

“MALNUTRITION AMONG CHILDREN AGED 0 TO 59 MONTHS: CAUSES, CONSEQUENCES, AND INTERVENTION CHHATRAPATI SAMBHAJI NAGAR (AURANGABAD), MAHARASHTRA”

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Abstract: Malnutrition among children aged 0–59 months remains a serious public health challenge in Chhatrapati Sambhaji Nagar (Aurangabad), Maharashtra. This study examines the major causes, consequences, and intervention strategies related to child malnutrition in the region. The causes identified include poverty, food insecurity, low maternal education, inadequate infant and young child feeding practices, recurrent infections, and limited access to quality health and nutrition services. The consequences of malnutrition are severe, leading to stunting, wasting, underweight conditions, impaired cognitive development, increased susceptibility to diseases, and higher child mortality rates. The study also reviews existing government and community-based interventions such as ICDS, POSHAN Abhiyaan, and nutritional supplementation programs, highlighting both their achievements and gaps. The findings emphasize the need for integrated, multi-sectoral approaches focusing on nutrition education, healthcare access, sanitation, and socio-economic development to effectively reduce child malnutrition.

[Fatema, B.Z. and Mishra, S. “MALNUTRITION AMONG CHILDREN AGED 0 TO 59 MONTHS: CAUSES, CONSEQUENCES, AND INTERVENTION CHHATRAPATI SAMBHAJI NAGAR (AURANGABAD), MAHARASHTRA”. *The International Journal of Interpretation, Observation and Analysis*, 2024; Volume 1, Issue 1:92-97 (January-March). ISSN 2349-0713, Peer-reviewed (online/offline), Refereed, Indexed and International Journal (Since 2013), Global Impact Factor: 5.776

Keywords: Child Malnutrition, Under-Five Children, Causes, Consequences, Nutrition Interventions, Maharashtra

Introduction: Malnutrition among children aged 0 to 59 months remains a significant public health concern in India, particularly in regions like Chhatrapati Sambhaji Nagar, Maharashtra. It encompasses undernutrition (stunting, wasting, and underweight), micronutrient deficiencies, and overnutrition, all of which have long-term implications for child survival, growth, and development. Despite various government interventions, malnutrition persists due to socio-economic disparities, inadequate maternal nutrition, poor feeding practices, and limited healthcare access. The consequences of malnutrition are severe, leading to increased morbidity, impaired cognitive development, and reduced productivity in adulthood. In Chhatrapati Sambhaji Nagar, factors such as poverty, low literacy levels, gender biases, and sanitation issues exacerbate the problem. Addressing malnutrition requires a multi-sectoral approach, including improved maternal and child healthcare, nutrition education, supplementary feeding programs, and strengthened policy implementation. This study aims to assess the prevalence, causes, and consequences of malnutrition among children in the region while evaluating the effectiveness of current interventions. The findings will provide insights for policymakers to enhance nutritional strategies,

ultimately improving child health outcomes in Chhatrapati Sambhaji Nagar.

Literature Review

Malnutrition among children aged 0 to 59 months has been widely studied, with research highlighting its complex and multifaceted nature. Globally, malnutrition contributes to nearly half of all child deaths, with South Asia, including India, bearing a significant burden (UNICEF, 2021). Studies indicate that malnutrition results from a combination of inadequate dietary intake, recurrent infections, poor maternal health, and socio-economic disparities (Black et al., 2013). In India, the National Family Health Survey (NFHS-5, 2019-21) reported alarming rates of stunting (height-for-age), wasting (weight-for-height), and underweight children, with Maharashtra showing significant regional variations. Research by IIPS (2021) indicates that rural areas, including Chhatrapati Sambhaji Nagar, face higher malnutrition rates due to poor healthcare access, food insecurity, and lack of awareness regarding infant and young child feeding (IYCF) practices.

Theories such as the UNICEF conceptual framework on malnutrition emphasize immediate causes (inadequate dietary intake and disease), underlying causes (household food insecurity, inadequate care,

and poor health services), and basic causes (poverty, education, and governance). Studies by Menon et al. (2018) suggest that integrated interventions, including maternal nutrition, early breastfeeding initiation, and micronutrient supplementation, significantly improve child nutrition outcomes.

While government schemes like ICDS, POSHAN Abhiyaan, and mid-day meal programs have had positive impacts, gaps remain in implementation, particularly in urban slums and tribal areas of Maharashtra (Kanjilal et al., 2020). This review underscores the need for a localized, evidence-based approach to tackling malnutrition in Chhatrapati Sambhaji Nagar, ensuring sustainable improvements in child health and well-being.

Statement of the Problem

Malnutrition among children aged 0 to 59 months is a persistent public health challenge in Chhatrapati Sambhaji Nagar, Maharashtra, despite various government interventions. The region continues to witness high rates of stunting, wasting, and underweight children, indicating inadequate nutritional intake and poor health practices. Factors such as poverty, food insecurity, lack of maternal education, inadequate breastfeeding practices, and limited access to healthcare services contribute significantly to the problem. The consequences of malnutrition extend beyond physical health, leading to impaired cognitive development, increased susceptibility to infections, and poor academic performance in later years. Existing programs like the Integrated Child Development Services (ICDS) and POSHAN Abhiyaan have made progress, but challenges such as ineffective implementation, inadequate resources, and lack of community participation hinder their success. This study aims to examine the underlying causes of malnutrition in Chhatrapati Sambhaji Nagar, assess the effectiveness of existing interventions, and explore potential strategies for improvement. By identifying the gaps in policy implementation and community engagement, this research will provide evidence-based recommendations to strengthen child nutrition programs. Addressing malnutrition at an early stage is crucial for ensuring the well-being of children and fostering long-term socio-economic development in the region.

Causes of Malnutrition

Malnutrition among children aged 0 to 59 months in Chhatrapati Sambhaji Nagar, Maharashtra, is driven by a combination of socio-economic, cultural, and environmental factors. One of the primary causes is poverty, which limits access to nutritious food,

healthcare, and proper sanitation. Many families struggle to afford a balanced diet, leading to deficiencies in essential nutrients.

Inadequate maternal health and nutrition during pregnancy also contribute significantly to child malnutrition. Poor maternal nutrition results in low birth weight, which increases the risk of stunting and wasting in infants. Additionally, suboptimal infant feeding practices, such as delayed initiation of breastfeeding, lack of exclusive breastfeeding for the first six months, and premature introduction of complementary foods, exacerbate nutritional deficiencies.

Consequences of Malnutrition

Malnutrition in children aged 0 to 59 months has severe and long-lasting consequences on health, cognitive development, and socio-economic well-being. One of the most immediate effects is increased morbidity and mortality. Malnourished children have weakened immune systems, making them more susceptible to infections like diarrhea, pneumonia, and tuberculosis. According to UNICEF, malnutrition contributes to nearly 45% of child deaths worldwide. Another critical consequence is stunted growth and impaired physical development. Chronic malnutrition leads to stunting (low height-for-age), which is irreversible after a certain age. Stunted children often experience poor physical strength and reduced work capacity in adulthood, affecting their productivity and economic potential.

Significance / Rationale of the Study

Malnutrition among children aged 0 to 59 months remains a major public health challenge in India, particularly in regions like Chhatrapati Sambhaji Nagar, Maharashtra. Despite various national and state-level initiatives, malnutrition persists, leading to severe consequences for child health, cognitive development, and economic productivity. This study is significant as it aims to identify the key factors contributing to malnutrition in this region and assess the effectiveness of existing interventions. Understanding the socio-economic, cultural, and healthcare-related determinants of malnutrition will help policymakers design targeted and evidence-based strategies. By highlighting gaps in nutrition programs like ICDS and POSHAN Abhiyaan, this research will provide recommendations to improve policy implementation and community participation. Moreover, this study holds scientific importance by contributing to the growing body of literature on child malnutrition in India, particularly in urban and rural areas of Maharashtra. The findings will help healthcare professionals, social workers, and

government agencies develop more effective nutrition policies and intervention programs.

Objectives of the Study

1. To assess the prevalence of malnutrition (stunting, wasting, and underweight) among children aged 0 to 59 months in Chhatrapati Sambhaji Nagar, Maharashtra.
2. To identify the key causes of malnutrition, including socio-economic factors, maternal health, infant feeding practices, healthcare access, and sanitation conditions.
3. To evaluate the consequences of malnutrition on child health, cognitive development, and long-term socio-economic outcomes.
4. To analyze the effectiveness of existing government interventions such as ICDS, POSHAN Abhiyaan, and mid-day meal programs in addressing child malnutrition in the region.
5. To explore community awareness and participation in nutrition-related programs and their impact on improving child nutritional status.
6. To recommend policy measures and intervention strategies for reducing malnutrition and improving child health outcomes in Chhatrapati Sambhaji Nagar.

Hypotheses

H₀ (Null Hypothesis): There is no significant association between socio-economic status and the prevalence of malnutrition among children aged 0 to 59 months in Chhatrapati Sambhaji Nagar.

H₁ (Alternative Hypothesis): Socio-economic status significantly influences the prevalence of malnutrition among children in the region.

H₀: Maternal education level does not have a significant impact on the nutritional status of children aged 0 to 59 months.

H₁: Higher maternal education levels are associated with better nutritional outcomes in children.

H₀: Infant and young child feeding (IYCF) practices do not significantly affect malnutrition rates.

H₁: Proper IYCF practices, including early breastfeeding initiation and adequate complementary feeding, reduce malnutrition rates among children.

H₀: Government interventions (ICDS, POSHAN Abhiyaan, etc.) have no significant impact on reducing child malnutrition in Chhatrapati Sambhaji Nagar.

H₁: Effective implementation of government interventions significantly reduces malnutrition rates among children.

H₀: Poor sanitation and hygiene conditions are not significantly linked to malnutrition. H₁: Inadequate sanitation and poor hygiene practices contribute significantly to malnutrition in children.

Methodology:

1. Research Design

This study will employ a mixed-methods approach, combining quantitative and qualitative research methods to provide a comprehensive understanding of child malnutrition in Chhatrapati Sambhaji Nagar, Maharashtra. A cross-sectional survey will be conducted to assess the prevalence, causes, and consequences of malnutrition, while qualitative interviews will help understand community perspectives and policy effectiveness.

2. Study Area

The research will focus on Chhatrapati Sambhaji Nagar, covering both urban slums and rural areas where malnutrition rates are significant. Data will be collected from households, anganwadis, and healthcare centers.

3. Sampling Method and Sample Size

- Target Population: Children aged 0 to 59 months and their mothers/caregivers.
- Sampling Technique: Stratified random sampling will be used to ensure representation from different socio-economic backgrounds and geographic locations.
- Sample Size: Approximately 500 households will be surveyed to ensure statistical reliability.

4. Data Collection Methods

Primary Data:

- Structured household surveys to collect demographic, dietary, and health-related information.
- Anthropometric measurements (height, weight, and mid-upper arm circumference) to assess nutritional status.
- Focus group discussions and in-depth interviews with mothers, healthcare workers, and policymakers to gather qualitative insights.

Secondary Data:

- Government reports, NFHS-5 data, WHO guidelines, and existing literature on child malnutrition.

5. Data Analysis

Quantitative Analysis:

- Descriptive statistics (mean, frequency, percentages) to assess malnutrition prevalence.

- Regression and correlation analysis to examine relationships between socio-economic factors and malnutrition.

Qualitative Analysis:

- Thematic analysis of interview and focus group discussion transcripts to identify key patterns and challenges in nutrition programs.

6. Ethical Considerations

- Informed consent will be obtained from participants.
- Data confidentiality and anonymity will be maintained.
- Approval from relevant ethical committees will be secured before data collection.

Data Collection Techniques / Assessment Measures

To comprehensively analyze malnutrition among children aged 0 to 59 months in Chhatrapati Sambhaji Nagar, a combination of quantitative and qualitative data collection techniques will be used.

1. Primary Data Collection Techniques

- Household Surveys: Structured questionnaires will be used to gather information on socio-economic status, dietary patterns, maternal health, and infant feeding practices.
- Anthropometric Measurements: Standardized WHO guidelines will be followed to assess:
 - Height-for-age (stunting)
 - Weight-for-height (wasting)
 - Weight-for-age (underweight)
 - Mid-Upper Arm Circumference (MUAC) to identify severe acute malnutrition.
- 24-Hour Dietary Recall: Mothers/caregivers will be asked about the child's food intake in the last 24 hours to assess nutritional diversity.
- Clinical Assessments: Observation of visible signs of malnutrition (such as edema, skin changes, and lethargy) through collaboration with healthcare professionals.
- Focus Group Discussions (FGDs): Conducted with mothers, anganwadi workers, and community health workers to understand local perceptions and barriers to proper nutrition.
- In-Depth Interviews: Conducted with key stakeholders, including policymakers, healthcare workers, and NGO

representatives, to evaluate the effectiveness of existing programs.

2. Secondary Data Collection Techniques

- Government and Institutional Reports: Analysis of NFHS-5 data, ICDS records, and POSHAN Abhiyaan progress reports.
- WHO and UNICEF Guidelines: Used to compare findings with global nutrition standards.
- Previous Research Studies: Review of published literature on malnutrition trends and interventions in Maharashtra and India.

3. Assessment Measures

- Z-Score Classification (WHO Growth Standards):
 - Stunting: Height-for-age < -2 SD
 - Wasting: Weight-for-height < -2 SD
 - Underweight: Weight-for-age < -2 SD
- Household Food Security Index (HFSI): To assess access to nutritious food.
- Water, Sanitation, and Hygiene (WASH) Indicators: Assessment of drinking water sources, toilet facilities, and hygiene practices.

Procedure

A. Data Collection Process

The research will follow a systematic procedure:

1. Obtaining Necessary Approvals & Permissions

- ❖ Ethical Approval: Approval will be sought from an Institutional Ethics Committee (IEC) to ensure compliance with ethical research guidelines.
- ❖ Local Permissions: Approvals will be obtained from healthcare centers, Anganwadi centers, local government bodies, and community leaders in Chhatrapati Sambhaji Nagar.
- ❖ NGOs & Community Organizations: Collaboration with nutrition-focused NGOs to facilitate access to malnourished children and households.

2. Logistics & Preparation

- ❖ Research Team Training: Field researchers will be trained in survey administration, anthropometric measurement techniques, and interview protocols.
- ❖ Materials & Equipment:
- Anthropometric tools: Stadiometers, MUAC tapes, weighing scales.

- Data collection instruments: Printed & digital surveys, voice recorders, and field notebooks.
- ❖ Translation & Pilot Testing: Surveys and interviews will be translated into Urdu and Marathi, and a pilot study (with 10-15 participants) will be conducted to refine questions.

3. Participant Recruitment & Data Collection

- ❖ **Household Surveys & Anthropometric Measurements:** Conducted at selected households and healthcare centers.
- ❖ **Interviews & Focus Groups:** Conducted at community spaces, mosques, Anganwadi centers, and homes.
- ❖ **Observation Studies:** Conducted during meal preparation, feeding, and hygiene practices.

4. Data Management & Quality Control

- ❖ **Double Data Entry:** To ensure accuracy, two researchers will independently enter data for cross-verification.
- ❖ **Immediate Review:** Field notes and recordings will be reviewed daily for completeness.

B. Ethical Considerations

- ❖ **Informed Consent:** Participants will sign a written consent form (translated in Urdu & Marathi), and verbal consent will be taken for illiterate participants.
- ❖ **Confidentiality & Anonymity:**
 - Personal identifiers will be removed from the dataset.
 - Audio recordings will be anonymized and securely stored.
- ❖ **Data Storage & Security:**
 - Digital data will be stored on password-protected devices.
 - Paper records will be locked in a secure cabinet.
- ❖ **Use of Results:** Findings will be used exclusively for academic and policy recommendations, ensuring no misuse of data.

Proposed Analyses

A. Quantitative Analysis

Descriptive Statistics:

- Mean, median, standard deviation, and percentages for variables like age, weight, height, dietary intake, and socioeconomic status.

Inferential Statistics:

- Chi-square test (χ^2): To determine associations between categorical variables (e.g., parental education & malnutrition).
- Pearson/Spearman Correlation: To assess relationships between household income, maternal education, and malnutrition prevalence.
- Logistic Regression Model: To identify key risk factors contributing to malnutrition.

Equation for Logistic Regression:

$$\log\left(\frac{P}{1-P}\right) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_n X_n$$

Where:

- P = Probability of malnutrition
- X_1, X_2, \dots, X_n = Independent variables (e.g., income, mother's education, breastfeeding practices)
- $\beta_1, \beta_2, \dots, \beta_n$ = Coefficients estimated from the model

Reference Source: WHO (2006) Child Growth Standards.

B. Qualitative Analysis

Thematic Analysis:

- Interviews and FGDs will be transcribed and coded manually using NVivo software.
- Common themes (e.g., religious beliefs, food taboos, healthcare access) will be categorized.

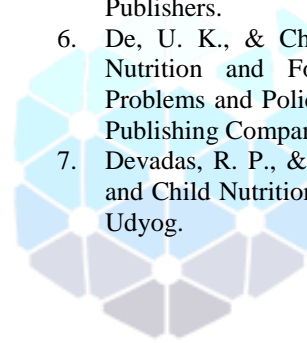
Conclusion

Malnutrition among children aged 0–59 months in Chhatrapati Sambhaji Nagar (Aurangabad), Maharashtra, continues to be a critical developmental and public health concern that demands sustained and coordinated action. This study highlights that child malnutrition is not merely the result of inadequate food intake, but a complex outcome of interrelated socio-economic, demographic, health, and environmental factors. Poverty, food insecurity, low levels of maternal education, inappropriate infant and young child feeding practices, frequent childhood illnesses, poor sanitation, and limited access to quality healthcare collectively contribute to the persistence of undernutrition in the region. The consequences of malnutrition observed among under-five children are profound and long-lasting. Conditions such as stunting, wasting, and underweight significantly impair physical growth, cognitive development, and immune function, thereby increasing vulnerability to infections and mortality. Beyond immediate health impacts, childhood malnutrition also affects educational

attainment, productivity, and economic potential in adulthood, perpetuating an intergenerational cycle of poverty and poor health. Thus, addressing child malnutrition is not only a health priority but also a prerequisite for sustainable human development.

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INTERPRETATION
OBSERVATION & ANALYSIS