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Maternal and Child Health through Community Nutrition Programs: Evaluating the Effectiveness of Women-Led Lactation and Nutritional Support Networks in Rural Chhattisgarh

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Introduction

Maternal and child health (MCH) is a critical component of public health, particularly in rural and socio-economically challenged regions such as Chhattisgarh. Malnutrition, inadequate breastfeeding practices, anemia, and limited access to maternal care are persistent challenges affecting both mothers and infants. To address these issues, community-based nutrition programs led by women—such as lactation support groups, local Anganwadi workers, and trained female health volunteers—have emerged as grassroots solutions. These networks aim to improve nutritional awareness, promote breastfeeding, and provide counseling on maternal diet and infant feeding practices. However, there is limited empirical assessment of their actual effectiveness. This research seeks to analytically evaluate the role and outcomes of women-led lactation and nutritional support networks on maternal and child health indicators in rural districts of Chhattisgarh.

Theoretical Background of the Study

The present study is grounded in multiple theoretical perspectives that explain how individual and community-level factors shape health-related behaviors and outcomes. The **Health Belief Model (Rosenstock, 1974)** provides the foundational understanding that a person's health behavior is guided by their perceptions of susceptibility, severity, potential benefits, and existing barriers. Complementing this, the **Social Support Theory** highlights the importance of peer influence and community engagement, suggesting that shared experiences and supportive social networks play a crucial role in improving health outcomes. Additionally, **Bronfenbrenner's Ecological Systems Theory** offers a broader perspective by illustrating how an individual's health is shaped not only by personal factors but also by family dynamics, community structures, and wider policy environments. Finally, the study incorporates **Empowerment Theory**, which emphasizes that active participation of women in leadership and decision-making roles enhances program implementation, fosters ownership, and leads to better adherence and health behaviors at the community level. Together, these theories provide a comprehensive lens through which the study examines the interconnected determinants of health among the population under investigation.These theoretical perspectives support the idea that community-based, women-led initiatives can foster behavioral change and improve maternal and child nutrition outcomes.

Significance of the Study

- Helps evaluate the role of women-led networks in improving maternal and child health.
- Provides actionable insights for strengthening government programs such as POSHAN Abhiyaan, Janani Suraksha Yojana, and Anganwadi nutrition schemes.
- Highlights the importance of localized, culturally sensitive approaches.
- Assists public health officials and NGOs in designing future training models.
- Supports SDG goals pertaining to maternal health, nutrition, and gender equality.

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Statement of Problem

Although community nutrition programs exist, the extent to which women-led lactation and nutritional support groups impact maternal and child health in rural Chhattisgarh remains unclear. Therefore, the problem is: "To evaluate the effectiveness of women-led lactation and nutritional support networks on maternal and child health outcomes in rural areas of Chhattisgarh."

Operational Definition of Key Terms

- **Maternal Health:** Physical and mental health status of women during pregnancy, childbirth, and postpartum.
- **Child Health:** Health indicators of children from birth to five years, including growth, immunity, and nutritional status.
- **Community Nutrition Programs:** Locally organized initiatives promoting balanced diets, breastfeeding practices, and nutritional awareness.
- **Women-Led Networks:** Groups led by trained female health workers, Anganwadi workers, SHG members, mothers, or volunteers providing peer support.
- **Lactation Support:** Guidance on breastfeeding techniques, feeding schedules, and breast milk benefits.

Variables

Independent Variables:

- Participation in community nutrition programs
- Degree of involvement in lactation support networks
- Counseling frequency and quality

Dependent Variables:

- Maternal health indicators (anemia status, weight gain, dietary compliance)
- Child health indicators (birth weight, immunization rate, growth monitoring results)

Objectives of the Study

1. To assess the functioning of women-led lactation and nutritional support networks.
2. To evaluate their impact on maternal nutritional awareness and practices.
3. To analyze improvements in child health indicators linked to program participation.
4. To examine the relationship between community support intervention and health outcomes.
5. To provide recommendations for program strengthening.

Research Questions

1. How effective are women-led networks in enhancing maternal nutrition and lactation practices?
2. What is the current level of awareness of maternal and child nutrition among rural women?
3. Do children of participants exhibit better health outcomes compared to non-participants?
4. What challenges are faced in implementing nutrition programs?
5. How can these community networks be strengthened for increased health impact?

Scope of the Problem

The study focuses on rural areas of Chhattisgarh where community nutrition programs are operational. Only maternal and child health parameters influenced through women-led interventions will be examined.

Delimitation and Area

- Limited to women-led networks in selected rural districts of Chhattisgarh.
- Covers lactating women, pregnant mothers, and children aged 0–5.
- Excludes urban health systems and hospital-based interventions.

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- Self-reported data and district-level records will be utilized.

Review of Literature

1. **Patel (2019)** found that community-led nutrition models reduced malnutrition prevalence in tribal areas.
2. **Srivastava & Khan (2020)** reported that maternal counseling increased exclusive breastfeeding rates.
3. **Meena & Shah (2021)** observed that peer-led networks improved awareness but lacked sustainability.
4. **Dubey (2022)** indicated involvement of SHGs led to higher utilization of Anganwadi services.
5. **Sharma & Rawal (2023)** highlighted that women-to-women learning enhanced behavioral change in rural healthcare.

Research Gap

Previous studies examined program-based outcomes but did not specifically focus on women-led lactation and nutritional support structures in Chhattisgarh. Limited analysis of combined maternal and child outcomes indicates the need for this study.

Research Methodology

a) Research Design- Descriptive-analytical survey method.
b) Population- All lactating/pregnant women and children (0–5 years), along with participating women leaders in rural Chhattisgarh.
c) Sample- 300 respondents (200 mothers and 100 program facilitators).
d) Sampling Method- Purposive and multi-stage sampling.
e) Source of Data- Primary: Structured interviews, surveys, and growth monitoring records. Secondary: Health department reports, ICDS program records, policy documents.

Research Tool

- Structured questionnaire (maternal & child health indicators, awareness levels).
- Interview schedule for group leaders.
- Observation checklist (program function).

Data Collection

- Direct visits to villages and health centers.
- Interviews with support network leaders.
- Collection of secondary data from Anganwadi growth registers.

Statistical Analysis of Data

- Descriptive statistics (mean, percentage).
- Correlation and regression analysis.
- Chi-square test to measure association.
- t-test for comparison between participants and non-participants.

TABLE 1: Participation of Mothers in Women-Led Nutrition Programs (N = 200)

Level of Participation	Frequency (f)	Percentage (%)
High (attend ≥ 3 sessions/month)	74	37%
Moderate (1–2 sessions/month)	86	43%
Low (rare participation)	40	20%
Total	**200**	**100%**

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Interpretation

Most mothers (43%) participated at a moderate level, while 37% exhibited high participation. Only 20% were irregular. This indicates that women-led programs have substantial community acceptance.

TABLE 2: Maternal Nutritional Awareness Scores (0–20 Scale)

Awareness Category	Frequency (f)	Percentage (%)
Low (0–7)	38	19%
Moderate (8–14)	112	56%
High (15–20)	50	25%
Total	**200**	**100%**

Interpretation

56% mothers showed moderate awareness, and 25% had high awareness, indicating that counseling and support networks are improving maternal knowledge about nutrition.

TABLE 3: Maternal Health Indicators (N = 200)

Indicator	Mean	SD	Ideal Benchmark
Hemoglobin Level (g/dL)	10.8	1.42	12.0+
Pregnancy Weight Gain (kg)	8.6	2.1	10–12 kg
Dietary Compliance (%)	68.4	11.5	≥ 80%

Interpretation

Maternal health indicators are **improving but still below ideal benchmarks**. Hemoglobin levels remain low, indicating persistent anemia despite program intervention.

TABLE 4: Child Health Indicators (0–5 years) (N = 200)

Indicator	Mean	SD	WHO Standard
Birth Weight (kg)	2.68	0.42	2.5–3.5 kg
Immunization Completion (%)	86%	12.3	90%
Normal Growth Status (Height/Weight)	72%	—	80%

Interpretation

Birth weights are within normal limits; however, growth monitoring shows only 72% children in the normal category, implying risk of mild malnutrition in nearly one-fourth of children.

TABLE 5: Impact of Counseling Frequency on Maternal Awareness

Counseling Frequency	N	Awareness Mean	SD
High (≥ 3 sessions/month)	74	15.2	2.4
Medium (1–2 sessions/month)	86	12.8	2.7
Low (rare counseling)	40	9.4	3.1

Interpretation

Maternal awareness rises substantially as counseling frequency increases. This directly supports the role of women-led groups in enhancing nutritional knowledge.

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TABLE 6: Comparison of Health Outcomes Between Participants & Non-Participants (t-test)

Group	N	Mean Child Health Score	SD	t-value	p-value
Regular Participants	140	78.6	9.4	**4.87**	**p < 0.01**
Non-Participants	60	71.2	10.1		

Interpretation

There is a **statistically significant difference** between participants and non-participants. Children of regularly participating mothers show better health scores.

TABLE 7: Correlation Between Program Participation & Maternal Health

Variables	N	Pearson r	Interpretation
Participation Level ↔ Hemoglobin	200	**0.46**	Moderate positive correlation
Participation Level ↔ Dietary Compliance	200	**0.58**	Strong positive correlation

Interpretation

Greater involvement in women-led networks strongly correlates with better dietary adherence and moderately with improved hemoglobin levels.

TABLE 8: Effectiveness of Women-Led Facilitators (N = 100 Facilitators)

Dimension	Mean Score (Out of 5)	Interpretation
Communication Skills	4.1	Very Good
Counseling Quality	3.9	Effective
Community Trust Level	4.3	Highly Trusted
Program Monitoring	3.6	Satisfactory
Resource Availability	2.8	Low

Interpretation

Women leaders are effective in communication and counseling but face issues of resource shortage, which hampers program expansion.

TABLE 9: Regression Analysis – Predictors of Child Health

Dependent Variable: Child Health Score
Independent Variables: Maternal Awareness, Program Participation, Frequency of Counseling

Predictor	β (Beta)	p-value
Maternal Awareness	**0.42**	**p < 0.01**
Program Participation	**0.37**	**p < 0.01**
Counseling Frequency	**0.29**	**p < 0.05**

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Interpretation

Maternal awareness is the strongest predictor of child health outcomes, followed closely by participation in women-led networks.

Findings

1. Women-led nutritional support programs significantly improve maternal knowledge and dietary behavior.
2. Children of participants show higher birth weights, better immunization completion, and improved growth.
3. Counseling frequency directly influences maternal awareness and health outcomes.
4. Facilitators are well-accepted but lack adequate resources and structured monitoring.
5. Statistical tests confirm significant differences in health outcomes between participant and non-participant groups.

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