

# Assessment of Nutritional Status of Under-Five Children and Nutritional Knowledge and Practices of Mothers in Rural Anganwadi Centres of Adilabad and Asifabad Districts, Telangana

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**Abstract - Background:** Childhood malnutrition remains a major public health concern in rural India, where Anganwadi Centres play a key role in supporting child nutrition. **Objectives:** To assess the nutritional status of under-five children attending Anganwadi centres in rural Adilabad and Asifabad districts, Telangana, and to examine associated dietary practices, morbidity, maternal nutrition knowledge, and Anganwadi service utilization. **Methods:** A community-based cross-sectional descriptive study was conducted among 100 under-five children and their mothers, selected through multistage random sampling. Data were collected using structured questionnaires and anthropometric measurements and analyzed against WHO Child Growth Standards, using the Chi-square test to assess associations ( $p < 0.05$  significant). **Results:** Sixty-six percent of children had normal nutritional status while 34% were underweight; none were stunted or wasted. Fever was the most common illness (42%), and dietary diversity was poor, with less than half of children regularly consuming vegetables, fruits, or milk products. Most mothers (86%) had good knowledge of a balanced diet, and Anganwadi services such as growth monitoring and nutrition education were widely utilized. Nutritional status was significantly associated with birth weight ( $p = 0.000353$ ), frequency of illness ( $p = 0.0055$ ), maternal nutrition knowledge ( $p = 0.0487$ ), and utilization of Anganwadi supplementary nutrition ( $p = 0.0129$ ); place of delivery showed no significant association ( $p = 0.3304$ ). **Conclusion:** Strengthening maternal nutrition education, improving dietary diversity, and encouraging regular utilization of Anganwadi services may help reduce undernutrition among rural under-five children.

**Keywords -** Nutritional status; Under-five children; Anganwadi; Malnutrition; Rural Telangana

## I. INTRODUCTION

Nutrition during the first five years of life is fundamental to physical growth, brain development, and immune function, and lays the foundation for a child's future health, learning, and productivity [1]. Despite improvements in healthcare and nutrition programmes, childhood malnutrition remains a major public health problem in rural India, where poverty, food insecurity, poor sanitation, and inadequate health services are common [2]. Anganwadi Centres under the Integrated Child Development Services (ICDS) scheme provide supplementary nutrition, growth monitoring, immunization support, and nutrition and health education, but the effectiveness of these services depends on utilization and maternal awareness [3]. Assessing the nutritional status of under-five children helps identify those at risk of malnutrition and enables timely intervention.

This study aimed to assess the nutritional status of under-five children attending Anganwadi centres in the rural areas of Adilabad and Asifabad districts of Telangana, and to examine associated dietary practices, morbidity, maternal nutrition knowledge, and Anganwadi service utilization.

## II. METHODS

A community-based cross-sectional descriptive study was conducted in rural, predominantly tribal areas of Adilabad and Asifabad districts, Telangana. The study population comprised under-five children (0-59 months) registered at selected Anganwadi centres, along with their mothers/caregivers. A sample of 100 mother-child pairs was selected using multistage random sampling: rural mandals were selected by simple random sampling, Anganwadi centres were then randomly selected within these mandals, and eligible children were randomly selected from each centre. Children with severe illness during data collection and those whose caregivers did not provide consent were excluded.

Data were collected using structured questionnaires covering socio-demographic details, dietary practices, and Anganwadi service utilization, along with anthropometric measurements (weight, height/length, and mid-upper arm circumference) taken using standardized techniques; weight was measured to the nearest 0.1 kg and height/length to the nearest 0.1 cm. Nutritional status was classified against

WHO Child Growth Standards: underweight (weight-for-age < -2SD), stunting (height-for-age < -2SD), and wasting (weight-for-height < -2SD). Institutional ethical clearance and informed consent from mothers/caregivers were obtained prior to data collection.

#### A. Statistical Analysis

Data were entered in Microsoft Excel and analyzed using SPSS software. Descriptive statistics (frequencies and percentages) were used to summarize the data, and the Chi-square test was used to assess associations between nutritional status and selected variables. A p-value of less than 0.05 was considered statistically significant.

### III. RESULTS

Of the 100 children studied, 57% were female and 43% male; 43% were of birth order greater than three. Birth weight was 2.5 kg or more in 57% of children and below 2.5 kg in 43%. Most children (59%) were delivered in government hospitals and the remainder in private hospitals, with no home deliveries recorded.

Sixty-six percent of children had normal nutritional status and 34% were underweight; no child was stunted or wasted. Nearly half of the children (49%) had experienced illness in the preceding three months, most commonly fever (42%), followed by respiratory infection (26%), diarrhoea (18%), and worm infestation (14%). Exclusive breastfeeding for six months was reported for 54% of children, and complementary feeding was initiated at the recommended age of six months in 53% of cases. Regular consumption of nutritious food groups was low: only 48% of children regularly consumed cereals, 43% pulses, 36% vegetables, 40% fruits, 37% milk/milk products, and 40% eggs or meat.

Most mothers (86%) demonstrated good knowledge of a balanced diet, 82% always washed hands before feeding, and 74% continued feeding their child during illness. Anganwadi services were well utilized: 58% of children received supplementary nutrition regularly, and all children (100%) underwent growth monitoring, with all mothers (100%) receiving nutrition and health education.

Chi-square analysis showed statistically significant associations between nutritional status and birth weight, frequency of illness, maternal nutrition knowledge, and utilization of Anganwadi supplementary nutrition, while place of delivery showed no significant association (Table I). Children with low birth weight (<2.5 kg) were markedly more likely to be underweight (23 of 43) than those with normal birth weight (11 of 57). Underweight children experienced frequent illness more often than normally nourished children, and children of mothers with good nutrition knowledge were more likely to have normal nutritional status (60 of 86) than children of mothers with poor knowledge (6 of 14). Mothers with better nutrition knowledge were also more likely to regularly utilize Anganwadi supplementary nutrition services ( $p=0.0022$ ).

**TABLE I. ASSOCIATION BETWEEN NUTRITIONAL STATUS AND KEY STUDY VARIABLES (CHI-SQUARE TEST)**

| Variable                                   | p-value  | Association     |
|--------------------------------------------|----------|-----------------|
| Birth weight                               | 0.000353 | Significant     |
| Place of delivery                          | 0.3304   | Not significant |
| Frequency of illness                       | 0.0055   | Significant     |
| Maternal nutrition knowledge               | 0.0487   | Significant     |
| Anganwadi supplementary nutrition use      | 0.0129   | Significant     |
| Maternal knowledge & Anganwadi utilization | 0.0022   | Significant     |

### IV. DISCUSSION

Although the majority of under-five children in this rural tribal population had normal nutritional status, underweight remained present in roughly one-third of children, consistent with undernutrition being a persistent concern in resource-limited rural settings [4]. The strong association between low birth weight and underweight status is consistent with other studies from South Asia and highlights the importance of maternal and antenatal nutrition in determining long-term child growth outcomes [5]. The association between frequent illness and poor nutritional status reflects the well-established infection-malnutrition cycle, in which illness both results from and worsens undernutrition.

Maternal nutrition knowledge emerged as an important protective factor and was itself linked to greater utilization of Anganwadi supplementary nutrition services, suggesting that nutrition education efforts may have compounding benefits through improved service uptake. Despite generally high awareness and service utilization, dietary diversity remained limited, with regular consumption of protective food groups such as vegetables, fruits, and milk reported by less than half of children, pointing to a gap between knowledge and practice that likely reflects household food access and affordability constraints rather than awareness alone.

#### A. Limitations

The sample was limited to 100 children from selected Anganwadi centres in two districts, which may limit generalizability. The cross-sectional, single-time-point design precludes assessment of change over time, and data collected via maternal interview are subject to recall bias.

### V. CONCLUSION

Most under-five children attending Anganwadi Centres in rural Adilabad and Asifabad districts had normal nutritional status, but underweight remained present in a substantial minority. Low birth weight, frequent illness, limited dietary diversity, poor maternal nutrition knowledge, and irregular utilization of Anganwadi supplementary nutrition were identified as key factors associated with undernutrition, while place of delivery showed no significant association.

Strengthening maternal nutrition education, promoting dietary diversity, and encouraging consistent use of Anganwadi services are recommended strategies to further reduce undernutrition among rural under-five children.

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