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EXPLORING THE ROLE OF MORINGA OLEIFERA MOTHER TINCTURE IN THE MANAGEMENT OF UNDERSIZED AND UNDERWEIGHT CHILDREN IN THE AGE GROUP OF 3 TO 7 YEARS: AN EXPERIMENTAL STUDY.

Dr.Harshvardhan S Bhosale.MD (HOM) Assistant Professor, Department of Repertory.
Dr.Vidyadhar R Khanaj.MD (HOM), PG & PhD Guide,Head of Department & Professor, Department of Repertory.
Dr. Arun T. Chougule G.C.E.H Head of Department & Professor, Department of Human Physiology & Biochemistry.
Dr. Sunita A Gujar D.H.M.S Head of Department & Associate Professor, Department Of Pharmacy.
Dr.Vaishali A Shinde MD (HOM) Associate Professor, Department of Repertory.

Late Mrs. Hausabai Homoeopathic Medical College & Hospital, Nimshirgaon, Maharashtra.

Abstract

In rural areas undersized and underweight children pose significant health challenges. Despite numerous initiatives, the prevalence of undernutrition persists. This study aims to assess the prevalence, determinants, and the efficacy of Homoeopathic medicine Moringa Oleifera Q in managing undersized and underweight children. An experimental control design involving 30 children (30 intervention) aged 3-7 years from 10 Anganwadi centers was conducted. Primary data included anthropometric measurements and dietary assessments. Moringa Oleifera Q was administered to the intervention group for 8 months, with regular follow-ups. Results suggest potential benefits of Moringa Oleifera Q in improving nutritional outcomes.

Keywords *-Undersized children, underweight children, rural health, homeopathic medicine, Moringa Oleifera Q, nutritional intervention*.

Introduction

Background

Undersized and underweight children is a state in which a deficiency (Undernutrition), excess, or imbalance of nutrients causes measurable adverse effects on tissues/body form (body shape, size, and composition) and function, leading to a clinical outcome.

An undersized and underweight child is classified as mild, moderate, and severe acute undersized and underweight children; it is determined through the height, weight, and mid-upper arm circumference. The Indian Academy of Pediatricians has calculated the weight percentile taking into consideration the genetic make-up of Indians, their nutritional status over generations, and growth norms understood from surveys. Undernutrition being more prevalent in the rural areas. The common cause of undersized and underweight children is mainly chronic hunger. Undersized and underweight children is a problem with multiple causes like.-

a) Food insecurity,
b) Maternal undernutrition,
C) Faulty digestion and assimilation of food,
D) Recurrent infections,
e) Worm infestations
f) Poor hygiene etc.

Regular surveys conducted by the NFHS show that compared to 2005-06, the percentage of wasting and underweight children have in fact increased. It is clear from these findings that supplying nutrients alone may not be the solution.

NEED OF THE STUDY

The child's mortality rates and nutritional status represent threats to his or her health, especially Underweight. Despite numerous involvements and initiatives aimed at minimizing this problem among children, the situation remains a major concern that requires immediate attention. Basically villages surrounding to Nimshirgaon are mainly having farmers and industrial workers population. In many families children's are self-depended for food and other activities. So there are issues of Proper dietary guidance. Hence, it is important to study various aspects of underweight status of the child younger than seven years old explicitly in nearby rural area.

Also the commonly used Moringa Oleifera in day to day life as an important component in cooking, curries is most neglected in homoeopathic prescriptions as it is not easily available in pharmacies. So to explore the role of Moringa Oleifera is also our aim of the study.

Hypothesis- Homeopathic Medicine Moringa Oleifera Q has effective role in increasing weight and size of children.

Null Hypothesis- Homeopathic Medicine Moringa Oleifera Q has no role in increasing weight and size of children

Objectives

1. To determine the prevalence of underweight children under 7 years in rural area nearby collage hospital
2. To identify determinants contributing to underweight status in this population.
3. To evaluate the role of Homoeopathic medicine Moringa Oleifera Q in managing undersized and underweight children.

Review of Literature

Undersized and underweight children in rural areas often face multifactorial challenges including food insecurity, maternal under nutrition, and poor hygiene. Traditional interventions have shown limited success, prompting exploration into alternative treatments like homeopathy, particularly Moringa Oleifera Q. A review of literature on undersize (stunted) and underweight children highlights the multifaceted nature of these conditions, exploring causes, consequences, and interventions

Definition and Scope

- Stunting (undersize): Defined as low height-for-age, stunting reflects chronic malnutrition. It is measured as height more than two standard deviations below the World Health Organization (WHO) Child Growth Standards median.
- Underweight: Defined as low weight-for-age, underweight status can result from acute or chronic malnutrition. It is measured as weight more than two standard deviations below the WHO Child Growth Standards median.

Causes of Undernutrition-

1. Nutritional Deficiencies:
   - Lack of sufficient calories, proteins, and fats.
   - Deficiencies in vitamins and minerals like vitamin A, iron, and zinc.
2. Infectious Diseases:
   - Frequent infections (e.g., diarrhea, respiratory infections, malaria) lead to nutrient loss and poor absorption.
   - Intestinal parasites hinder nutrient absorption.
3. Socioeconomic Factors:
   - Poverty limits access to nutritious food and healthcare.
   - Low caregiver education results in poor child feeding and care practices.
4. Environmental Factors:
   - Poor sanitation and lack of clean water increase disease risk.
   - Urban slums and rural areas with limited healthcare infrastructure have higher undernutrition rates.
5. Maternal Health:
   - Maternal malnutrition and poor health during pregnancy lead to low birth weight and growth issues in children.
   - Poor maternal education and young maternal age are linked to higher child undernutrition rates.

Consequences

1. **Health Implications**:

Increased susceptibility to infections and illnesses.

Higher mortality rates, particularly in severe cases of malnutrition.

2. Developmental Impact:

Cognitive impairment and reduced educational attainment.

Delayed motor development and reduced physical capacity.

3. Economic Impact:

Long-term economic consequences due to decreased productivity and increased healthcare costs.

Stunted children are more likely to become stunted adults, perpetuating the cycle of poverty and malnutrition.

Role of Moringa Oleifera Mother Tincture

Moringa Oleifera mother tincture, a concentrated herbal extract used in homeopathy, is derived from the Moringa Oleifera Oleifera plant. It is employed for various therapeutic purposes, capitalizing on Moringa Oleifera's extensive medicinal properties. Here are some common uses of Moringa Oleifera mother tincture:

1. Nutritional Support: Moringa Oleifera is rich in vitamins, minerals, and antioxidants, making the mother tincture a potent supplement for overall nutritional support.
2. Anti-inflammatory: It can help reduce inflammation in conditions such as arthritis, joint pain, and other inflammatory diseases.
3. Digestive Aid: Used to improve digestion, treat constipation, and support liver function.
4. Immune Booster: Helps strengthen the immune system, aiding in the prevention and management of infections.
5. Energy Enhancement: Used to combat fatigue and boost energy levels, supporting overall vitality.
6. Skin Health: Applied for treating various skin conditions, including wounds, rashes, and infections, due to its antimicrobial properties.
7. Blood Sugar Regulation: Assists in maintaining healthy blood sugar levels, potentially benefiting individuals with diabetes.
8. Cardiovascular Health: Supports heart health by helping to manage blood pressure and cholesterol levels.
9. Antioxidant Properties: Provides protection against oxidative stress and free radical damage.
10. Anti-microbial Action: Helps in treating bacterial, viral, and fungal infections due to its antimicrobial properties.

Materials and Methods

Study Design

An experimental study design was employed to evaluate the effectiveness of Moringa Oleifera Q on the anthropometric measurements and nutritional status of children aged 3-7 years.

Setting and Participants

The study was conducted in ten Anganwadi centers located in the surrounding villages. A total of 30 children, aged between 3 to 7 years, who were identified as undersized and underweight based on the World Health Organization (WHO) growth standards, were selected as participants. The selection criteria included children with height-for-age and weight-for-age Z-scores below -2 SD from the WHO growth standards median.

Inclusion Criteria

- Children of both genders
- Children aged between 3-7 years.

Exclusion Criteria

- Children with congenital anomalies.
- Premature deliveries with birth-related issues.
- Attendance less than 75% in Anganwadi or schools.

Data Collection

Anthropometric Measurements

Primary data collection involved the measurement of anthropometric parameters:

Height: Measured to the nearest 0.1 cm using a portable stadiometer.

Weight: Measured to the nearest 0.1 kg using a digital weighing scale.

Measurements were taken at baseline and subsequently at monthly follow-up visits for the duration of the study.

Intervention

The intervention group received Moringa Oleifera mother tincture as a nutritional supplement. The details of the intervention are as follows:

Dosage: 10 drops of Moringa Oleifera Q with half cup of water administered twice a day.

Duration: 8 months.

Follow-up: Monthly follow-up visits were conducted to monitor compliance, administer the next dose of Moringa Oleifera Q, and collect anthropometric data.

Monitoring and Compliance

Compliance with the intervention was monitored during the monthly follow-up visits. Caregivers were instructed to maintain a daily log of the administration of Moringa Oleifera Q, which was reviewed by the study team during each visit.

Ethical Considerations

The study protocol was reviewed and approved by the Institutional Ethics Committee. Informed consent was obtained from the parents or guardians of all participating children. Confidentiality of the participants was maintained throughout the study.

Result

Study Population:-A total of 30 children were enrolled in the study. The following outcomes were observed:

Improvement Outcomes

- **Significant Improvement**: 18 children (60%)
- **Mild Improvement**: 5 children (16.67%)
- **No Improvement**: 5 children (16.67%)
- **Discontinued**: 2 children (6.67%)

Detailed Outcomes

- ✓ **Significant Improvement**:
  - 18 children showed marked improvement in growth parameters (height, weight) and overall health status.
  - This group exhibited a substantial increase in height-for-age and weight-for-age z-scores.
- ✓ **Mild Improvement**:
  - 5 children demonstrated mild improvement, with some positive changes in growth parameters, but not as pronounced as the significant improvement group.
  - Slight increases in height-for-age and weight-for-age z-scores were noted.
- ✓ **No Improvement**:
  - 5 children did not exhibit noticeable changes in growth parameters during the study period.
  - Height-for-age and weight-for-age z-scores remained relatively stable, indicating no significant improvement.
- ✓ **Discontinued**:
  - 2 children discontinued participation due to personal or health-related issues unrelated to the study interventions.
  - These cases were excluded from the final analysis of improvement outcomes.

Statistical Analysis:

Study Population: - Total Children: 30

Outcome Distribution

- Significant Improvement: 18 (60%)
- Mild Improvement: 5 (16.67%)
- No Improvement: 5 (16.67%)
- Discontinued: 2 (6.67%)

Chi-Square Test -

- Observed Frequencies: [18, 5, 5, 2]
- Expected Frequencies: [7.5, 7.5, 7.5, 7.5]
- Chi-Square Statistic (χ^2): 20.4
- P-Value: 0.00014

Interpretation:

Significance: The p-value is less than 0.05, indicating a statistically significant difference between observed and expected frequencies.

Conclusion: The intervention had a significant effect, with the majority of children showing significant improvement.

Discussion

Our study of 30 children demonstrated promising results with 60% showing significant improvement in growth parameters, including height-for-age and weight-for-age z-scores. This highlights the effectiveness of the interventions in addressing nutritional deficiencies and promoting healthy growth.

Factors contributing to these improvements include targeted nutritional interventions, regular health monitoring, and community support. However, challenges such as participant dropout and variability in responses suggest the need for personalized approaches and consistent engagement.

Implications

Our study supports the implementation of comprehensive nutritional programs and highlights the need for further research on long-term sustainability and scalability of effective interventions.

Future Directions

Future research should focus on long-term follow-up, scaling effective interventions, and exploring integrated approaches to address childhood malnutrition comprehensively.

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