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A Study to Assess the Knowledge Regarding the Health Benefits of Nutritional Supplements in Anganwadi among Mothers of Under-Five Children at Rural Areas of Kuppam

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Abstract: Malnutrition in under-five children is a major public health issue in rural India. Anganwadi centers, part of the Integrated Child Development Services (ICDS) program, provide nutritional supplements to combat this. Mothers' knowledge regarding these supplements is crucial for their effective utilization. This descriptive, cross-sectional study aimed to assess this knowledge among 65 mothers of under-five children in rural Kuppam, selected via convenience sampling. Data were collected using a validated, structured questionnaire (Cronbach's Alpha r = 0.75). Findings revealed that 21.5% of mothers had adequate knowledge, 47.7% had moderate knowledge, and 30.8% had inadequate knowledge, with a mean knowledge score of 12.20 (SD = 3.688). Significant associations were found between knowledge levels and maternal education (p=0.011), occupation (p=0.017), housing type (p=0.004), and participation in health education programs (p=0.038). The study underscores the need for targeted health education to enhance maternal awareness and improve child health outcomes through better utilization of Anganwadi nutritional programs.

Keywords: *Nutritional Supplements; Anganwadi; Maternal Knowledge; Child Health; Rural India; Health Education.*

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I. INTRODUCTION

Child undernutrition remains a significant public health challenge in India, contributing to high child mortality rates and long-term developmental issues (1,2). The Integrated Child Development Services (ICDS) program, through Anganwadi Centres (AWCs), aims to address this by providing essential services, including supplementary nutrition to vulnerable groups such as children under six, adolescent girls, pregnant women, and nursing mothers (3,4). These centers are pivotal in distributing nutritional support and health education, particularly in rural areas (5). Despite the expansion of the ICDS program, its effectiveness can be hampered by low service utilization, often linked to insufficient maternal awareness and knowledge regarding the benefits and proper use of nutritional supplements (5,6).

Mothers are primary caregivers and their understanding directly influences their children's nutritional intake and health. Limited knowledge can lead to underutilization or improper feeding practices, thereby diminishing the impact of supplementation programs on child growth and development (7-9). In rural areas like Kuppam, while Anganwadi centers are operational, the prevalence of malnutrition may persist if mothers are not fully aware of the nutritional benefits offered. Previous studies in other regions of India have indicated that a significant proportion of mothers lack adequate knowledge about Anganwadi services and the nutritional value of supplements (10). This study, therefore, aimed to assess the knowledge of mothers of under-five children in rural Kuppam regarding the health benefits of nutritional supplements provided at Anganwadi centers, to identify knowledge gaps and inform targeted interventions (11).

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II. MATERIALS AND METHODS

➢ *Research Approach and Design*

A descriptive, cross-sectional research design was employed to assess the existing knowledge of mothers.

➢ *Setting and Population*

The study was conducted in selected Anganwadi centres in the rural areas of Beggilipalle and Nalagampalli, Kuppam, Chittoor district, Andhra Pradesh, India. The target population included all mothers of under-five children residing in these selected rural areas who had access to and utilized Anganwadi services for their children's nutritional needs.

➢ *Sample Size and Sampling Technique*

The sample size was calculated as 65 mothers, using Cochran's formula based on an expected prevalence of adequate knowledge of 3.8% (from a similar study), a 95% confidence level, and a 5% margin of error, with an additional 10% to account for non-responses. A convenient sampling technique was used to select participants based on their availability and willingness to participate.

➢ *Inclusion and Exclusion Criteria*

Mothers with children under five years living in the selected rural areas of Kuppam, utilizing Anganwadi services, and willing to give informed consent. Mothers unable to understand or respond to questionnaires in Telugu, Tamil, or English were excluded.

➢ *Data Collection Tool*

A structured questionnaire was developed, consisting of two sections:

- Section A: Demographic Variables (12 items including age, education, occupation, income, number of children, housing type, etc.).
- Section B: Knowledge Questionnaire (20 items assessing knowledge regarding health benefits of nutritional supplements in Anganwadi). Each correct answer was scored as 1, and incorrect as 0. Knowledge levels were categorized as inadequate (0-10 marks, 0-50%), moderate (11-15 marks, 51-75%), and adequate (16-20 marks, >75%).

➢ *Validity and Reliability*

Content validity was ensured through expert consultation in nursing, medicine, and statistics. Reliability was tested using Cronbach's Alpha (r = 0.75) during a pilot study with 10 mothers, who were not part of the main study.

➢ *Ethical Considerations*

Ethical clearance was obtained from the Institutional Research Committee (IRC) & Institutional Human Ethics Committee of PESIMSR, Kuppam. Permission was obtained from the Child Development Project Officer (CDPO) of Kuppam and Anganwadi workers. Informed written consent was obtained from all participants after explaining the study's purpose and ensuring confidentiality.

➢ *Data Collection and Analysis*

The collected data were tabulated and analyzed using SPSS. Descriptive statistics (frequency, percentage, mean, standard deviation) were used to describe demographic variables and knowledge levels. Inferential statistics (Chi-square test) were used to determine associations between knowledge levels and selected demographic variables. A p-value < 0.05 was considered statistically significant.

III. RESULTS

➢ *Demographic Profile of Participants*

A total of 65 mothers participated. The majority (72.3%) were aged over 25 years. Regarding education, 53.8% of mothers and 52.3% of fathers had secondary education. Most mothers (58.5%) were unemployed/housewives, while 44.6% of fathers were skilled workers/service providers. A majority of families (61.5%) had a monthly income >₹15000. Most families (52.3%) had two children, and the youngest child for 47.7% of families was aged 3-5 years. Semi-pucca houses were the most common dwelling type (50.8%). The vast majority (93.8%) were married and lived in nuclear families (73.8%). Over half (53.8%) had healthcare facilities within 1-5 km. A slight majority (55.4%) had participated in health education programs, and Anganwadi workers were the primary source of health information for 83.1% of participants.

➢ *Knowledge Levels Regarding Nutritional Supplements*

Out of 65 mothers, 14 (21.5%) demonstrated adequate knowledge, 31 (47.7%) had a moderate level of knowledge, and 20 (30.8%) had inadequate knowledge regarding the health benefits of nutritional supplements provided at Anganwadi centers. The mean knowledge score was 12.20 with a standard deviation (SD) of 3.688.

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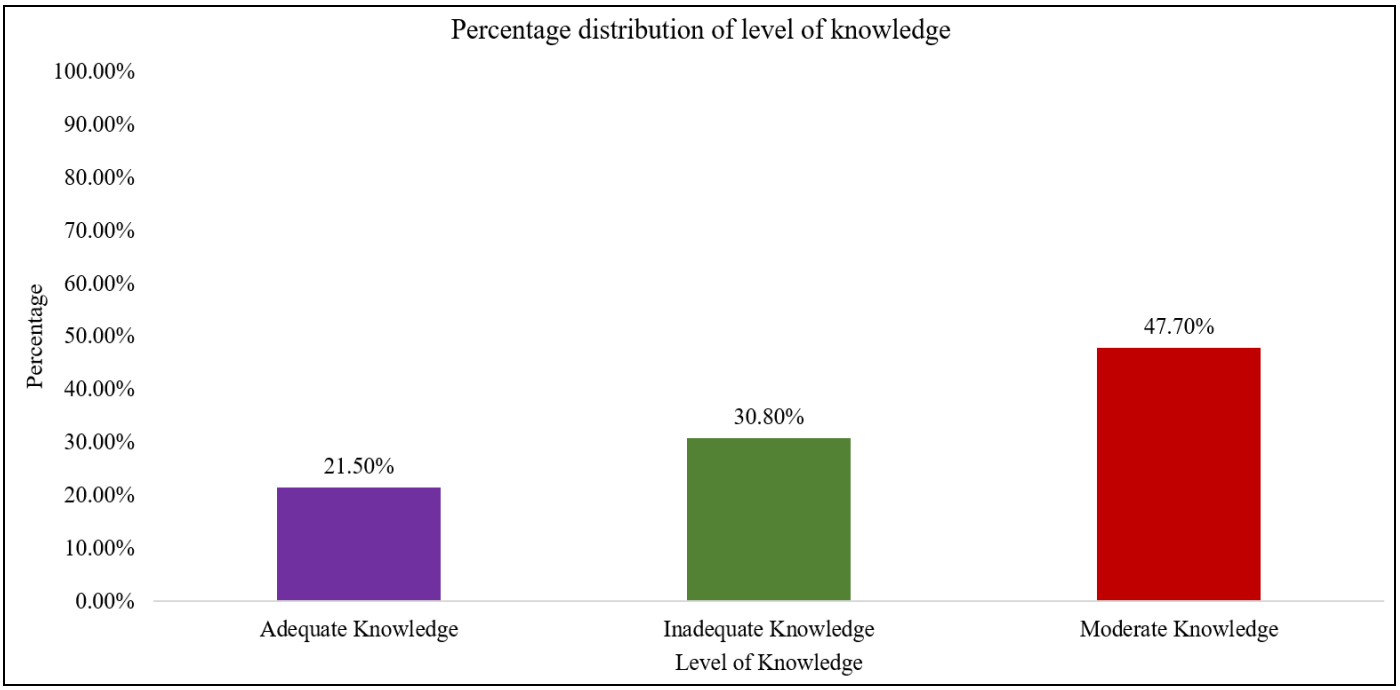

Fig 1 Percentage Distribution of level of Knowledge

➢ *Association between Knowledge Levels and Demographic Variables*

Mothers' knowledge regarding the health benefits of nutritional supplements in Anganwadi was significantly associated with several demographic factors. Specifically, mothers with higher levels of education (χ^2=16.518, p=0.011), those in professional occupations (χ^2=15.388, p=0.017), mothers whose husbands had higher education (χ2=16.518, p=0.011), and those residing in pucca houses (χ2=15.491, p=0.004) demonstrated significantly better knowledge. Furthermore, participation in health education programs also showed a significant positive association with knowledge levels (p=0.038). In contrast, mother's age (p=0.107), family income (p=0.403), number of children (p=0.581), marital status (p=0.839), and access to healthcare (p=0.099) did not exhibit statistically significant associations with knowledge in the Chi-square tests.

IV. DISCUSSION

This study aimed to assess the knowledge of mothers in rural Kuppam regarding the health benefits of nutritional supplements provided through Anganwadi centers. The findings indicate that while nearly half of the mothers (47.7%) possessed a moderate level of knowledge, a considerable proportion (30.8%) had inadequate knowledge. Only a fifth (21.5%) demonstrated adequate knowledge. This highlights a significant gap in understanding, which could impede the optimal utilization of these vital nutritional services and consequently affect child health outcomes. These findings are consistent with other studies in India that have reported varying, often suboptimal, levels of maternal knowledge concerning ICDS services and nutrition.

The significant association between knowledge and maternal education, paternal education, maternal occupation, housing type, and participation in health education programs underscores the influence of socioeconomic and educational factors. Mothers with higher education and those in professional occupations likely have better access to information and a greater capacity to understand health messages. Similarly, better housing (pucca houses) often correlates with higher socioeconomic status and, potentially, better health literacy. The positive impact of participation in health education programs suggests that such interventions are effective in improving awareness. Anganwadi workers being the primary source of health information emphasizes their crucial role and the need for their continuous training and empowerment.

The study's limitations include its conduction in only two villages, potentially limiting generalizability, and reliance on self-reported responses, which may be subject to social desirability bias. Nevertheless, the findings provide valuable insights into the current knowledge landscape and identify vulnerable subgroups needing targeted educational interventions..

V. CONCLUSION

The study revealed that a majority of mothers of under-five children in the rural areas of Kuppam have moderate to inadequate knowledge regarding the health benefits of nutritional supplements provided at Anganwadi centers. Maternal education, occupation, father's education, housing type, and participation in health education programs were significantly associated with the level of knowledge. These findings emphasize the urgent need for targeted health education initiatives, particularly for mothers with lower education levels, those in non-professional occupations, and those residing in poorer housing conditions. Strengthening community engagement and educational interventions through Anganwadi workers and other healthcare channels can enhance the utilization and effectiveness of these nutritional programs, ultimately contributing to improved child health outcomes in rural India.

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