** qualitative research; infant feeding; complementary feeding; breast feeding; low income country

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## Introduction

Early nutrition is crucially important for children to survive, grow and develop into healthy adults who can lead rewarding lives and productively contribute to their communities, and this has widely been recognized as an international priority.<sup>1</sup> Despite important progress over the last decades, almost half of all childhood deaths (those under age 5) continue to be linked to nutritional causes.<sup>2</sup> In addition to morbidity and mortality, the impacts of poor nutrition, both under- and overnutrition, include strong, negative intergenerational consequences for descendants.<sup>3</sup> Alongside maternal nutrition and intrauterine exposures,<sup>4</sup> nutritionally-based caring behaviors of families, including breastfeeding and complementary feeding, form the basis of child nutrition; as a result, impacting child nutrition through improving feeding practices has been extensively studied and subsequently promoted.<sup>5-8</sup>

The United Nations Children's Fund (UNICEF) and the World Health Organization (WHO) concur that optimal nutrition practices for childhood include early initiation of breastfeeding, exclusive breastfeeding for the first 6 months of life, followed by the addition of nutritionally adequate, safe, and appropriate complementary foods with continuation of breastfeeding for 1 year and longer.<sup>9, 10</sup> Markers of appropriate infant and young child feeding include these practices, as well as the timely introduction of solid and semi-solid foods, adequately frequent provision of daily meals, dietary diversity, and consumption of iron rich foods. In response to the need for simple,

practical indicators of appropriate feeding practices in children aged 6–23 months, the World Health Organization (WHO) published a set of population-level indicators that could be obtained from large-scale survey data on feeding practices in varied international settings. 11

However, characterizing feeding practices through quantitative methods such as large-scale surveys can be challenging, particularly because these practices constitute multidimensional and often interrelated behaviors rooted in family systems and socioeconomic conditions, and feeding patterns also change rapidly within short intervals of age. 12, 13 Nonetheless information on infant and young child feeding (IYCF) practices is required to improve nutrition and health during the first 2 years of life. Over the last decade, numerous studies on improvement of nutrition-related behaviors for infants and young children have relied on qualitative research methods, well-suited to exploring complex behaviors and their underlying psychosocial and cultural drivers, to investigate IYCF practices. 14–18 This body of research is likely to contain useful information to further understanding of behavioral approaches to improve child nutrition. A comprehensive summary of qualitative data on IYCF from lower-income settings, including a synthesis of barriers and facilitators to recommended practices, is currently lacking in the biomedical literature.

The primary objective of the proposed study was to systematically review qualitative literature related to family experiences (particularly parental ones) of infant and young child feeding in low-income countries, synthesizing information on the barriers and facilitators that may relate to interventions to impact nutrition, survival, growth and development. The results provide an overview of qualitative studies relating parental perspectives on infant and child feeding, in the interest of providing insights for developing, improving, and scaling nutrition interventions.

## Methods

This systematic review was registered with the International Prospective Register of Systematic Reviews (PROSPERO): registration number CRD42016035677. The review followed guidelines from the Enhancing Transparency in Reporting the Synthesis of Qualitative Research (ENTREQ) statement. Due to the exclusive focus on qualitative research, the review employed the ENTREQ guidelines 19 in lieu of the PRISMA guidelines, which are more specific to the requirements of quantitative literature reviews. 20

Studies were only reviewed if their results were directly obtained from participants who were parents or close family members of an infant or young child (0–2 years of age) at the time of the study. Family members, for the purposes of this review, were defined to include mothers, fathers or other caregivers living in the child's household who routinely engage in infant or young child feeding. Infant and child feeding practices were defined as all actions taken to meet the physiological nutritional needs of children in this age group, including but not limited to: breastfeeding; introduction of solid, semi-solid, and/or family foods (known as complementary feeding); and continued breastfeeding of children alongside provision of solid/semi-solid food.

### *Inclusion and exclusion criteria*

Included studies used widely accepted qualitative data collection methods, with well-described methodology, including for example: interviews, focus groups, direct observation, and participatory action research. Included studies also needed to have provided a clear description of recognized qualitative data analysis methods (e.g., grounded theory, narrative analysis, content analysis, thematic analysis).

Excluded studies included those for which it was difficult to extract qualitative data, e.g., mixed methods studies without clearly labeled data, or studies in settings where perceptions of parents or caregivers around infant and young child feeding could not be clearly identified, such as summaries or aggregated data. Commentaries, protocols, and systematic reviews were not included in the analysis. Additionally, as the focus was on research from resource limited settings, studies from countries other than those defined by the World Bank as low-income countries and lower-middle income countries (which have a Gross National Income per capita of less than \$4,125) were excluded.

### *Search strategy*

The following electronic databases were considered to be the most relevant for the topic and were searched: MEDLINE (PubMed); Embase; Cumulative Index to Nursing and Allied Health Literature (CINAHL: EBSCOhost). A health sciences librarian was consulted in the development of the database searching strategy.

The initial search strategy was developed for MEDLINE and then adapted for the other databases. Medical Subject Headings (MeSH) were initially used followed by free-text terms using controlled vocabulary (see Appendix 1 for a detailed description of the search strategy). Results were restricted to English language publications from the last 10 years, due to potential difficulties in translating and interpreting foreign language qualitative data by native English-speaking reviewers, and to ensure that the review identifies literature relating to the most current infant and young child feeding practices. In addition reference lists of included studies were manually searched to identify any additional studies that fit the inclusion criteria.

The included gray literature was initially identified through listing of relevant websites to search for organizations working in nutrition in lower-income countries (in consultation with experts working in the field who use and disseminate data through websites for related nutrition research). A custom search engine (CSE) was created using Google Custom Search. Within the CSE, the relevant websites were searched using search strategies adapted from those used in the databases to reflect relevant keywords related to qualitative studies of IYCF.

The review also included documents identified through a manual review of organizational reports and reports from relevant meetings related to nutrition of young children in low income countries. Results were similarly limited to publications in English from the last 10 years.

A flow diagram using PRISMA guidelines for reporting of systematic reviews is presented in Figure 1 in reporting of the selection process and results. 20 For organization of initial search results, Endnote reference management software (Thomson Reuters (Scientific) LLC) was used, and results of searches imported to the software. At the first stage, duplicates and irrelevant studies were removed. Two independent reviewers then screened study titles and abstracts for suitability against inclusion and exclusion criteria. The decision to include or exclude a study was required to be agreed on by both reviewers (ANB and AK). If after consultation a decision wasn't reached by the two reviewers, a third reviewer (EFK) made the final decision.

### *Data extraction*

For organization of extracted data, a unified matrix was utilized to record specific characteristics of included studies. Extracted data included: reference details (author, year, title, journal/publisher); country/region of study; objectives or aims of the study; study design including methodological approaches (e.g., interviews/focus groups) and conceptual basis underlying the study (e.g., Grounded Theory); analysis method(s); sampling methodology and sample size; and initial assessment of the methodological limitations of the study. The initial results of the selection process and data abstraction are presented in Table 1.

Additional steps were taken in the data extraction phase that involved expanding the matrix (Table 1) to include participant characteristics, summaries of key outcomes/results reported, and the emergent review findings for which the study contributes evidence. These details are given in Appendix 2.

### *Quality appraisal*

Each selected document was initially assessed for quality and internal validity according to the Critical Appraisal Skills Program (CASP) checklist for qualitative research. 22 The CASP checklist includes 10 questions to appraise the quality of qualitative research. These assessments for each study can be seen in the final column of Table 1 with reference to the CASP appraisal question number where the study presented potential quality limitations. Selected studies met minimum criteria

defined through the checklist including domains such as appropriateness of study design, data collection techniques, and analysis methods used.

At the second level of appraisal, the GRADE-CERQual guidance 23 was used to differentiate emergent findings strongly supported or less well supported. Two reviewers (AB and AK) independently reviewed studies using guidance derived from GRADE-CERQual to reach consensus of the quality of findings emergent from included studies. The results of this appraisal are presented in Table 2. During this process, methodological limitations of emergent findings were considered and categorized as minor, moderate or major, based on the absence of description of key elements of methodology (guided by the CASP assessment in Table 1) in the document(s) which support the finding, including the following: approach used to recruit or sample participants, how potential for researcher bias was addressed, how analysis was done or, in the case of mixed methods research, how statistical sampling and analysis was done. Minor methodological limitations were those with one element missing, moderate limitations were those with two elements missing, and major limitations were those with three or more missing. Full details of which elements were missing from each document are available in Appendix 3. Additional assessments of emergent findings were conducted based on the quality of the studies or documents supporting the finding. These included assessments of relevance, coherence and adequacy guided by the GRADE CERQual methodology. Assessments of relevance and coherence were not conducted for emergent findings with minimal (usually one) studies or grey literature contributing to the finding. These assessments for each emergent finding are given in Table 2 with full details of the how assessments were made found in Appendix 3. The overall assessment of confidence in emergent findings was based upon the assessments of methodological limitations, relevance, coherence and adequacy and was guided by the GRADE CERQual method. These are given for each emergent finding in Table 2 along with an explanation of judgment describing how the level of confidence was reached.

Following abstraction and grading of evidence, the final step involved data from the results, discussion, and conclusion sections of the included studies, being extracted and entered into NVivo 11 qualitative software (NVivo qualitative data analysis software; QSR International Pty Ltd. Version 11, 2015), wherein thematic analysis was employed to identify domains descriptive of the data for investigation and presentation.

This thematic analysis led to a more interpretive phase in order to understand how the themes identified may represent barriers and facilitators to change infant and young child feeding; for this we used an approach similar to that of Thomas et al. 24

## Results

After a narrative summary of themes identified through the initial analysis was available, three reviewers (ANB, AK, EFK) met jointly to consider these and produce a consensus-based listing of barriers and facilitators. This step evaluated all emergent findings in light of the summary of themes wherein several emergent findings were often merged into one synthesized finding, or individual emergent findings were discarded due to weak assessments of confidence or minimal support from the included studies. Table 3 presents the synthesized review findings of barriers and facilitators generated through the data synthesis exercise and subsequently agreed on by reviewers.

Four categories of barriers to recommended breastfeeding practices were identified, and three categories of barriers to recommended complementary feeding practices were identified. Barriers to breastfeeding included factors specific to infant or mother, and cross-cutting beliefs and perceptions, as well as a pervasive lack of support for breastfeeding, from families, health workers and due to time poverty. Several categories of facilitators were also identified from the literature reviewed, including food security, social support, and individual infant and maternal factors.<sup>5</sup> Conclusions

This section is not mandatory, but can be added to the manuscript if the discussion is unusually long or complex.

## Conclusion

The findings contribute to the expanding literature on family experiences related to breastfeeding and complementary feeding of young children and infants in low-income settings and constitute the most comprehensive summary of findings to date. Previous systematic reviews of qualitative literature related to infant feeding have not included as broad an approach to the topic as the current review, having focused rather on specific areas such as bottle feeding <sup>25</sup> and obesogenic dietary intake. <sup>26</sup> Another qualitative review, undertaken in 2008, focused solely on maternal support for breastfeeding mothers <sup>27</sup> and one carried out in 2013 considered the psychosocial correlates of exclusive breastfeeding <sup>28</sup>, neither of those included a comprehensive approach to assessing the quality of included studies.

Strengths of the current review included the use of multiple reviewers experienced in qualitative research and data collection and analysis, a comprehensive search strategy, assessment and scoring of quality and confidence placed in the findings based on guidelines, and inclusion of grey literature. Limitations of the study were the exclusion of documents not available in the English language and date limitations.

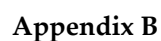
The review focused on identifying studies that related the experiences and first-hand accounts of family members responsible for providing for the care and nutritional needs of young children under 2 years of age. Through this systematic qualitative review and synthesis, hypothesized barriers and facilitators to improving infant and young child feeding were identified. The findings presented in this review are directly applicable to social and behavioral change initiatives in low resource settings aimed at improving practices for better health and nutrition of young children.

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**Declaration of Interest:** All authors declare that they have no competing interests

**Figure 1.** Flow diagram of search results and selection process.



No.	Author, year, and country of study	Title	Source type	Aims of the study	Study Design, Analysis method (AM)	Sampling method, Sample size	Assessment of methodological limitations of study (numbers refer to CASP questions <sup>a)</sup> )
<i>Studies identified from search databases</i>							



No.	Author, year, and country of study	Title	Source type	Aims of the study	Study Design, Analysis method (AM)	Sampling method, Sample size	Assessment of methodological limitations of study (numbers refer to CASP questions <sup>a)</sup> )
1	Lynn M. Babington 2006 Dominican Republic/ Las Matas de Farfan	Understanding Beliefs, Knowledge, and Practices of Mothers in the Dominican Republic Related to Feeding Infants and Young Children	Journal: Hispanic Health Care International	"To expand knowledge regarding feeding practices and nutritional beliefs of mothers living in the Dominican Republic."	Qualitative methods (a focus group discussion) AM: modified constant comparative method	Convenience sampling 10 mothers aged 16-45 years with at least one child.	5. no discussion regarding saturation of data; only 10 participants; limited explanation of results; few illustrative quotes. 6. no discussion about the researcher's role, potential bias and influence 8. limited data to support the findings; no discussion about the researcher's role, potential bias and influence
2	Amal Omer-Salim, Lars-Ake Persson, Pia Olsson 2007 Tanzania/ suburban Dar es Salaam (Temeke district)	Whom can I rely on? Mothers' approaches to support for feeding: An interview study in suburban Dar es Salaam, Tanzania	Journal: Midwifery	"To explore and describe mothers' perception of baby feeding and approaches to support for baby feeding"  "to describe and explore mothers' experiences of support for baby feeding, with a focus on the transition from exclusive to non-exclusive breast feeding, in suburban Dar es"	Qualitative methods (semi-structured interviews) AM: Qualitative content analysis	Purposive selection from clinic 8 mothers with babies under 6 months of age	5. no discussion regarding saturation of data; only 8 participants; 6. no discussion about the researcher's role, potential bias and influence 8. no discussion about the researcher's role, potential bias and influence

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				Salaam, Tanzania."			
3	C Tawiah-Agyemang, BR Kirkwood, K Edmond, A Bazzano and Z Hill  2008  Ghana/ Kintampo district	Early initiation of breast-feeding in Ghana: barriers and facilitators	Journal: Journal of Perinatology	"To explore why women in Ghana initiate breast-feeding early or late, who gives advice about initiation and what foods or fluids are given to babies when breast-feeding initiation is late"	Qualitative methods  AM: "The focus groups and semi-structured interviews were independently analyzed by the two lead researchers through the systematic identification and coding of themes. The findings were then discussed and consensus reached."	Purposive sampling  52 semi-structured interviews with recent mothers, 8 focus group discussions with women of child-bearing age, 13 semi-structured interviews with health workers, policy makers and implementers	6. no discussion about the researcher's role, potential bias and influence 7. no info about approval from the ethics committee 8. no discussion about the researcher's role, potential bias and influence
4	Gloria E. Otoo, Anna A. Lartey, Rafael Pérez-Escamilla  2009  Ghana/ Many and Yilo Krobo districts	Perceived Incentives and Barriers to Exclusive Breastfeeding Among Peri-urban Ghanaian Women	Journal: Journal of Human Lactation	To explore Ghanaian women's knowledge and attitudes toward exclusive breastfeeding	Qualitative methods (four focus group discussions)  AM: Thematic analysis	Convenience sampling  4 focus group discussions with a 7 to 10 mothers who had at least one child less than 4 months old per group	6. no discussion about the researcher's role, potential bias and influence 8. no discussion about the researcher's role, potential bias and influence
5	Luzmil A Hernandez, Marth A Lucia Vasqu  2010  Colombia/ Cali	Practices and beliefs about exclusive breastfeeding by women living in Commune 5 in Cali, Colombia	Journal: Colombia Médica	To describe the practices and beliefs about breastfeeding during the first 6 months after delivery,	Qualitative methods (ethnonursing)  AM: Ethnonursing Spradley's method (identification of domains, taxonomies, componential analysis, and finally themes)	Key informants were "intentionally selected"  15 key informant participants (three interviews for each participant: 45 [60 to 90 minutes in	6. no discussion about the researcher's role, potential bias and influence 7. no info about approval from the ethics committee 8. no discussion about the researcher's role,



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						length] interviews total); there were also general participants (relatives of the key informants)	potential bias and influence
6	Sabrina Rasheed, Rukhsana Haider, Nazmul Hassan, Helena Pachon, Sanjeeda Islam, Chowdhury S.B. Jalal, Tina G. Sanghvi 2011 Bangladesh/ one rural area (South Harina Village of Lohagara Sub-district) in Chittagong and three slum areas (Badda Saat Tola and Mirupr) in Dhaka	Why does nutrition deteriorate rapidly among children under 2 years of age? Using qualitative methods to understand community perspectives on complementary feeding practices in Bangladesh	Journal: Food and Nutrition Bulletin	To understand community perspectives on complementary feeding practices in order to inform the design of future interventions for improved complementary feeding.	Qualitative (mixed) methods (Semi-structured interviews, food attributes exercises, opportunistic observations, trials of improved practices, key informant interviews, focus group discussions, and 24-hour dietary recall survey)  AM: Thematic analysis - with 2 data triangulation of different data sources identified themes to understand phenomena	Convenience sampling Respondents were selected "opportunistically" 42 semi-structured interviews with mothers; 6 interviews with key informants (2 village doctors and 4 traditional birth attendants); 4 focus group discussions with 2 grandmothers and fathers; food attributes exercises with 24 mothers; 24-dietary recall survey with 195 mothers; and 21 opportunistic observations of feeding times involving meals or snacks.	6. no discussion about the researcher's role, potential bias and influence  8. no discussion about the researcher's role, potential bias and influence

No.	Author, year, and country of study	Title	Source type	Aims of the study	Study Design, Analysis method (AM)	Sampling method, Sample size	Assessment of methodological limitations of study (numbers refer to CASP questions <sup>a)</sup> )
7	Pranee C. Lundberg, Trieu Thi Ngoc Thu 2011 Vietnam/ Ho Chi Minh City	Breast-feeding attitudes and practices among Vietnamese mothers in Ho Chi Minh City	Journal: Midwifery	"To describe breast-feeding attitudes and practices among Vietnamese women in Ho Chi Minh City."	Qualitative methods (semi-structured in-depth interviews and observations) AM: Qualitative content analysis	Purposive convenience sampling 23 voluntary Vietnamese mothers who have given birth to a child within the last two years	6. no discussion about the researcher's role, potential bias and influence 8. no discussion about the researcher's role, potential bias and influence
8	Yati Afiyanti, Dyah Juliastuti 2012 Indonesia/ Jakarta	Exclusive breastfeeding practice in Indonesia	Journal: Birth Journal of Midwifery	To explore cultural practices and behaviors of breastfeeding among Indonesian mothers	Qualitative methods (semi-structured interviews) – Grounded Theory AM: Constant comparative analysis	Purposive and theoretical sampling 8 key participants (breastfeeding mothers) 10 general participants (family members and healthcare cadre)	5. no explanation regarding the data collection setting 6. no discussion about the researcher's role, potential bias and influence 8. no discussion about the researcher's role, potential bias and influence
9	Hope Mei Hong Lee, Jo Durham, Jenny Booth, Vanphanom Sychareun 2013 Lao PDR/ Vientiane (Sisattanak district and eight in Hatxayfong distric)	A qualitative study on the breastfeeding experiences of first-time mothers in Vientiane, Lao PDR	Journal: BMC Pregnancy & Childbirth	To identify the reasons and influences behind the BF decisions of first-time mothers in Lao PDR. Focusing on decisions around when to initiate BF, timing of the introduction of complementary foods and BF duration.	Qualitative methods (interviews and focus group discussions) AM: Thematic analysis	Purposive sampling In-depth interviews with 16 first-time mothers and 7 key informants; focus group discussions with 24 first-time mothers	6. no discussion about the researcher's role, potential bias and influence 8. no discussion about the researcher's role, potential bias and influence

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10	Christy Bomer-Norton 2013 Haiti/ Artibonite	Timing of breastfeeding initiation in rural Haiti: A focused ethnography	Dissertation: The University of Texas at Arlington	To describe factors affecting the timing of breastfeeding initiation among Haitian mothers, particularly the specific cultural beliefs and practices	Qualitative methods (ethnography) AM: Ethnography	Purposive convenience sampling  25 mothers with children less than 12 months old	8. no discussion about the researcher's role, potential bias and influence
11	Anne Laterra, Mohamed A. Ayoya, Jean-Max Beauliere, M'mbakwa Bienfait, Helena Pachon 2014 Haiti/ Artibonite, Nippes, Quest, and Sub-Est	Infant and young child feeding in four departments in Haiti; mixed-method study on prevalence of recommended practices and related attitudes, beliefs, and other determinants	Journal: Pan American Journal of Public Health	To determine and describe the prevalence and patterns of three recommended practices for infant and young child feeding—exclusive breastfeeding, continued breastfeeding, and achievement of minimum dietary diversity  To identify the attitudes and beliefs that inform these practices and any other factors that may facilitate or impede their implementation	Mixed methods (a cross-sectional survey and 12 focus group discussions) AM: Qualitative data was analyzed by using thematic content analysis	Survey respondents were recruited by using multi-stage cluster sampling. After survey completion, respondents were invited to participate in a FGD held that same day.  12 focus group discussions (with 4-14 participants) among women >= 18 years old with children <= 2 years old)	5. no info regarding the form of data is not (e.g. tape recordings, notes etc); no discussion about saturation of data 6. no discussion about the researcher's role, potential bias and influence 8. no discussion about the researcher's role, potential bias and influence

No.	Author, year, and country of study	Title	Source type	Aims of the study	Study Design, Analysis method (AM)	Sampling method, Sample size	Assessment of methodological limitations of study (numbers refer to CASP questions <sup>a)</sup> )
12	Gretel H. Pelto, Margaret Armar-Klemesu 2015 Kenya/ Vihiga and Kitui	Identifying interventions to help rural Kenyan mothers cope with food insecurity: results of a focused ethnographic study	Journal: Maternal & Child Nutrition	To identify potential interventions to improve the quality, availability, and affordability of foods consumed by infants and young children	Qualitative methods (Phase 1: 8-10 key informants' interviews, community observations. Phase 2: Interviews with at least 32 caregivers of infants and young children (6-23 months of age))  AM: Focused ethnographic study	Unknown how key informants were selected. Caregivers were randomly selected in a small representative sample  8-10 Key informants and at least 32 caregivers	5. no explanation regarding the form of data; no discussion about saturation of data 6. no discussion about the researcher's role, potential bias and influence 8. no discussion about the researcher's role, potential bias and influence
13	Alessandra N Bazzano, Richard A Oberhelman, Kaitlin Storck Potts, Leah D Taub, Chivorn Var 2015 Cambodia/ Takeo province	What health service support do families need for optimal breastfeeding? An in-depth exploration of young infant feeding practices in Cambodia	Journal: International Journal of Women's Health	To provide an in-depth understanding of breastfeeding practices in order to appropriately design a scalable newborn health intervention incorporating expanded breastfeeding counseling and support	Qualitative methods (27 semi-structured interviews with caregivers; 14 observation sessions and two focus group discussions with healthcare providers)  AM: an ethnographic approach	Purposive sampling 27 interviewees	5. no justification regarding the data collection setting; no discussion about saturation of data 6. no discussion about the researcher's role, potential bias and influence 8. no discussion about the researcher's role, potential bias and influence
14	Jennifer Burns, Jillian A. Emerson, Kimberly Amundson, Shannon Doocy, Laura E. Caulfield, Rolf D. W. Klemm	A Qualitative Analysis of Barriers and Facilitators to Optimal Breastfeeding and Complementary Feeding	Journal: Food and Nutrition Bulletin	To characterize IYCF practices and barriers and enablers to optimal child feeding in South Kivu	Qualitative approach (focus group discussions, structured and in-depth interviews)  AM: Thematic analysis	Convenience sample of Jenga Jamaa 2 program beneficiaries (women of reproductive age), Prevention of Malnutrition in Children under Two	6. no discussion about the researcher's role, potential bias and influence 8. no discussion about the researcher's role, potential bias and influence

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	2016  Democratic Republic of Congo/ South Kivu	Practices in South Kivu, Democratic Republic of Congo				Approach (PM2A) care group lead mothers and government health workers.  188 participants in 20 FGDs with mothers of children <24 months of age and women of reproductive age.  119 structured interviews among mothers with children <24 months of age. 43 in-depth individual interviews with health workers and lead mothers.	
<b>Grey literature</b>							
15	Alive & Thrive-Ethiopia  2010  Ethiopia/ Tigray region	IYCF Practices, Beliefs, and Influences in Tigray Region, Ethiopia	Alive & Thrive	To understand infant and young child feeding practices and the role of service providers in the study communities.  Specific objectives are:  • To describe current IYCF practices	Qualitative approach (focus group discussion, maternal interviews, observations, interviews with service providers  AM: "Data analysis was done mainly based on the interpretative approach that involves eliciting meanings from	Respondents were randomly selected in each area from a list provided by the health post, and the study interviewers also went door to door to identify households with children in the required age group  45 mothers with interviews; 3 fathers	6. no discussion about the researcher's role, potential bias and influence  8. no discussion about the researcher's role, potential bias and influence; lack of an in-depth description of the analysis process

No.	Author, year, and country of study	Title	Source type	Aims of the study	Study Design, Analysis method (AM)	Sampling method, Sample size	Assessment of methodological limitations of study (numbers refer to CASP questions <sup>a)</sup> )
				<ul style="list-style-type: none"> <li>• To identify barriers and facilitators for recommended IYCF practices</li> <li>• To identify people and approaches that can influence optimal IYCF change</li> <li>• To explore strategies for improving complementary feeding practices for young children</li> <li>• To explore the potential role of health and community workers to support IYCF behavior changes and thus reduce stunting in young children</li> </ul>	the collected information.”	and 2 grandmothers with FGDs; 27 interviews with service providers	
16	Alive & Thrive 2010 Ethiopia/ SNNP Region	IYCF Practices, Beliefs, and Influences in SNNP Region, Ethiopia	Alive & Thrive	To understand infant and young child feeding practices and the role of service providers in the study communities. Specific objectives are:	Qualitative approach (focus group discussion, maternal interviews, observations, interviews with service providers AM: “Data analysis was done mainly	Respondents were randomly selected in each area from a list provided by the health post, and the study interviewers also went door to door to identify households with	6. no discussion about the researcher's role, potential bias and influence 8. no discussion about the researcher's role, potential bias and influence; lack of an in-depth description of the analysis process



No.	Author, year, and country of study	Title	Source type	Aims of the study	Study Design, Analysis method (AM)	Sampling method, Sample size	Assessment of methodological limitations of study (numbers refer to CASP questions <sup>a</sup> )
				<ul style="list-style-type: none"> <li>• To describe current IYCF practices</li> <li>• To identify barriers and facilitators for recommended IYCF practices</li> <li>• To identify people and approaches that can influence optimal IYCF change</li> <li>• To explore strategies for improving complementary feeding practices for young children</li> <li>• To explore the potential role of health and community workers to support IYCF behavior changes and thus reduce stunting in young children</li> </ul>	based on the interpretative approach that involves eliciting meanings from the collected information."	children in the required age group 47 mothers with interviews; 3 fathers and 3 grandmothers with FGDs; 27 interviews with service providers	
17	United States Agency for International Development 2010	Formative assessment of infant and young child feeding practices at the community	United States Agency for International Development	"The objectives of this study were to: describe the key influencers of infant and young child feeding practices in	Qualitative approach (focus group discussion with mothers, fathers and grandmothers and in-depth interviews with stakeholders)	Recruitment of FGD participants was facilitated by local health facility staff. Clinics and community organizations	5. 5. no explanation regarding the data collection setting 6. no discussion about the researcher's role, potential bias and influence

No.	Author, year, and country of study	Title	Source type	Aims of the study	Study Design, Analysis method (AM)	Sampling method, Sample size	Assessment of methodological limitations of study (numbers refer to CASP questions <sup>a</sup> )
	Zambia	level in Zambia		targeted areas in Zambia; examine the barriers and constraints to the uptake of recommended feeding and caring practices; learn more about the types of foods used for complementary feeding and the age of children when these foods are introduced; identify feasible and effective channels for promoting recommended infant and young child feeding practices.”	AM: Thematic analysis	identified interview participants.  6 FGDs with 6 to 12 participants each, in 4 different groups: mothers with children < 6mos; mothers with children 6 to 23 mos of age; fathers with children ≤ 23mos; grandmothers with children ≤ 23mos (24 total FGDs)  36 in-depth interviews with stakeholders	8. no discussion about the researcher's role, potential bias and influence
18	United States Agency for International Development 2011  Nigeria/ Federal Capital Territory (Abuja Municipal Area Council, Bwari Area	Formative assessment of infant and young child feeding practices- federal capital territory, Nigeria	United States Agency for International Development	“(1) To conduct a cross-sectional investigation of breastfeeding habits of caregivers among target groups.  (2) To investigate complementary feeding practices among target groups.	Qualitative approach (In-depth interviews with stakeholders and focus group discussion with care givers)  AM: Thematic content analysis	Purposive convenience sampling (from health facility)  In FGDs, 91 mothers of children < 6 months old, 81 mothers of children 6 to 24 months old, 75 grandmothers of children under-24-	6. no discussion about the researcher's role, potential bias and influence  7. no info about approval from the ethics committee  8. no discussion about the researcher's role, potential bias and influence

No.	Author, year, and country of study	Title	Source type	Aims of the study	Study Design, Analysis method (AM)	Sampling method, Sample size	Assessment of methodological limitations of study (numbers refer to CASP questions <sup>a)</sup> )
	Council, Kuje Area Council and Kwali Area Council)			(3) To document responsive feeding practices, food hygiene, and feeding the sick child practices in the study areas. (4) To identify prospects of health communication interventions through the use of relevant media for reaching the respective target groups. (5) To identify existing alternative platforms for communication interventions and information sharing and dialogue among target groups.”		month-olds and 82 fathers of children under-24- month-olds	
19	United States Agency for International Development 2011 Malawi	Consulting with caregivers – formative research to determine the barriers and facilitators to optimal infant and young child feeding in	United States Agency for International Development	Identify specific dietary problems among children less than 2 years of age, including determining the energy density and nutrient density (particularly iron, zinc, and vitamin	Phase 1 Qualitative approach (In-depth interviews with caregivers and observations) and Phase 2 TIPs (trials of improved practices) AM: Thematic content analysis	Purposive sampling Interviews with 60 mothers/caregivers of children 6-23 months and 18 key informants	6. no discussion about the researcher's role, potential bias and influence 8. no discussion about the researcher's role, potential bias and influence

No.	Author, year, and country of study	Title	Source type	Aims of the study	Study Design, Analysis method (AM)	Sampling method, Sample size	Assessment of methodological limitations of study (numbers refer to CASP questions <sup>a)</sup> )
		three regions of Malawi		<p>A) of common foods given to children in different age groups.</p> <p>Gain a further understanding of current feeding practices and feeding problems that</p> <p>Impede adequate dietary intake in children less than 2 years of age.</p> <p>Describe maternal/child behaviors related to responsive feeding.</p> <p>Identify the positive and negative social, cultural, and economic factors that influence current practices, including the influence of other family and community members.</p>			
20	Academy for Educational Development (AED)/ Alive & Thrive	Initial Insight Mining and Pretest Research for	Academy for Educational Development (AED)/ Alive & Thrive	To assess IYCF practices as well as an analysis of the specific information gaps	Qualitative approach (focus group discussion with mothers/caregivers and in-depth	Multi-stage sampling: Stage 1: Purposive selection of two	<p>4. no info about recruitment strategies</p> <p>5. no explanation regarding the data</p>

No.	Author, year, and country of study	Title	Source type	Aims of the study	Study Design, Analysis method (AM)	Sampling method, Sample size	Assessment of methodological limitations of study (numbers refer to CASP questions <sup>a)</sup> )
	Ethiopia Country Office  2011  Ethiopia: Oromia, Amhara, SNNPR and Tigray; rural areas only	Alive & Thrive Ethiopia	Ethiopia Country Office	that needed to be explored through the insight mining and pretest research.	interviews with community health workers and community leaders  AM: Not stated	rural areas within each region. Stage 2: Purposive sampling of participants by field recruiters (audience profiles were identified and filed recruiters selected participants using a recruitment questionnaire which included key criteria for selection and criteria for disqualification)  32 focus group discussions among mothers, fathers and mothers in law; 26 in-depth interviews with stakeholders (HEWs, VCHWs, Religious leaders, Kebele leaders, women's associations leaders)	collection setting and the form of data 6. no discussion about the researcher's role, potential bias and influence 7. no info about approval from the ethics committee 8. no discussion about the researcher's role, potential bias and influence; no info about the analysis process
21	United States Agency for International Development  2011	Engaging grandmothers and men in infant and young child feeding and	United States Agency for International Development	Assess complementary feeding practices of children younger than 2 years and	A qualitative and participatory in-depth approach (focus group discussion with mothers/caregivers and in-depth	Purposive sampling in line with the objectives of the assessment: FGD participants were recruited by	6. no discussion about the researcher's role, potential bias and influence 8. no discussion about the researcher's role,

No.	Author, year, and country of study	Title	Source type	Aims of the study	Study Design, Analysis method (AM)	Sampling method, Sample size	Assessment of methodological limitations of study (numbers refer to CASP questions <sup>a)</sup> )
	Kenya/ Eastern and Western Provinces	maternal nutrition – Report of a formative assessment in Eastern and Western Kenya		community beliefs that influence these. Determine maternal dietary practices during pregnancy and lactation and household factors that influence these. Establish the roles and responsibilities of men and grandmothers in the family and in maternal dietary and infant and young child feeding practices. Determine cultural influencers of maternal, infant, and young child feeding. Document available services and support for nutrition in the intervention areas.	interviews with key informants)  AM: Thematic content analysis	community health workers based on guideline criteria.  16 focus group discussions (each discussion comprised between 10 and 12 members); in each of the 2 provinces 8 FGDs occurred among these groups: <ul style="list-style-type: none"> <li>• 2 FGDs with fathers of children &lt;2 yrs</li> <li>• 2 FGDs with mothers of children &lt;2 yrs</li> <li>• 2 FGDs with grandmothers of children &lt;2 yrs</li> <li>• 2 FGDs with mothers of children &lt;2 yrs</li> <li>• 2 FGDs on maternal nutrition for mothers of children &lt;2 yrs</li> </ul> And 28 in-depth interviews with stakeholders	potential bias and influence



No.	Author, year, and country of study	Title	Source type	Aims of the study	Study Design, Analysis method (AM)	Sampling method, Sample size	Assessment of methodological limitations of study (numbers refer to CASP questions <sup>a)</sup> )
22	United States Agency for International Development 2011 Ghana/ Sunyani West, Jaman South, Nkoranza North, Tain, and Atebutu-Amanten	Ghana promotion of complementary feeding practices project – baseline survey report	United States Agency for International Development	To provide an in-depth analysis of infant and young child feeding knowledge, practices, and behaviors as a baseline to guide the implementation of the Ghana Promotion of Complementary Feeding Practices Project, and to provide a basis for monitoring and evaluating the effectiveness of the behavior change communication campaign	Qualitative and quantitative methods (structured survey, in-depth interviews, and focus group discussion) AM: Thematic analysis; triangulation of different data sources	Communities were purposively selected based on the presence of mother support groups and church based groups. Female caregiver participants were purposively selected. Convenience sampling was used for the selection of the fathers, health workers, and community group leaders.  20 focus group discussions with fathers of children 6-24 months and 30 focus group discussions with mothers/caregivers of children 6-24 months. Each group has about 10 participants	5. no explanation regarding the form of data) 6. no discussion about the researcher's role, potential bias and influence 7. no info about approval from the ethics committee 8. no discussion about the researcher's role, potential bias and influence
23	Alive & Thrive Bangladesh 2012	Perceptions, practices, and promotion of infant and young child feeding –	Alive & Thrive Bangladesh	“To determine the perceptions of mothers, influential family and community members and	Qualitative and quantitative methods (structured survey, in-depth interviews, and focus group discussion)	Purposive convenience sampling Semi-structured interviews with 42	5. no explanation regarding the form of data 6. no discussion about the researcher's role,

No.	Author, year, and country of study	Title	Source type	Aims of the study	Study Design, Analysis method (AM)	Sampling method, Sample size	Assessment of methodological limitations of study (numbers refer to CASP questions <sup>a</sup> )
	Bangladesh/Chittagong, Sylhet districts and Dhaka slums	results and program implications of assessments in Bangladesh		understanding of community-level health care providers of IYCF.” to assess constraints and motivators as well as sources of information on IYCF	AM: Not stated	mothers of children 0-23.9 months and 28 focus group discussions with fathers and grandmothers	potential bias and influence 7. no info about approval from the ethics committee 8. no discussion about the researcher's role, potential bias and influence; no info about the process of analysis

<sup>a</sup> Critical Appraisal Skills Programme (CASP) Checklist for Qualitative Research <sup>22</sup>

*10 questions to help make sense of qualitative research:*

1. Was there a clear statement of the aims of the research?
2. Is a qualitative methodology appropriate?
3. Was the research design appropriate to address the aims of the research?
4. Was the recruitment strategy appropriate to the aims of the research?
5. Was the data collected in a way that addressed the research issue?
6. Has the relationship between researcher and participants been adequately considered?
7. Have critical issues been taken into consideration?
8. Was the data analysis sufficiently rigorous?
9. Is there a clear statement of findings?
10. How valuable is the research?

**Table 2.** CERQual qualitative evidence profile of identified barriers and facilitators to recommended breastfeeding and complementary feeding practices

Finding No.	Review Finding	Studies contributing to the Review Finding	Assessment of Methodological Limitations	Assessment of Relevance	Assessment of Coherence	Assessment of Adequacy	Overall CERQual assessment of confidence	Explanation of Judgement
<b>BARRIERS</b>								
<b>Barriers to recommended breastfeeding</b>								
Key theme: <i>Beliefs and perceptions</i>								
1	Breastfeeding alters a woman's breasts in an undesirable way	1; 4; 13	Minor methodological limitations	Minor concerns about relevance	Minor concerns about coherence	No concern about adequacy of data	High confidence	This finding was graded as high confidence because of few concerns about coherence and relevance and moderate methodological limitations.
2	Breastfeeding for more than one year makes children susceptible to infection	11	Minor methodological limitations	NA	NA	Minor concern about adequacy	NA	NA
3	Breastmilk is unhealthy for baby if produced while a mother is angry	11	Minor methodological limitations	NA	NA	Minor concern about adequacy	NA	NA
4	Breastmilk is unhealthy for baby if produced while a mother has an illness	11	Minor methodological limitations	NA	NA	Minor concern about adequacy	NA	NA
5	Breastmilk is not enough for a small baby	8; 16	Substantial methodological limitations	Moderate concerns about relevance	Minor concerns about coherence	Moderate concerns about adequacy	Low confidence	This finding was graded as low confidence because of moderate concerns about relevance and adequacy of data and substantial methodological limitations.
6	When baby belches on the breast during breastfeeding the mother can develop swollen breasts	4	Moderate methodological limitations	NA	NA	No concern about adequacy of data	NA	NA
7	Colostrum is not healthy for baby, so mothers discard colostrum	3; 7; 10; 18	Moderate methodological limitations	Minor concerns about relevance	Minor concerns about coherence	Minor concerns about adequacy	Moderate confidence	This finding was graded as moderate confidence because of minor concerns regarding relevance, coherence, and adequacy and moderate methodological limitations.
8	Baby remains hungry after breastfeeding (e.g., a baby is fussy even after breastfeeding)	5; 6; 8; 9; 14; 15; 16; 17; 19; 21	Moderate methodological limitations	Minor concerns about relevance	Minor concerns about coherence	Moderate concerns about adequacy	Moderate confidence	This finding was graded as moderate confidence because of moderate concerns

								regarding methodological limitations and adequacy of data and minor concerns about relevance and coherence.
9	Breast milk substitutes can make a baby healthier	8	Moderate methodological limitations	NA	NA	No concern about adequacy	NA	NA
10	Mothers do not produce sufficient breastmilk	3; 4; 5; 6; 7; 8; 9; 13; 14; 16; 17; 19; 21; 23	Moderate methodological limitations	Minor concerns about relevance	Minor concerns about coherence	Minor concerns about adequacy	High confidence	This finding was graded as high confidence because of minor concerns about relevance, coherence and adequacy and moderate methodological limitations.
11	Babies are thirsty and need water	2; 7; 9; 13; 14; 16; 17; 19; 21; 23	Moderate methodological limitations	Minor concerns about relevance	Minor concerns about coherence	Moderate concerns about adequacy	Moderate confidence	This finding was graded as moderate confidence because of moderate concerns regarding methodological limitations and adequacy of data and minor concerns about relevance and coherence.
12	Other liquids given shortly after birth to clean the infant, believing the insides need to be purged in this way	11	Minor methodological limitations	NA	NA	Substantial concerns about adequacy	NA	NA
13	Delay in breastmilk "coming in" following the birth (delayed onset of Lactogenesis II)	3	Moderate methodological limitations	NA	NA	No concern about adequacy of data	NA	NA
14	Giving traditional herbs to newborns or young babies is a deeply rooted practice	20	Moderate methodological limitations	NA	NA	Minor concerns about adequacy	NA	NA
15	Mothers do not have confidence that they are producing sufficient breast milk to meet baby's needs	5	Moderate methodological limitations	NA	NA	No concern about adequacy of data	NA	NA
16	Baby still cries even after mother breastfeeds	21	Moderate methodological limitations	NA	NA	No concern about adequacy of data	NA	NA
17	Herbal infusions in water prevent a baby from getting ill	18	Moderate methodological limitations	NA	NA	No concern about adequacy of data	NA	NA

18	Exclusive breastfeeding is not part of local tradition	2; 7; 14; 16; 17; 18; 19; 21; 22	Moderate methodological limitations	Minor concerns about relevance	Moderate concerns about coherence	Moderate concerns about adequacy of data	Moderate confidence	This finding was graded as moderate confidence because of minor concerns about relevance and moderate concerns regarding methodological limitations and coherence and adequacy of data.
19	Mothers attribute their inability to produce enough breastmilk to their own diet	11; 13; 14; 17; 18; 21; 23	Moderate methodological limitations	Minor concerns about relevance	Minor concerns about coherence	Minor concerns about adequacy of data	High confidence	This finding was graded as high confidence because of minor concerns about relevance, coherence and adequacy and moderate methodological limitations.
20	Women should cease breastfeeding if they become pregnant before nursing is 2 years old	15; 17; 18; 21	Moderate methodological limitations	Minor concerns about relevance	Minor concerns about coherence	Moderate concerns about adequacy of data	Moderate confidence	This finding was graded as moderate confidence because of minor concerns about relevance, coherence and moderate concerns about methodological limitations and adequacy of data.
<b>Key theme: Lack of support from families, health workers (HWs) and others</b>								
21	Family members do not support ideal breastfeeding practices	4; 19; 20; 21	Moderate methodological limitations	Minor concerns about relevance	Minor concerns about coherence	Substantial concerns about adequacy	Moderate confidence	This finding was graded as moderate confidence because of minor concerns about coherence and relevance; moderate methodological limitations; and substantial concerns about adequacy.

22	Mothers do not have enough time to breastfeed their infants due to work	4; 6; 7; 8; 9; 13; 14; 15; 16; 17; 18; 20	Moderate methodological limitations	Minor concerns about relevance	Minor concerns about coherence)	Moderate concerns about adequacy	Moderate confidence	This finding was graded as moderate confidence because of minor concerns about relevance and moderate concerns regarding methodological limitations and coherence and adequacy of data.
23	HWs don't reassure women about their ability to breastfeed	3	Moderate methodological limitations	NA	NA	No concern about adequacy of data	NA	NA
24	HWs do not have adequate knowledge and skills to support mothers	2; 9; 23	Moderate methodological limitations	Moderate concerns about relevance	Minor concerns about coherence	Minor concerns about adequacy	Moderate confidence	This finding was graded as moderate confidence because of minor concerns about coherence and adequacy; moderate concern about relevance and methodological limitations
25	Mothers do not receive advice from HWs	3; 9; 10; 13	Minor methodological limitations	Minor concerns about relevance	Minor concerns about coherence	Minor concerns about adequacy	High confidence	This finding was graded as high confidence because of few concerns about methodological limitations, relevance, coherence and adequacy.
26	Media has a negative impact on breastfeeding (promoting breastmilk substitutes as healthy for babies)	7; 8; 13	Moderate methodological limitations	Minor concerns about relevance	Minor concerns about coherence	No concern about adequacy of data	High confidence	This finding was graded as high confidence because of few concerns about coherence and relevance and moderate methodological limitations.
27	Traditional beliefs and influence of older female family members (e.g. grandmothers) influence breastfeeding	7; 16; 18; 21	Moderate methodological limitations	Minor concerns about relevance	Minor concerns about coherence	Moderate concerns about adequacy	Moderate confidence	This finding was graded as moderate confidence because of minor concerns about coherence



								and relevance; moderate concern about methodological limitations and adequacy.
28	Comments/advice from families, peers or close neighbors influence breastfeeding	8; 9; 13	Moderate methodological limitations	Minor concerns about relevance	Minor concerns about coherence	No concern about adequacy of data	High confidence	This finding was graded as high confidence because of adequate data, minor concerns about coherence and relevance and moderate concerns about methodological limitations
<b>Key theme: Infant-specific factors</b>								
29	Babies stop breastfeeding for unknown reasons (lack of interest in feeding, self-weaning)	9; 13	Moderate methodological limitations	Moderate concerns about relevance	Minor concerns about coherence	No concern about adequacy of data	Moderate confidence	This finding was graded as moderate confidence because of minor concerns about coherence, moderate concern about relevance and methodological limitations
30	Delayed breastfeeding initiation of infants with respiratory problems	10	Minor methodological limitations	NA	NA	No concern about adequacy of data	NA	NA
31	Baby has an illness	4; 10; 14; 17; 19	Moderate methodological limitations.	Minor concerns about relevance	Minor concerns about coherence	Substantial concerns about adequacy	Moderate confidence	This finding was graded as moderate confidence because of substantial concerns about adequacy; moderate methodological limitations; and minor concerns regarding coherence and relevance.
<b>Key theme: Mothers' knowledge</b>								
32	Mothers do not understand purpose of colostrum and breastfeeding initiation	3; 7; 8; 14; 17; 18; 20	Moderate methodological limitations	Minor concerns about relevance	Minor concerns about coherence	Substantial concerns about adequacy	Moderate confidence	This finding was graded as moderate confidence because of substantial concerns about adequacy;

								moderate methodological limitations; and minor concerns regarding coherence and relevance
33	Mothers do not have knowledge about breastfeeding practices generally	8; 9; 10; 13; 14; 15; 17; 18; 20; 21; 22	Moderate methodological limitations	Minor concerns about relevance	Moderate concerns about coherence	Moderate concerns about adequacy	Moderate confidence	This finding was graded as moderate confidence because of moderate concerns regarding methodology, coherence, adequacy and minor concerns about relevance.
34	Mothers unable to interpret child's feeding cues or behavior	8; 17; 19	Moderate methodological limitations	Moderate concerns about relevance	Minor concerns about coherence	Minor concerns about adequacy	Moderate confidence	This finding was graded as moderate confidence because of moderate concerns about methodology, relevance, coherence and minor concerns about adequacy.
35	Mothers do not have formal schooling or education	2	Moderate methodological limitations	NA	NA	Minor concern about adequacy of data	NA	NA
<b>Key theme: <i>Mother-specific factors</i></b>								
36	Mothers have breast or nipple problems	4; 5; 7; 9; 13; 14	Moderate methodological limitations	Minor concerns about relevance	Minor concerns about coherence	Minor concern about adequacy of data	High confidence	This finding was graded as high confidence because of minor concerns regarding relevance, coherence, adequacy and moderate methodological limitations.
37	Mothers have an illness and/or have died	4; 9; 12; 13; 14; 15; 17; 18; 21	Moderate methodological limitations	Minor concerns about relevance	Minor concerns about coherence	Substantial concerns about adequacy	Moderate confidence	This finding was graded as moderate confidence because of substantial concerns about adequacy of data, moderate methodological limitations and minor concerns

								regarding relevance and coherence.
38	Breastfeeding initiation is delayed due to pregnancy/labor-induced health conditions or activities needing to be performed after childbirth	3; 10; 19	Minor methodological limitations	Moderate concerns about relevance	Minor concerns about coherence	Substantial concerns about adequacy	Moderate confidence	This finding was graded as moderate confidence because of substantial concerns about adequacy, moderate concerns about relevance and minor concerns about coherence and methodological limitations.
<b>Barriers to complementary feeding</b>								
<i>Key theme: Food security and social and cultural factors</i>								
39	Household food insecurity	11; 12; 14; 15; 16; 17; 20; 21; 23	Moderate methodological limitations	Minor concerns about relevance	Minor concerns about coherence	Minor concerns about adequacy	High confidence	This finding was graded as high confidence because of minor concerns about relevance, coherence and adequacy; and moderate methodological limitations.
40	Replacement of higher quality foods with lower quality foods for financial reasons or drought	12; 15	Moderate methodological limitations	Moderate concerns about relevance	Minor concerns about coherence	No concern about adequacy of data	Moderate confidence	This finding was graded as moderate confidence because of minor concerns about coherence, moderate concern about relevance and methodological limitations
41	Lack of diversity in available foods	12; 14; 15; 16; 17; 19; 20	Moderate methodological limitations	Minor concerns about relevance	Minor concerns about coherence	Minor concerns about adequacy	High confidence	This finding was graded as high confidence because of minor concerns about relevance, coherence and adequacy; and moderate methodological limitations.

42	Lack of water for cooking	12; 15	Moderate methodological limitations	Moderate concerns about relevance	Minor concerns about coherence	No concern about adequacy of data	Moderate confidence	This finding was graded as moderate confidence because of minor concerns about coherence, moderate concern about relevance and methodological limitations
43	Some foods are only available seasonally	12	Minor methodological limitations	NA	NA	Minor concern about adequacy of data	NA	NA
44	Mothers prepare foods early in the day and then store for later feeding	12	Minor methodological limitations	NA	NA	No concern about adequacy of data	NA	NA
45	Mothers do not have financial decision-making power	14; 20	Moderate methodological limitations	Moderate concerns about relevance	Minor concerns about coherence	No concern about adequacy of data	Moderate confidence	This finding was graded as moderate confidence because of minor concerns about coherence, moderate concern about relevance and methodological limitations
<b>Key theme: <i>Infant-specific factors</i></b>								
46	Infants dislike animal source foods	6; 23	Moderate methodological limitations	Moderate concerns about relevance	Minor concerns about coherence	Substantial concern about adequacy	Low confidence	This finding was graded as low confidence because of moderate concerns about methodology and relevance; and substantial concerns about adequacy of data.
47	Infants do not have appetite to eat animal source foods	6; 18	Moderate methodological limitations	Moderate concerns about relevance	Minor concerns about coherence	Moderate concern about adequacy	Moderate confidence	This finding was graded as moderate confidence because of moderate concerns regarding methodological limitations, adequacy of data, relevance and minor concerns about coherence.

48	Infants refuse to eat and or spit out foods	6; 15; 23	Moderate methodological limitations	Moderate concerns about relevance	Moderate concern about coherence	Substantial concerns about adequacy	Low confidence	This finding was graded as low confidence because of moderate concerns about relevance and coherence and substantial concerns about adequacy of data and methodology.
49	Infants vomit when animal source foods are offered	6; 15	Substantial methodological limitations	Moderate concerns about relevance	Moderate concern about coherence	Substantial concerns about adequacy	Low confidence	This finding was graded as low confidence because of moderate concerns about relevance and coherence and substantial concerns about adequacy of data and methodology.
50	Infants have an illness	15; 18	Moderate methodological limitations	Moderate concerns about relevance	Minor concerns about coherence	No concern about adequacy of data	Moderate confidence	This finding was graded as moderate confidence because of moderate concerns about methods and methodology and minor concerns about coherence.
<b>Key theme: <i>Family-specific factors</i></b>								
51	Mothers and other family members do not have appropriate knowledge about complementary feeding	6; 11; 14; 15; 16; 19; 20; 21; 23	Moderate methodological limitations	Minor concerns about relevance	Minor concerns about coherence	Minor concerns about adequacy	High confidence	This finding was graded as high confidence because of minor concerns about relevance, coherence and adequacy; and moderate methodological limitations.
52	Mothers concern about over-feeding their child (which might cause them to be hungrier in future)	16	Moderate methodological limitations	NA	NA	No concern about adequacy of data	NA	NA

53	Mothers and family members fear that child may choke on certain solid foods	15; 16; 19	Moderate methodological limitations	Moderate concerns about relevance	Minor concerns about coherence	Moderate concern about adequacy of data	Moderate confidence	This finding was graded as moderate confidence because of moderate concerns about methodology, adequacy of data, relevance and minor concern regarding coherence.
54	Religious/cultural traditions around preparation of non-fasting foods for children by adults who are fasting	15	Moderate methodological limitations	NA	NA	Moderate concern about adequacy of data	NA	NA
55	Thicker weaning porridge believed to be difficult for young children to swallow/digest	15; 16; 19; 20; 23	Moderate methodological limitations	Moderate concerns about relevance	Minor concerns about coherence	Moderate concern about adequacy of data	Moderate confidence	This finding was graded as moderate confidence because of moderate concerns about methodology, adequacy of data, relevance and minor concern regarding coherence.
56	Lack of time to cook special foods for the child	15; 16	Moderate methodological limitations	Moderate concerns about relevance	Minor concerns about coherence	Minor concern about adequacy of data	Moderate confidence	This finding was graded as moderate confidence because of moderate concerns about methodology and relevance and minor concerns regarding coherence and adequacy of data.
<b>Cross-cutting barriers</b>								
57	Inability of HWs to support	15	Moderate methodological limitations	NA	NA	No concerns about adequacy of data	NA	NA
58	Conflicting information	21	Moderate methodological limitations	NA	NA	Moderate concerns	NA	NA
<b>FACILITATORS</b>								
<b>Facilitators to recommended breastfeeding</b>								
<i>Key theme: Perceptions</i>								
59	Breastfeeding is inexpensive and hygienic	1; 2; 4; 7; 9; 13	Moderate methodological limitations	Minor concerns about relevance	Minor concerns about coherence	Minor concerns about adequacy	High confidence	This finding was graded as high confidence because of minor concerns about



[illegible]

64	Child crying provides guidance when to feed	2; 10	Minor methodological limitations	Moderate concerns about relevance	Minor concerns about coherence	Minor concerns about adequacy	High confidence	This finding was graded as high confidence due to only minor concerns about adequacy, relevance and methodological limitations and moderate concerns about relevance.
<b>Key theme: <i>Mother-specific factors</i></b>								
65	Mothers understand the importance of breastfeeding	1; 2; 3; 4; 5; 7; 9; 10; 11; 15; 16; 17; 18; 19; 21; 22	Moderate methodological limitations	Minor concerns about relevance	Minor concerns about coherence	Minor concerns about adequacy	High confidence	This finding was graded as high confidence because of minor concerns about relevance, coherence and adequacy; and moderate methodological limitations.
66	Mothers understand the importance of colostrum	2; 7; 14; 19	Moderate methodological limitations	Minor concerns about relevance	Minor concerns about coherence	Minor concerns about adequacy	High confidence	This finding was graded as high confidence because of minor concerns about relevance, coherence and adequacy; and moderate methodological limitations.
<b>Key theme: <i>Social and cultural factors</i></b>								
67	Cultures and traditions facilitate early initiation of breastfeeding	3	Moderate methodological limitations	NA	NA	No concerns about adequacy	Low confidence	This finding was graded as low confidence because of minimal studies contributing evidence
68	Family support promotes breastfeeding	1; 2; 7; 9	Moderate methodological limitations	Minor concerns about relevance	Minor concerns about coherence	Substantial concerns about adequacy	Moderate confidence	This finding was graded as moderate confidence because of moderate methodological limitations, minor concerns regarding relevance and coherence and

								substantial concerns about adequacy.
69	Praise and affirmation from a partner and/or family facilitate breastfeeding	2	Moderate methodological limitations	NA	NA	No concerns about adequacy	NA	NA
<b>Facilitators to complementary feeding</b>								
<b>Key theme: Food security</b>								
70	Some healthy foods are available	16; 18; 22	Moderate methodological limitations	Moderate concerns about relevance	Minor concerns about coherence	Minor concerns about adequacy	Moderate confidence	This finding was graded as moderate confidence because of moderate concerns about methodology and relevance; and minor concerns about coherence and adequacy.
<b>Key theme: Social support</b>								
71	Family support promotes complementary feeding	6; 15; 16; 21	Moderate methodological limitations	Moderate concerns about relevance	Minor concerns about coherence	Minor concerns about adequacy	Moderate confidence	This finding was graded as moderate confidence because of minor concerns about coherence and adequacy; and moderate concerns regarding relevance and methodology.
<b>Key theme: Mother-specific factors</b>								
72	Mothers understand the importance of complementary feeding	15; 16; 18	Moderate methodological limitations	Moderate concerns about relevance	Minor concerns about coherence	Minor concerns about adequacy	Moderate confidence	This finding was graded as moderate confidence because of minor concerns about coherence and adequacy; and moderate concerns
<b>Key theme: Healthcare services</b>								
73	Mothers receive IYCF advice and counseling at healthcare facilities	15; 18; 19; 21	Moderate methodological	Minor concerns about relevance	Minor concerns about coherence	Substantial concerns about adequacy	Moderate confidence	This finding was graded as moderate confidence because of minor concerns about coherence and adequacy;

								and moderate methodologic al limitations and substantial concerns about adequacy.
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## References

- 1 Dewey KG, Begum K. Long-term consequences of stunting in early life. *Maternal & child nutrition*. 2011; 7 Suppl 3: 5-18.
- 2 Lack RE, Victora CG, Walker SP, et al. Maternal and child undernutrition and overweight in low-income and middle-income countries. *Lancet*. 2013; 382: 427-51.
- 3 Martorell R, Zongrone A. Intergenerational influences on child growth and undernutrition. *Paediatr Perinat Epidemiol*. 2012; 26 Suppl 1: 302-14.
- 4 Koletzko B, Brands B, Poston L, Godfrey K, Demmelmair H. Early nutrition programming of long-term health. *The Proceedings of the Nutrition Society*. 2012; 71: 371-8.
- 5 Das JK, Salam RA, Imdad A, Bhutta ZA. Infant and Young Child Growth. In: Black RE, Laxminarayan R, Temmerman M, Walker N, editors. *Reproductive, Maternal, Newborn, and Child Health: Disease Control Priorities, Third Edition (Volume 2)*. Washington (DC): The International Bank for Reconstruction and Development / The World Bank(c) 2016 International Bank for Reconstruction and Development / The World Bank., 2016.
- 6 Mangasaryan N, Martin L, Brownlee A, Ogunlade A, Rudert C, Cai X. Breastfeeding promotion, support and protection: review of six country programmes. *Nutrients*. 2012; 4: 990-1014.
- 7 Daelmans B, Ferguson E, Lutter CK, et al. Designing appropriate complementary feeding recommendations: tools for programmatic action. *Maternal & child nutrition*. 2013; 9 Suppl 2: 116-30.
- 8 Menon P, Rawat R, Ruel M. Bringing rigor to evaluations of large-scale programs to improve infant and young child feeding and nutrition: the evaluation designs for the Alive & Thrive initiative. *Food and nutrition bulletin*. 2013; 34: S195-211.
- 9 Dhingra U, Gittelsohn J, Suleiman AM, et al. Delivery, immediate newborn and cord care practices in Pemba Tanzania: a qualitative study of community, hospital staff and community level care providers for knowledge, attitudes, belief systems and practices. *BMC Pregnancy Childbirth*. 2014; 14: 173.
- 10 World Health Organization, UNICEF. Strengthening action to improve feeding of infants and young children 6-23 months of age in nutrition and child health programmes. World Health Organization, 2008.
- 11 World Health Organization. Indicators for assessing infant and young child feeding practices. Part I: Definitions. WHO. Geneva: World Health Organization, 2008.
- 12 Ruel MT, Brown KH, Caulfield LE. Moving forward with complementary feeding: indicators and research priorities. *International Food Policy Research Institute (IFPRI) discussion paper 146* (April 2003). *Food and nutrition bulletin*. 2003; 24: 289-90.
- 13 Arimond M, Daelmans B, Dewey K. Indicators for feeding practices in children. *Lancet*. 2008; 371: 541-2.
- 14 Roche ML, Sako B, Osendarp SJ, Adish AA, Tolossa AL. Community-based grain banks using local foods for improved infant and young child feeding in Ethiopia. *Maternal & child nutrition*. 2015.
- 15 Burns J, Emerson JA, Amundson K, Doocy S, Caulfield LE, Klemm RD. A Qualitative Analysis of Barriers and Facilitators to Optimal Breastfeeding and Complementary Feeding Practices in South Kivu, Democratic Republic of Congo. *Food Nutr Bull*. 2016; 37: 119-31.
- 16 Jones AD, Cruz Agudo Y, Galway L, Bentley J, Pinstrup-Andersen P. Heavy agricultural workloads and low crop diversity are strong barriers to improving child feeding practices in the Bolivian Andes. *Social science & medicine* (1982). 2012; 75: 1673-84.
- 17 Fabrizio CS, van Liere M, Pelto G. Identifying determinants of effective complementary feeding behaviour change interventions in developing countries. *Maternal & child nutrition*. 2014; 10: 575-92.
- 18 Pelto GH, Martin SL, van Liere MJ, Fabrizio CS. Perspectives and reflections on the practice of behaviour change communication for infant and young child feeding. *Matern Child Nutr*. 2015.
- 19 Tong A, Flemming K, McInnes E, Oliver S, Craig J. Enhancing transparency in reporting the synthesis of qualitative research: ENTREQ. *BMC Med Res Methodol*. 2012; 12: 181.
- 20 Moher D, Liberati A, Tetzlaff J, Altman DG. Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *PLoS Med*. 2009; 6: e1000097.
- 21 The World Bank Group. Country and Lending Groups. 2016. (Also available from: <http://data.worldbank.org/about/country-and-lending-groups>, accessed 24 March 2016).
- 22 Critical Appraisal Skills Programme. CASP Qualitative Research Checklist. 2017. (Also available from: <http://www.casp-uk.net/casp-tools-checklists>, accessed November 2016).

- 23 Lewin S, Glenton C, Munthe-Kaas H, et al. Using qualitative evidence in decision making for health and social interventions: an approach to assess confidence in findings from qualitative evidence syntheses (GRADE-CERQual). *PLoS Med.* 2015; 12: e1001895.
- 24 Thomas J, Harden A. Methods for the thematic synthesis of qualitative research in systematic reviews. *BMC Med Res Methodol.* 2008; 8: 45.
- 25 Lakshman R, Ogilvie D, Ong K. Mothers' experiences of bottle-feeding: a systematic review of qualitative and quantitative studies. *Arch Dis Child.* 2009; 94: 596-601.
- 26 Mazarello Paes V, Ong K, Lakshman R. Factors influencing obesogenic dietary intake in young children (0-6 years): systematic review of qualitative evidence. *BMJ Open.* 2015; 5: ee007396.
- 27 McInnes RJ, Chambers JA. Supporting breastfeeding mothers: qualitative synthesis. *J Adv Nurs.* 2008; 62: 407-27.
- 28 de Jager E, Skouteris H, Broadbent J, Amir L, Mellor K. Psychosocial correlates of exclusive breastfeeding: a systematic review. *Midwifery.* 2013; 29: 506-18.