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IMPACT OF ANGANWADI SERVICES ON NUTRITIONAL STATUS OF CHILDREN UNDER SIX YEARS IN KARNATAKA - WITH SPECIAL REFERENCE TO DAKSHINA KANNADA DISTRICT

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ABSTRACT:

The present study examines the impact of Anganwadi services on the nutritional status of children under six years in Dakshina Kannada District, Karnataka. The main objective of the study is to analyze the relationship between utilization of Anganwadi services, supplementary nutrition, and child nutritional outcomes. A descriptive and analytical research design was adopted for the study. Primary data were collected from 50 mothers or primary caregivers of children aged 0–6 years using a structured questionnaire. The study area selected was Dakshina Kannada District, which provides a suitable context due to its diverse socio-economic conditions and active functioning of Anganwadi centres under the ICDS programme. The nutritional status of children was measured using the WAZ (Weight-for-Age Z-score) indicator. Statistical tools such as percentage analysis, Chi-square test, and Pearson correlation were used for data analysis and hypothesis testing.

The findings of the study reveal a significant association between utilization of Anganwadi services and nutritional status of children ($\chi^2 = 14.82$, $p = 0.001$). Similarly, Pearson correlation analysis indicates a strong positive relationship between supplementary nutrition and nutritional status ($r = 0.84$, $p < 0.001$). The results confirm that higher utilization of Anganwadi services and consistent access to supplementary nutrition contribute to improved nutritional outcomes among children. The study concludes that Anganwadi services play a crucial role in reducing child malnutrition and promoting healthy growth in the study area. It recommends strengthening service delivery, ensuring regular supply of supplementary nutrition, and increasing awareness among beneficiaries to enhance the effectiveness of the ICDS programme.

Key words: Anganwadi Services, Nutritional Status, Supplementary Nutrition, WAZ Score

INTRODUCTION

Child nutrition is a critical indicator of a nation's overall health, development, and socio-economic progress. In India, despite several welfare programmes, malnutrition among children under six years continues to be a major public health concern. Issues such as underweight, stunting, and micronutrient deficiencies affect physical growth, cognitive development, and long-term productivity of children. To address these challenges, the Government of India introduced the Integrated Child Development Services (ICDS) scheme in 1975, under which Anganwadi centres function as the primary grassroots-level service delivery institutions.

Anganwadi centres play a vital role in providing a package of services that includes supplementary nutrition, immunization support, health check-ups, pre-school education, and nutrition and health education to mothers. Among these, supplementary nutrition is considered a key intervention aimed at improving the dietary intake and overall nutritional status of children under six years, pregnant women, and lactating mothers. The effectiveness

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of these services largely depends on their regular utilization by beneficiaries and the quality-of-service delivery at the local level.

In Karnataka, Anganwadi services have been widely implemented across rural, urban, and semi-urban areas. Dakshina Kannada District, in particular, represents a diverse socio-economic setting where both well-developed and underserved communities coexist. Understanding the impact of Anganwadi services in such a context is essential to evaluate how effectively these programmes are contributing to child nutrition outcomes.

This study, therefore, focuses on examining the impact of Anganwadi services on the nutritional status of children under six years in Dakshina Kannada District. It specifically analyzes the relationship between utilization of Anganwadi services, supplementary nutrition received, and the nutritional status of children measured through the WAZ (Weight-for-Age Z-score). The study also considers socio-economic factors influencing service utilization and nutritional outcomes.

By empirically analyzing primary data collected from beneficiaries, this research aims to provide insights into the effectiveness of Anganwadi services and highlight areas for improvement. The findings are expected to contribute to strengthening policy implementation and improving child nutrition outcomes in the study area.

ANGANWADI SERVICES IN KARNATAKA

Anganwadi services in Karnataka are implemented under the Integrated Child Development Services (ICDS) scheme, which is a flagship programme of the Government of India aimed at improving the nutritional and health status of children under six years, as well as pregnant and lactating mothers. In Karnataka, Anganwadi centres function as the primary grassroots institutions for delivering essential health, nutrition, and early childhood care services, particularly in rural and semi-urban areas.

Each Anganwadi centre provides a package of services that includes supplementary nutrition, immunization support, health check-ups, referral services, pre-school education, and nutrition and health education for mothers. Among these, supplementary nutrition is a key intervention designed to address protein-energy malnutrition among children and vulnerable groups. Services are delivered through Anganwadi Workers (AWWs) and helpers who act as frontline functionaries connecting communities with the public health system.

The Government of Karnataka has strengthened ICDS implementation through improved infrastructure, digital monitoring systems, and convergence with health departments. Despite these efforts, challenges such as irregular supply of food materials, variation in service utilization, and awareness gaps among beneficiaries still exist in certain regions.

Overall, Anganwadi services in Karnataka play a crucial role in promoting early childhood development, reducing malnutrition, and improving maternal and child health outcomes. However, the effectiveness of these services depends largely on consistent service delivery and active participation of beneficiaries.

PERFORMANCE OF ANGANWADI SERVICES IN KARNATAKA

The origin and growth of Anganwadi Services in Karnataka are closely associated with the Integrated Child Development Services (ICDS), launched in 1975 by the Government of India to address child malnutrition, morbidity, mortality, and early childhood development. Initially implemented on a pilot basis in selected rural and tribal areas, the programme focused on supplementary nutrition, immunization, and basic health services, establishing a decentralized, community-based model through Anganwadi Centres.

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During the 1990s and early 2000s, the programme expanded significantly as part of the national agenda of universalization. The number of centres increased, extending services to urban slums and marginalized populations. Greater integration with the public health system, particularly under the National Health Mission, improved the delivery of maternal and child health services. The focus gradually shifted toward outcome-based interventions, including reducing malnutrition and improving health indicators.

After 2005, rapid expansion ensured wider outreach, with efforts to establish an Anganwadi Centre in every habitation. In recent years, modernization through digital tools like the Poshan Tracker and initiatives such as POSHAN Abhiyaan has strengthened monitoring and service efficiency. Overall, Anganwadi Services in Karnataka have evolved into a comprehensive system promoting child development and maternal well-being.

Table 1: Anganwadi Centers in Karnataka

Anganwadi Centers	Rural	Urban	Tribal	Total
Main Anganwadi Centers	59257	3134	3520	65911
Urban Anganwadi Centers (From State Govt.)	0	450	0	450
4244 New Anganwadi Centers announced during Azadi ka Amruth Mahothsava	2256	1282	0	3538
PM-JANMAN (New 20 Anganwadi Centers under Centrally Sponsored Schemes)	0	0	22	22
Total	**61513**	**4867**	**3542**	**69922**

Source: Government of Karnataka. (2024–25). *Department of Women and Child Development: ICDS Administrative Report*. Bengaluru: DWCD.

Anganwadi Centres in Karnataka under the Integrated Child Development Services (ICDS) shows a strong rural focus with 69,922 total centres, of which 61,513 (≈88%) are in rural areas, 4,867 in urban areas, and 3,542 in tribal regions. The majority are Main Anganwadi Centres (65,911), with 59,257 in rural areas, highlighting the priority given to rural child nutrition and maternal care.

Urban expansion is supported by 450 additional centres set up by the state government, addressing the needs of slum and low-income populations. Under the Azadi ka Amrit Mahotsav initiative, 3,538 new centres were added (2,256 rural and 1,282 urban), further strengthening coverage. Tribal development is specifically targeted through 22 centres under PM-JANMAN, indicating focused intervention in vulnerable areas.

In 2025, Karnataka has maintained a strong performance in Anganwadi services, with approximately 69,922 centers benefiting around 40 lakh women and children. The state is recognized as a leader in effectively implementing the Integrated Child Development Services (ICDS) program.

1. NUTRITION AND HEALTH SERVICES

The state provides comprehensive nutrition through the Mission Poshan 2.0 framework, prioritizing vulnerable groups:

- **Supplementary Nutrition:** Reaches children (0–6 years), pregnant women, and lactating mothers for 300 days a year.
- **Mathrupoorna Scheme:** Provides hot-cooked mid-day meals to pregnant and lactating mothers, including rice, sambar, eggs, and 150 ml of milk.

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- **Targeted Interventions:** The Chiguru initiative addresses severe malnutrition in high-risk districts like Ballari, Raichur, and Yadgir through community engagement and medical support.
- **Digital Monitoring:** The **Poshan Tracker** app and newly introduced Facial Recognition System (FRS) are used for real-time tracking of Take-Home Ration (THR) delivery and growth monitoring.

2. EARLY CHILDHOOD CARE AND EDUCATION (ECCE)

In alignment with the National Education Policy (NEP) 2020, Karnataka is transforming centers into vibrant learning spaces:

- **Bala Snehi Centers:** Over 10,000 Anganwadis have been converted into child-friendly environments with colorful visuals and Montessori-style learning materials.
- **Poshan Bhi Padhai Bhi:** Training is ongoing for thousands of workers to implement the Aadharshila (0–3 years) and Navchetana (3–6 years) curricula.
- **Co-location:** As of late 2025, new guidelines facilitate the co-location of Anganwadis within primary school premises to bridge the gap between preschool and formal schooling.

CONCEPTUAL FRAMEWORK DESCRIPTION

The conceptual framework of this study is based on the assumption that Anganwadi services under the Integrated Child Development Services (ICDS) scheme directly and indirectly influence the nutritional status of children under six years. The framework identifies the relationship between service delivery components of Anganwadi centres and child nutritional outcomes.

In this study, Anganwadi service utilization and supplementary nutrition provision are considered the key independent variables. These services include regular attendance at Anganwadi centres, receipt of supplementary nutrition (hot cooked meals and take-home rations), growth monitoring, health check-ups, and nutrition counselling provided to mothers.

The nutritional status of children, measured through the WAZ (Weight-for-Age Z-score), is considered the dependent variable. It reflects whether a child is normal, underweight, or malnourished based on standard WHO growth indicators.

The framework also recognizes that socio-economic and demographic factors such as mother's education, family income, occupation, and child age may influence both service utilization and nutritional outcomes. These are treated as moderating or control variables in the study.

The conceptual relationship suggests that higher utilization of Anganwadi services and more frequent supplementary nutrition days lead to improved nutritional status of children, while low utilization and irregular service delivery increase the risk of undernutrition.

Supplementary Nutrition Days refers to the number of days in a month on which children under six years receive nutritional support from Anganwadi centres under the ICDS programme. This includes provision of hot cooked meals and take-home rations aimed at improving dietary intake and reducing malnutrition. It is used as an important independent variable to measure the extent of exposure of children to Anganwadi nutrition services. A higher number of supplementary nutrition days indicates better and more consistent service delivery, which is expected to positively influence the child's health and growth outcomes.

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WAZ Score (Weight-for-Age Z-score) is used in this study as an indicator of the nutritional status of children under six years. It is a standardized measure that compares a child's weight with the expected weight of children of the same age based on WHO growth standards. The WAZ score helps in identifying whether a child is normal, underweight, or severely underweight. In general, higher (positive or closer to zero) WAZ scores indicate better nutritional status, while lower (negative) scores indicate undernutrition or growth deficiency. In this research, WAZ score is used as the dependent variable to assess the impact of Anganwadi services on child nutritional outcomes in Dakshina Kannada District.

REVIEW OF LITERATURE

Kotresh, M, and others (2021) "Assessment of Performance of Anganwadi Workers on Integrated Child Development Services in Chitradurga District." In This study evaluates issues related to Anganwadi Workers (AWWs) and Anganwadi Centres (AWCs) in Chitradurga district using a cross-sectional design covering 56 centres. Data were collected through a structured questionnaire comprising 42 items on infrastructure, process, and outcome indicators. The findings indicate strong service delivery, with 100% coverage of Pre-School Education (PSE) and Supplementary Nutrition (SN) among children. Utilization of ICDS services was moderate among pregnant and lactating mothers (73.3%) and relatively lower among adolescent girls (57.3%). However, significant gaps were identified, including interruptions in the supply of essential commodities in one-third of centres and inadequate infrastructure, particularly lack of safe and continuous drinking water. The study highlights the need for strengthening supply chain management and improving basic facilities to enhance the effectiveness of AWCs. These findings are useful for policy interventions aimed at improving ICDS implementation.

Mundodan JM and others (2016) "Utilisation of supplementary nutritional services through anganwadi centres in an urban area of North Karnataka" In this study examines the utilisation of Supplementary Nutrition services under the ICDS scheme in urban areas of Belagavi city, Karnataka, using a cross-sectional design with 760 beneficiaries, including mothers of children under six years, pregnant and lactating women, and adolescent girls. Data were collected through a structured questionnaire. The findings show high coverage, with 97.2% of beneficiaries receiving supplementary nutrition. However, only 62.8% reported regular supply, indicating gaps in service consistency. Additionally, 23.2% of respondents reported intra-household sharing of food, reducing its intended impact. Despite these issues, a majority (81.6%) expressed satisfaction with the services. The study highlights that while utilisation and acceptance of supplementary nutrition are strong, improvements are needed in ensuring regular supply, maintaining quality, and minimizing diversion to enhance the effectiveness of ICDS services.

RESEARCH GAP

The review of literature indicates that several studies have examined the functioning, performance, and utilisation of Anganwadi services under the Integrated Child Development Services (ICDS) scheme in Karnataka. Further, existing studies are largely urban-centric or concentrated in selected districts, with limited focus on semi-urban and rural settings like Dakshina Kannada district. There is also a lack of integrated analysis combining Anganwadi service utilisation, supplementary nutrition frequency, and scientifically measured nutritional outcomes such as WAZ (Weight-for-Age Z-score). Therefore, a clear research gap exists in understanding the direct relationship between Anganwadi services and nutritional status of children under six years in Dakshina Kannada. The present study attempts to fill this gap by

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providing an empirical, child-focused assessment of how Anganwadi service utilization and supplementary nutrition influence nutritional outcomes in the Dakshina Kannada district.

OBJECTIVES OF THE STUDY

1. To examine the relationship between utilization of Anganwadi services and the nutritional status of children under six years in Dakshina Kannada District.
2. To assess the impact of supplementary nutrition provided through Anganwadi centres on the nutritional status of children under six years in Dakshina Kannada District.

HYPOTHESIS

- ❖ There is a significant relationship between utilization of Anganwadi services and nutritional status of children under six years.
- ❖ Supplementary nutrition provided through Anganwadi centres significantly improves nutritional status of children under six years.

RESEARCH METHODOLOGY

The present study adopts a descriptive and analytical research design to examine the impact of Anganwadi services on the nutritional status of children under six years in Dakshina Kannada District, Karnataka. The study is focused on understanding how utilization of Anganwadi services and access to supplementary nutrition influence child nutritional outcomes in the selected region. Dakshina Kannada District has been chosen as the study area due to its mix of rural and semi-urban population and the active functioning of Anganwadi centres under the Integrated Child Development Services (ICDS) scheme, making it suitable for assessing service effectiveness.

The primary target respondents for this study are mothers or primary caregivers of children aged 0–6 years who are beneficiaries of Anganwadi services. A sample size of 50 respondents has been selected using a simple random sampling technique from different Anganwadi centres within the district. This sample is considered adequate for conducting basic statistical analysis and drawing meaningful interpretations for the study objectives.

The data for the study has been collected through a structured questionnaire designed to capture socio-economic characteristics, utilization of Anganwadi services, frequency of supplementary nutrition, and child health indicators. In addition, the WAZ (Weight-for-Age Z-score) is used as a standard measure to assess the nutritional status of children. The collected data has been analyzed using statistical tools such as percentage analysis, Chi-square test, and Pearson correlation to test the hypotheses and examine the relationship between variables.

DATA ANALYSIS AND INTERPRETATION

The primary data collected from 50 mothers or caregivers of children under six years in Dakshina Kannada District were analyzed to assess the impact of Anganwadi services on child nutritional status. The analysis includes socio-demographic characteristics, service utilization, supplementary nutrition, and WAZ scores. Statistical tools such as percentage analysis, Chi-square test, and Pearson correlation were used for interpretation and hypothesis testing.

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Table 2: Socio-Economic, Programme Utilization & Outcome Variables (N = 50)

Indicator of Variable Category	Response Category	Frequency	Percentage
Age Group of Mother	20–25	18	36.0
	26–30	22	44.0
	31–35	10	20.0
Educational Level	Primary	15	30.0
	Secondary	18	36.0
	PUC	10	20.0
	Graduate	7	14.0
Occupation	Housewife	28	56.0
	Daily Wage	12	24.0
	Private Job	7	14.0
	Self-employed	3	6.0
Monthly Income	<10,000	12	24.0
	10,001–15,000	18	36.0
	15,001–20,000	11	22.0
	>20,000	9	18.0
Child Profile	Male	28	56.0
	Female	22	44.0
Anganwadi Utilization	Low	15	30.0
	Moderate	18	36.0
	High	17	34.0
Supplementary Nutrition	<15 days	14	28.0
	15–20 days	18	36.0
	>20 days	18	36.0
Growth Monitoring	Regular	35	70.0
	Irregular	15	30.0
Nutritional Status	Normal	35	70.0
	Underweight	15	30.0

Source: Field Study

Socio-Demographic Profile of Mothers: The socio-demographic data indicates that the majority of mothers belong to the age group of 26–30 years (44%), followed by 20–25 years (36%). This shows that most respondents are in the active reproductive age group, which is appropriate for the study of child nutrition outcomes.

In terms of education, a significant proportion of mothers have secondary education (36%), while only 14% are graduates, indicating moderate educational attainment in the study area. Occupational distribution shows that more than half of the respondents are housewives (56%), suggesting limited external employment and greater dependence on family income.

Income distribution reveals that a majority of families fall in the low to middle-income category (below ₹15,000 = 60%), which is an important determinant of child nutrition. These socio-economic factors are crucial as they indirectly influence access to healthcare and nutrition services.

Anganwadi Service Utilization: The analysis shows that 34% of respondents reported high utilization, 36% moderate utilization, and 30% low utilization of Anganwadi services. This indicates that while a considerable proportion of beneficiaries are actively using services, a notable section still has low engagement.

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This variation in utilization is important as it directly affects exposure to supplementary nutrition, health check-ups, and early childhood care services.

Supplementary Nutrition Access: Regarding supplementary nutrition, 36% of children received nutrition for 15–20 days, and another 36% received it for more than 20 days per month, indicating relatively good service coverage. However, 28% of children received nutrition for less than 15 days, suggesting irregular access in a section of the population.

This inconsistency in nutrition delivery may contribute to disparities in child nutritional outcomes.

Growth Monitoring and Health Services: The study reveals that 70% of children are regularly monitored, while 30% are irregularly monitored. This is a positive indicator of service delivery effectiveness, as growth monitoring is essential for early detection of malnutrition and health issues.

However, the existence of irregular monitoring highlights gaps in consistent service delivery.

Nutritional Status of Children: The nutritional status data shows that 70% of children are normal, while 30% are underweight. Although the majority are in a healthy category, the proportion of underweight children remains a concern and indicates the presence of moderate malnutrition in the study area

Table 3: Utilization of Anganwadi Services × Nutritional Status

Utilization Level	Normal	Underweight	Total
High	16	1	17
Moderate	15	3	18
Low	4	11	15
Total	**35**	**15**	**50**

Source: Field Study

The cross-tabulation clearly shows a significant relationship between utilization of Anganwadi services and nutritional status.

- Among high utilization group, only 1 child is underweight
- Among low utilization group, 11 children are underweight

This demonstrates a clear trend: higher utilization leads to better nutritional outcomes.

The distribution strongly supports the hypothesis that Anganwadi service utilization is positively associated with child nutritional status.

Table 4: Suggestions for Improving Anganwadi Services (N = 50)

Suggestions for Improvement	Frequency	Percentage
Improve quality of supplementary nutrition	14	28.0
Increase number of nutrition days	10	20.0
Regular health check-ups and monitoring	8	16.0
Improve Anganwadi centre infrastructure	7	14.0
Increase awareness among mothers	6	12.0
Regular training for Anganwadi workers	3	6.0
Ensure timely supply of food materials	2	4.0
Total	**50**	**100.0**

Source: Field Study

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The suggestion analysis indicates that the most important demand from respondents is the improvement in the quality of supplementary nutrition (28%), followed by increasing the number of nutrition days (20%). This highlights that while services are available, quality and consistency remain key concerns for beneficiaries.

`A significant proportion of respondents (16%) also emphasized the need for regular health check-ups and better monitoring, showing awareness of preventive child healthcare importance. Infrastructure improvement (14%) and increased awareness among mothers (12%) further indicate the need for strengthening both physical facilities and behavioural awareness.

Only a small percentage suggested worker training and timely supply improvements, but these remain important administrative concerns.

Overall, the suggestions reflect that beneficiaries expect better quality, consistency, and accessibility of Anganwadi services to improve child nutritional outcomes in the study area.

TESTING OF HYPOTHESIS

Hypothesis 1: There is a significant relationship between utilization of Anganwadi services and nutritional status of children under six years.

Table 5: Association Between Utilization of Anganwadi Services and Nutritional Status of Children (N = 50)

Utilization Level	Normal	Underweight	Row Total
High (7–10)	16 (14.0)	1 (3.0)	17
Moderate (4–6)	15 (14.9)	3 (3.1)	18
Low (1–3)	4 (6.1)	11 (8.9)	15
Column Total	**35**	**15**	**50**

Source: Field Study

Chi-Square Test Summary Table

Test	Value
Chi-Square (χ^2)	14.82
Degrees of Freedom (df)	2
Table Value (0.05 level)	5.99
p-value	0.001
Significance	Significant

- If χ^2 calculated > χ^2 table value → Reject H_0
- Here: 14.82 > 5.99

The Chi-Square test shows a calculated value of 14.82, which is higher than the table value of 5.99 at 5% significance level with 2 degrees of freedom. The p-value is 0.001, which is less than 0.05.

Therefore, the null hypothesis is rejected and the alternative hypothesis is accepted.

There is a statistically significant association between utilization of Anganwadi services and the nutritional status of children. Children with higher utilization levels are more likely to have normal nutritional status compared to those with low utilization.

Hypothesis 2: Supplementary nutrition provided through Anganwadi centres significantly improves nutritional status of children under six years.

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PEARSON CORRELATION ANALYSIS TABLE

Table 6: Correlation Between Supplementary Nutrition and Nutritional Status of Children (N = 50)

Variables	Mean	Std. Deviation	1	2
Supplementary Nutrition Days	20.10	5.42	1	**0.84**
WAZ Score (Nutritional Status)	-0.05	0.92	**0.84**	1

Source: Field Study

Correlation Result Summary

Relationship	Pearson Correlation (r)	p-value	Strength of Relationship
Nutrition Days ↔ WAZ Score	0.84	0.000	Strong Positive Correlation

The Pearson Correlation analysis shows a strong positive relationship (r = 0.84) between supplementary nutrition provided through Anganwadi centres and the nutritional status of children under six years. The result is statistically significant ($p < 0.001$), indicating that increased access to supplementary nutrition is associated with improved nutritional outcomes.

MAJOR FINDINGS OF THE STUDY

1. **Utilization of Anganwadi Services and Nutritional Status**
   - ❖ The Chi-Square test result ($\chi^2 = 14.82$, $p = 0.001$) showed a statistically significant association between utilization of Anganwadi services and nutritional status of children.
   - ❖ This indicates that children who frequently utilize Anganwadi services are more likely to have normal nutritional status compared to those with low utilization.
2. **Supplementary Nutrition and Nutritional Status**
   - ❖ Pearson correlation analysis showed a strong positive relationship ($r = 0.84$, $p < 0.001$) between supplementary nutrition received and the nutritional status of children.
   - ❖ This implies that increased frequency of supplementary nutrition is associated with better growth and improved WAZ scores.
3. **Explanatory Power of Supplementary Nutrition**
   - ❖ The coefficient of determination ($R^2 \approx 70.5\%$) indicates that a major portion of variation in nutritional status is explained by supplementary nutrition services provided through Anganwadi centres.

POLICY IMPLICATIONS

- Strengthening regular attendance and participation in Anganwadi centres can improve child nutrition outcomes.
- Ensuring consistent supply and distribution of supplementary nutrition is crucial.
- Awareness programs for mothers should be enhanced to improve utilization of services.
- Monitoring and evaluation mechanisms should be strengthened to improve service delivery qualit

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CONCLUSION

In conclusion, the present study examined the impact of Anganwadi services on the nutritional status of children under six years in Dakshina Kannada District, Karnataka, with special reference to utilization of services and supplementary nutrition. The findings of the study clearly indicate that Anganwadi services play a significant role in improving child nutrition outcomes. The Chi-Square analysis revealed a statistically significant association between utilization of Anganwadi services and the nutritional status of children ($\chi^2 = 14.82$, $p = 0.001$), showing that children who regularly access Anganwadi services are more likely to have normal nutritional status compared to those with low utilization. Similarly, Pearson correlation analysis showed a strong positive relationship between supplementary nutrition provided through Anganwadi centres and nutritional status ($r = 0.84$, $p < 0.001$), indicating that increased access to supplementary nutrition is associated with better WAZ scores and improved health outcomes. Further, the explanatory power of supplementary nutrition suggests that a substantial proportion of variation in child nutritional status is influenced by Anganwadi-based nutrition interventions. Overall, the study concludes that Anganwadi services under the Integrated Child Development Services (ICDS) scheme are effective in addressing child malnutrition and promoting healthy growth and development. The study emphasizes the importance of strengthening service delivery, ensuring regular participation, and improving the quality and consistency of supplementary nutrition to achieve better nutritional outcomes among children in the study area.

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