

(REVIEW ARTICLE)



PREVALENCE AND FACTORS ASSOCIATED WITH MALNUTRITION AMONG CHILDREN UNDER FIVE YEARS IN KISII COUNTY: A SYSTEMATIC REVIEW

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ABSTRACT

Background: Malnutrition among children under five remains a major public health concern because poor nutrition in early life affects survival, growth, immunity, cognitive development, and later well-being. Although Kenya's national nutrition indicators have improved, significant disparities still exist between counties and communities. Kisii County has distinct agricultural, dietary, and socioeconomic characteristics, making local evidence important. **OBJECTIVE:** To systematically review evidence on the prevalence of malnutrition and the factors associated with it among children under five years in Kisii County, Kenya.

Methods: Literature was searched using combinations of terms related to children under five, malnutrition, stunting, wasting, underweight, nutritional status, and Kisii County. Relevant biomedical databases, academic search sources, institutional repositories, and government reports were considered. Studies were eligible when they provided Kisii-specific information on nutritional status or associated factors. Because the studies differed in age groups, settings, and measurement methods, findings were synthesized narratively rather than statistically pooled.

Results: For qualitative synthesis, eight locally pertinent reports and research were kept. In a Kisii County study of children aged 6–23 months, 17.8% were stunted, 11.7% underweight, and 10.5% wasted; only 17.5% obtained the minimum recommended diet. Other local data related nutritional status with dietary diversity, breastfeeding and complementary feeding, caregiver variables, immunization, child age, household food insecurity and community nutrition services. In conclusion, there are several contributing factors to malnutrition in Kisii County. Appropriate newborn and young child feeding, dietary variety, growth monitoring, community health worker support, home food security measures, and early detection and treatment of acute malnutrition should all be part of prevention. There is a need for more recent representative county-level research.

Keywords: Kisii County, Kenya; Systematic review; PRISMA 2020; Malnutrition; Stunting; wasting; Underweight; Children under five.

1 INTRODUCTION

Malnutrition results from deficiencies, excesses, or imbalances in energy and nutrient intake. (Re et al., 2013; *WHO Child Growth Standards*, n.d.-a, p. 2023). In young children, undernutrition is commonly described through stunting, wasting, and underweight. Stunting reflects chronic growth failure, wasting reflects acute malnutrition or inadequate recent growth, and underweight reflects low weight for age. WHO Child Growth Standards provide internationally applicable references for assessing growth from birth to five years. (*WHO Child Growth Standards*, n.d.-a, p. 2006). Nutrition in the first five years is closely linked to survival, immunity, brain development and physical growth (Re et al., 2013). Poor feeding, repeated infections, household food insecurity, inadequate sanitation and limited access to health services may interact and increase the risk of malnutrition. The 2022 Kenya Demographic and Health Survey reported that nationally 18% of children under five were stunted, 5% were wasted, and 10% were underweight. National figures are useful for context but can hide county-level differences.

Banana farming is one of the major agricultural activities in Kisii County. However, the availability of a staple crop does not guaranty that kids eat a variety of foods (Samwel et al., 2018). Concerns around food security, supplementary feeding, nutritional diversity, and caregiver habits have been found by local evidence (Obara, 2010; Orangi, 2010, 2010). Only 17.5% of children aged 6 to 23 months in a Kisii County study met the minimum recommended diet, with 17.8% stunting, 11.7% underweight, and 10.5% wasting. Early-life dietary deficits can have both acute and long-term impacts, which is why malnutrition is still important (Re et al., 2013). Despite Kenya's overall advances in child nutrition, Kisii-specific information is scattered throughout community studies, hospital-based research, theses, and publications (Obara, 2010; Orangi, 2010). Furthermore, different studies use different age groups and assessment methods. This makes it difficult to gain a thorough grasp of Kisii County's hunger prevalence and causes. By merging the available data in a systematic review, consistent factors and research gaps can be identified.

1.1 Study Objective

Main Objective

To systematically review evidence on the prevalence and factors associated with malnutrition among children under five years in Kisii County, Kenya.

Specific Objectives

- To identify dietary and feeding factors associated with malnutrition.
- To identify evidence gaps and practical recommendations for prevention and management.

Review Questions

- What prevalence of stunting, wasting, and underweight has been reported in Kisii County?
- What feeding and dietary factors are associated with malnutrition?
- What child, caregiver, household and health-service factors are associated with malnutrition?
- What recommendations and research priorities emerge from the evidence

2 MATERIALS AND METHODOLOGY

2.1 Study Design

A systematic review design was used. Reporting followed PRISMA 2020 which promotes transparent reporting of identification, screening, eligibility, and inclusion of evidence. (Page et al., 2021a)

2.2 Review Setting

The review focused on Kisii County, Kenya. Historical Kisii administrative areas were considered when the study population was clearly relevant to present-day Kisii County.

2.3 Eligibility Criteria

2.3.1 Inclusion Criteria

- Children aged 0–59 months from Kisii County.
- Studies reporting stunting, wasting, underweight, acute malnutrition, or nutritional status.
- Studies examining feeding, dietary diversity, food security, caregiver, health-service, or socioeconomic factors.

- Peer-reviewed articles, theses, dissertations, and credible government or institutional reports with sufficient information.
- English-language evidence.

2.3.2 Exclusion Criteria

- Studies conducted entirely outside Kisii County without Kisii-specific findings.
- Studies focused only on children older than five years.
- Records without a relevant nutritional outcome.
- Editorials, opinion pieces, and duplicated records.

2.4 Search Strategy

Search concepts combined the population, condition, outcomes, and location. Example terms included: (child* OR infant* OR under-five*) AND (malnutrition OR undernutrition OR stunting OR wasting OR underweight OR nutritional status) AND (Kisii OR Kisii County OR Suneka OR Kisii District). Reference lists of relevant records were also examined.

2.5 Information Sources

- PubMed/MEDLINE and multidisciplinary academic search sources.
- Google Scholar and relevant academic search engines.
- KNBS and Kenya Ministry of Health reports.
- Kenyatta University, University of Nairobi and University of Eldoret repositories.
- WHO and UNICEF publications for definitions and standards

2.6 Study Selection

Records were screened against the predefined criteria.(Page et al., 2021b) Duplicates and clearly overlapping records were removed before title/abstract screening. Potentially relevant reports were assessed in full text. Eight locally relevant reports/studies were retained for qualitative synthesis.

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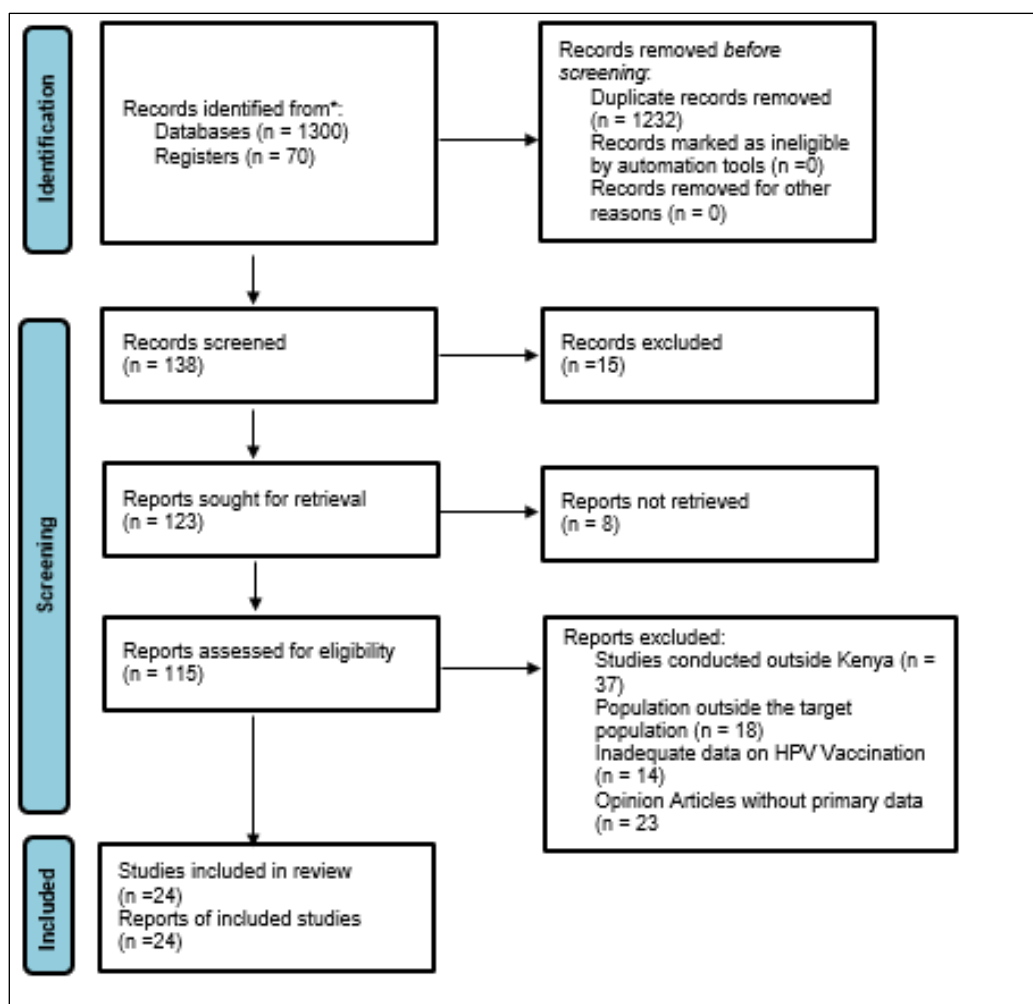


Figure 1: Prisma Flow Summary and image

Note: The PRISMA counts shown are the documented screening log for this academic review and should be reconciled with the final database export before institutional submission.

2.7 Data Extraction

Data were extracted for author/year, setting, design, age range, sample characteristics, nutritional indicators, prevalence, and associated factors.

2.8 Quality and Relevance Assessment

Relevance was considered from study design, sampling, population, nutritional measurement, and clarity of reporting. Institutional theses were retained where they provided direct Kisii-specific evidence.

2.9 Data Synthesis

A narrative synthesis was used. Prevalence estimates were retained separately according to outcome and measurement method. MUAC-based estimates were not statistically pooled with z-score estimates.

2.10 Ethical Considerations

The review used secondary information and did not involve recruitment of human participants or collection of identifiable patient data.

3 RESULTS

3.1 Study Selection

Eight locally relevant reports/studies were retained for qualitative synthesis. (Obara, 2010; Orangi, 2010) The evidence included community, facility, thesis, and government sources. National and international publications were used as contextual evidence and were not counted as Kisii-specific prevalence studies.

Table 1: Evidence included in the synthesis

Source	Setting	Population	Design/source	Key nutrition finding	Factors
Mokeira (2021)	Kisii County	6–23 months	Thesis	17.8% stunted; 11.7% underweight; 10.5% wasted	Dietary diversity; minimum acceptable diet; caregiver presence
Obara (2010)	Kisii District Hospital	0–24 months	Thesis	Severe stunting, wasting and underweight reported in study groups	Exclusive breastfeeding; immunization; maternal marital status; child age
Orangi (2010)	Suneka Division	Under-fives	Household study	Nutritional status assessed with household food consumption	Household food consumption and maternal factors
Onyono (2015)	Kisii County	Children	Thesis	Nutritional status assessed in banana-producing areas	Food consumption and staple-food reliance
Githinji & Ngala (2024)	Suneka, Kisii	0–59 months	Community/CHW study	Health and nutritional status assessed	Caregiver and community nutrition practices
Samwel et al. (2018)	Kisii County	6–59 months	Food-security study	MUAC: 23.3% severe, 43.3% moderate, 33.4% well nourished in sampled food-insecure population	Food insecurity and climate variability
KDHS (2022)	Kenya; Kisii context	Under-fives	Population survey	National: 18% stunted; 5% wasted; 10% underweight	Feeding, socioeconomic and demographic factors
KenPHIA	Kenya; county context	6–59 months	Population survey	Small Kisii MUAC subgroup reported no acute malnutrition; estimate is imprecise.	Acute-malnutrition context

3.2 Prevalence of Malnutrition

The clearest Kisii County prevalence estimates came from Mokeira's study of children aged 6–23 months: 17.8% stunting, 11.7% underweight and 10.5% wasting. A separate food-security study reported MUAC-based severe malnutrition in 23.3% and moderate malnutrition in 43.3% of children aged 6–59 months in a sampled food-insecure population. This should not be interpreted as a representative prevalence for all children in Kisii County. (Kiarie & Hsc, n.d.; Samwel et al., 2018). Older Kisii District Hospital and Suneka evidence also demonstrates nutritional vulnerability among young children. The overall evidence therefore confirms that malnutrition is present, while a precise current county-wide prevalence remains uncertain.

3.3 Factors Associated with Malnutrition

3.3.1 Dietary diversity and complementary feeding

Only 17.5% of children in the 6–23-month Kisii study achieved the minimum acceptable diet. Lack of dietary diversity was associated with poorer nutritional status.

3.4 Caregiver factors

Absence of the mother as caregiver was reported as a predictor of wasting.(Obara, 2010). This highlights the importance of consistent, informed, and supported caregiving.

3.5 Breastfeeding and feeding practices

The Kisii District Hospital study reported associations between exclusive breastfeeding and nutritional status and showed that feeding choices were influenced by culture Nutrition education and knowledge.

3.6 Child characteristics

Child age was associated with wasting and underweight in the hospital-based evidence.(Obara, 2010)This is plausible because nutritional requirements change rapidly during early childhood.

3.7 Health services

Immunization was associated with nutritional status in the hospital study(Obara, 2010)CHWs provide opportunities for education, screening, referral, and follow-up.(WHO , n.d.-b)

3.8 Household food security

Food insecurity and climate variability were linked with nutritional vulnerability(Belachew et al., 2026).. A household may produce a staple crop but still have a poor-quality child diet if foods are not diverse or affordable(Eicher-Miller et al., 2023).

4 DISCUSSION

4.1 Overview of Findings

The evidence shows that malnutrition in Kisii County is multifactorial(Re et al., 2013; Samwel et al., 2018). Dietary quality, caregiver circumstances, child age, health-service use and household food security interact rather than acting independently(Wood et al., 2020).

4.2 Prevalence

Reported prevalence varies because studies differ in age group, sampling and anthropometric methods(Su et al., 2023). The 17.8% stunting, 11.7% underweight and 10.5% wasting estimates among 6–23-month-olds provide useful local evidence but cannot be generalized automatically to every child under five in the county(Abdiwali et al., 2022).

4.3 Dietary Diversity

The low proportion achieving the minimum acceptable diet is particularly important because children aged 6–23 months have rapidly increasing nutrient requirements(Markos et al., 2024). Local nutrition programmes should emphasize practical use of affordable, locally available nutrient-dense foods rather than focusing only on food quantity(Raymond et al., 2018).

4.4 Caregiving and Food Security

Caregivers determine much of what a young child eats, how often the child eats, and whether illness receives prompt attention(Yuan et al., 2021). Food insecurity can reduce both the quantity and diversity of food and may interact with infection to produce a cycle of poor nutrition and illness(Militao et al., 2022).

4.5 Community Health Workers

CHWs can provide nutrition counselling, growth monitoring, MUAC screening, referral, and follow-up. WHO's 2023 guidance recognizes appropriately trained and supervised CHWs as an important part of community-level identification and management or referral of wasting.(WHO Ct, n.d., p. 2023)

4.6 Clinical Implications

Clinicians should consider nutrition whenever a child presents with recurrent infection, diarrhoea, poor appetite, or growth concerns(Dewey & Mayers, 2011). Assessment should include anthropometry, oedema, feeding history, and illness history.(UNICEF/WHO/ n.d.)Immunization and relevant household circumstances.

4.7 Strengths

The review focuses on Kisii-specific evidence, brings together scattered community and institutional sources, distinguishes local from national evidence, and avoids inappropriate pooling of different measurement systems.

4.8 Limitations

The evidence base is limited and heterogeneous. Several local sources are theses or reports, some studies are old, age groups differ, and the available data do not support a reliable statistical meta-analysis. The PRISMA counts should be reconciled with formal database exports before final institutional submission.

5 CONCLUSION

In Kisii County, malnutrition in children under five is a serious public health issue. Studies conducted locally show underweight, stunting, and wasting, particularly during the supplemental feeding period. Inadequate dietary diversity, poor feeding habits, caregiver conditions, child age, health-service issues, and household food instability are the factors that are most frequently linked. Effective prevention necessitates coordinated family, community, and health-system action because these factors interact.

Recommendations

- Strengthen routine growth monitoring and early identification of growth faltering.
- Expand practical infant and young child feeding counselling, particularly for caregivers of children aged 6–23 months
- Promote affordable dietary diversification using locally available nutrient-dense foods.
- Strengthen CHW capacity to screen, counsel, refer, and follow up children at risk of acute malnutrition.
- Integrate nutrition services with immunization, child welfare clinics and management of childhood illnesses.
- Support household food-security interventions for vulnerable families.
- Include fathers, grandparents and other caregivers in nutrition education.
- Conduct updated representative county-level nutrition surveys using standardized WHO anthropometric methods.
- Future research should examine seasonality, food prices, WASH, maternal education, illness burden, and health-service access alongside child nutritional status

STATEMENTS ON COMPLIANCE WITH ETHICAL STANDARDS

Disclosure of conflict of interest

The authors declare no conflicts of interest regarding this manuscript.

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