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A Study To Assess The Knowledge On Anaemia Mukt Bharat Strategy Among The Rural Population In Uttar Pradesh

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Abstract:
Anemia remains a critical public health challenge in India, affecting diverse populations including women, children, and adolescents. Despite efforts through programs like the National Nutritional Anemia Prophylaxis Program (NNAPP), the National Nutritional Anemia Control Programme (NNACP), and the Intensified National Iron Plus Initiative (INIPI), challenges such as poor coverage, inadequate training, and weak supply chains persist. This study evaluates the understanding and perception of the Anemia Mukt Bharat (AMB) strategy among beneficiaries in rural Greater Noida using a cross-sectional quantitative approach. Data were collected from 60 participants aged 15-45 years through a Demographic Performa and a Self-Structured Knowledge Questionnaire. Results show that 40% of participants had poor knowledge, 46.7% had average knowledge, and 13.3% had good knowledge of the AMB strategy. Significant knowledge gaps were noted, particularly related to occupation and birth order. Findings indicate a need for enhanced educational initiatives and targeted outreach to improve awareness and implementation of the AMB program. Recommendations include developing tailored educational campaigns, integrating AMB education into existing health policies, and further research into socio-cultural factors influencing anemia knowledge. Addressing these gaps is crucial for the program's success and for improving anemia control in rural areas.

Keywords: Assess, Knowledge, Anemia Mukt Bharath and Rural Population.

Introduction

Anemia is a major public health issue in India, affecting all age groups, particularly women, children, and adolescents[1-4]. Iron deficiency and inadequate intake of micronutrients like folate and vitamin B12 are the primary causes. Since 1972, India's efforts to combat anemia, such as the National Nutritional Anemia Prophylaxis Program (NNAPP), have focused on iron and folic acid (IFA) supplementation[5]. However, the program's effectiveness has been limited due to poor coverage, substandard drug quality, non-adherence, insufficient funding, inadequate implementation, lack of training, low community engagement, and weak monitoring and supervision [6]. Deficiencies in training and organizational support further impede the supply chain, affecting essential tasks[7].

The Indian government remains committed to combating anemia through ongoing strategies. Key initiatives include the National Nutritional Anemia Control Programme (1991), the National Iron Plus Initiative (2013), and the Intensified National Iron Plus Initiative or Anemia Mukt Bharat (AMB) strategy (2018)[8]. AMB is part of the Prime Minister's POSHAN Abhiyaan and uses a 6x6x6 approach, targeting six groups with six interventions and six institutional mechanisms[7]. Central to this is prophylactic iron and folic acid (IFA) supplementation for children (6–59 months), adolescent girls (15–19 years), adolescent boys (10–19 years), women of reproductive age, pregnant women, and lactating mothers. The program reaches 26 million pregnant women, 13 million lactating mothers, 73 million school-age children and adolescents, and 17 million children under 5[9].

The success of IFA supplementation under the AMB strategy depends on an efficient supply chain, which currently faces several challenges, including delayed procurement, inadequate trained personnel, distribution gaps, drug shortages, and regional variations in practices[5-6]. These issues limit the effective coverage and management of IFA supplies[10]. To address these challenges, the Ministry of Health and Family Welfare (MoHFW) has prioritized strengthening the supply chain and logistics under the AMB framework [11-13]. Improving the IFA supply chain is crucial to enhancing the overall public health supply system and ensuring timely delivery of supplements to prevent iron deficiency[14-17].

Evidence on India's public health supply chain is limited, with some state-level studies highlighting issues[11]. A recent study in Bihar identified challenges in IFA forecasting, procurement, storage, and disposal, along with staff shortages and inadequate training. Similarly, a study in Odisha assessed the logistics performance of various drug supply chains[18]. Some studies suggest models to improve supply chain performance, such as Tamil Nadu's high-performing public-sector supply chain, achieved through effective capacity building and management [19-25].

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Base on the above evidences, the study would like to assess the knowledge levels of the Anaemia Mukt Bharat Strategy among the Rural Population.

Research Methodology

This study evaluates the understanding and perception of the Anemia Mukt Bharat (AMB) strategy among beneficiaries in rural Greater Noida using a quantitative approach. A cross-sectional design was employed, with data collected from 60 individuals aged 15-45 in Gautam Buddha Nagar. Convenience sampling was used, and inclusion criteria included residency in rural areas, willingness to participate, and no severe chronic conditions. Exclusion criteria encompassed individuals outside the age range, pregnant women, and those with severe malnutrition or chronic conditions.

Data collection was conducted using two primary tools: a Demographic Performa and a Self-Structured Knowledge Questionnaire. The Demographic Performa captured details such as age, religion, family occupation, income, family type, information sources, birth order, and family history of anemia. The Knowledge Questionnaire, comprising 25 questions, assessed participants' understanding of anemia and the Anemia Mukt Bharat (AMB) strategy, covering aspects such as definitions, symptoms, objectives, health risks, dietary changes, supplement benefits, target groups, interventions, and treatment options. Together, these tools aimed to provide a thorough analysis of both demographic factors and knowledge related to the AMB program. The tools were validated by experts and tested for reliability with a Pearson correlation coefficient of 0.84. A pilot study confirmed the feasibility of the tools. Data collection occurred from April 1 to April 30, 2024, and statistical analysis was performed using IBM SPSS Statistics version 29.

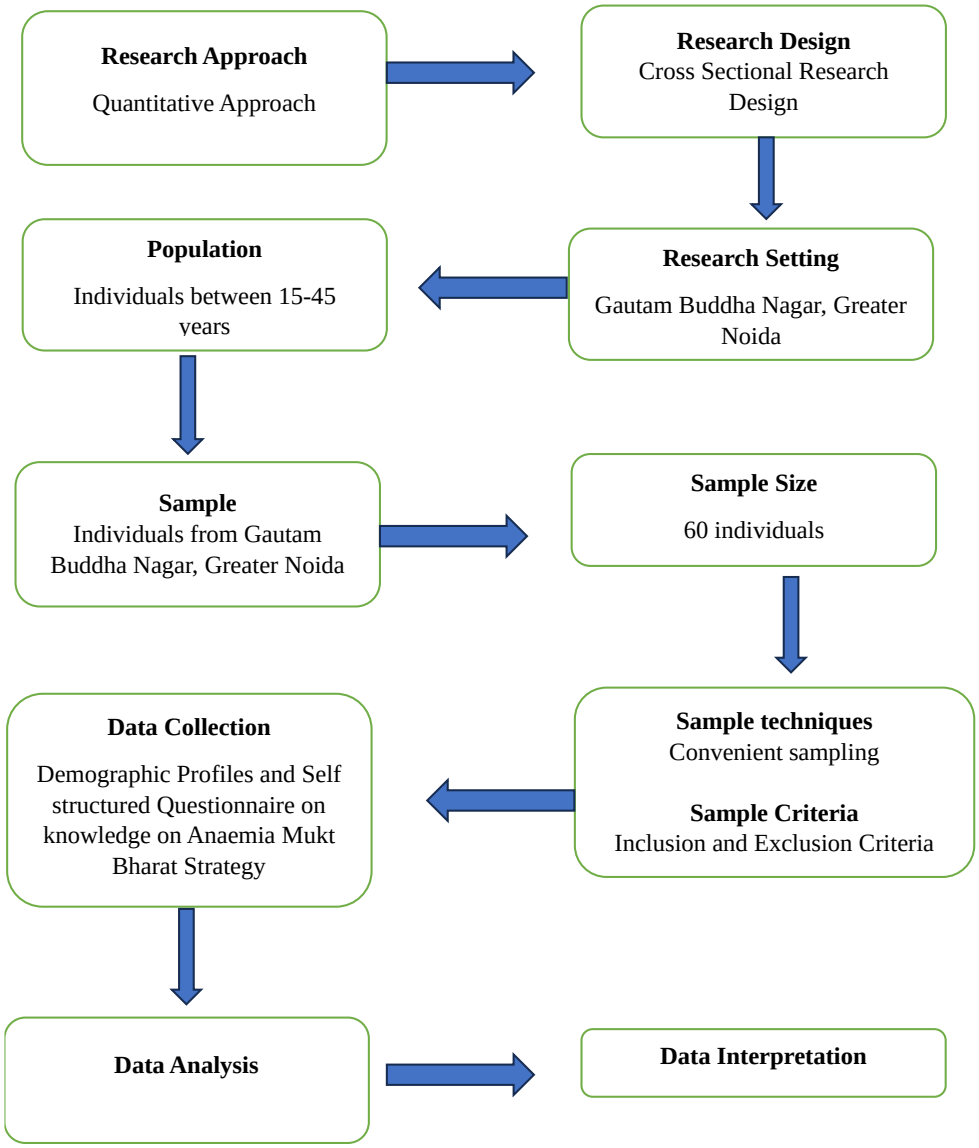

Figure1 Schematic Presentation of the Research Design

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Results

Table 1 Frequency and Percentage Distribution of Study Participants (n=60)

Age of the participants	Frequency	Percent
15-20 years	26	43.3
21-30 years	18	30.0
31-40 years	7	11.7
41-49 years	9	15.0
Religion of the participant		
Hindu	55	91.7
Muslim	1	1.7
Christian	2	3.3
Others	2	3.3
Occupation of the participants		
Farming	13	21.7
Small Business	24	40.0
Daily Wage labor	17	28.3
Others	6	10.0
Income of the family		
<10000	8	13.3
10001-20000	30	50.0
20001-30000	14	23.3
> 30000	8	13.3
Type of Family		
Nuclear Family	26	43.3
Joint Family	29	48.3
Extended Family	4	6.7
Single Parent Family	1	1.7
Source of Information		
Television	24	40.0
News Paper	7	11.7
Internet	29	48.3
Birth Order of the participants		
First	19	31.7
Second	16	26.7
Third	15	25.0
Fourth or More	10	16.7
Family History of Anemia		
Yes	4	6.7
No	29	48.3
Dont Know	24	40.0
Prefer Not to Say	3	5.0

Table 2 Frequency and percentage distribution of the knowledge levels of the Anaemia Mukt Bharath

Levels of Knowledge on Anaemia	**Frequency**	**Percent**
Poor Knowledge	24	40.0
Average Knowledge	28	46.7
Good Knowledge	8	13.3
Total	60	100.0

The frequency and percentage distribution of knowledge levels on the Anemia Mukt Bharat (AMB) strategy reveal that 40.0% of individuals have poor knowledge, 46.7% have average knowledge, and 13.3% have good knowledge. The main reason for these results in rural areas is likely the limited access to information, inadequate educational resources, and

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lower levels of health literacy. Rural communities often face challenges such as fewer healthcare facilities, less exposure to health education, and limited outreach programs, which contribute to lower overall knowledge about AMB.

Table 3. Association between knowledge on Anaemia Mukt Bharath Strategy with their selected demographic variables

Demographic Variables	**Poor Knowledge**		**Average Knowledge**		**Good Knowledge**		**Total**	**Chi square**	**Df**	**P Value**
Age	**F**	**P**	**F**	**P**	**F**	**P**				
15-20 years	10	38.5	11	42.3	5	19.2	26	11.1	6	0.08
21-30 years	6	33.3%	9	50.0%	3	16.7%	18			
31-40 years	1	14.3%	6	85.7%	0	0.0%	7			
41-49 years	7	77.8%	2	22.2%	0		9			
Religion										
Hindu	20	36.4	27	49.1	8	14.5	55	7.5	6	0.28
Muslim	0	0.0	1	100	0	0	1			
Christian	2	100.0	0	0	0	0	2			
Others	2	100.0	0	0	0	0	2			
Occupation										
Farming	4	30.8%	5	38.5%	4	30.8%	13	16.0	6	0.01
Small Bisuiness	15	62.5	8	33.3	1	4.2	24			
Daily Wage labor	5	29.4	11	64.7	1	5.9	17			
Others	0	0.0	4	66.7	2	33.3	6			
Income										
<10000	1	12.5%	7	87.5%	0	0.0%	8	11.4	6	.078
10001-20000	11	36.7%	13	43.3%	6	20.0%	30			
20001-30000	8	57.1%	6	42.9%	0	0	14			
> 30000	4	50.0%	2	25.0%	2	25.0%	8			
Type of Family										
Nuclear Family	8	30.8%	14	53.8%	4	15.4%	26	3.68	6	.719
Joint Family	14	48.3%	11	37.9%	4	13.8%	29			
Extended Family	2	50.0%	2	50.0%	0	0	4			
Single Parent Family	0	0.0	1	100	0	0	1			
Source of Information										
Television	7	29.2%	15	62.5%	2	8.3%	24	5.83	4	.212
News Paper	2	28.6%	3	42.9%	2	28.6%	7			
Internet	15	51.7%	10	34.5%	4	13.8%	29			
Birth Order										
First	5	26.3%	13	68.4%	1	5.3%	19	23.17	6	.001
Second	6	37.5%	10	62.5%	0	0	16			
Third	5	33.3%	4	26.7%	6	40.0%	15			
Fourth or More	8	80.0%	1	10.0%	1	10.0%	10			
Family History of Anemia										
Yes	2	50.0%	1	25.0%	1	25.0%	4	3.69	6	.719
No	9	31.0%	15	51.7%	5	17.2%	29			
Dont Know	11	45.8%	11	45.8%	2	8.3%	24			
Prefer Not to Say	2	66.7%	1	33.3%	0	0	3			

Evidence on the association between knowledge of the Anemia Mukt Bharat (AMB) strategy and demographic variables reveals several key patterns. Age shows no significant difference in knowledge levels (p=0.08), while occupation and birth order significantly impact knowledge, with those in small business or with a higher birth order generally having poorer knowledge (p=0.01 and p=0.001, respectively). Income, religion, and family type do not show significant differences in knowledge levels (p=0.078, p=0.28, and p=0.719, respectively). Sources of information such as television, newspapers, and the internet influence knowledge levels, but these differences are not statistically significant (p=0.212). Family history of anemia does not significantly affect knowledge about AMB (p=0.719), except for a notable variation in those who prefer not to disclose this information.

Discussion:

The Anemia Mukt Bharat (AMB) program is a flagship initiative launched by the Government of India to combat anemia across the country, particularly among vulnerable groups such as children, adolescents, pregnant women, and lactating mothers. The program aims to reduce anemia prevalence by 3 percentage points per year through a comprehensive 6x6x6 strategy, which focuses on six target beneficiary groups, six interventions, and six institutional mechanisms.

Understanding the Anemia Mukt Bharat program is crucial for its successful implementation, especially in rural areas where anemia prevalence is often higher. Knowledge of the program enables community members to engage in preventive measures, adhere to supplementation schedules, and participate in awareness campaigns. Moreover, healthcare workers and local leaders play a vital role in disseminating information about the program's benefits and encouraging community participation.

This study aimed to assess the knowledge of the Anemia Mukt Bharat (AMB) strategy among residents of Ghangola Village in Greater Noida. The findings reveal a diverse range of knowledge levels about AMB, with 40.0% of participants demonstrating poor knowledge, 46.7% showing average knowledge, and only 13.3% possessing good knowledge.

The high percentage of individuals with poor (40.0%) and average (46.7%) knowledge indicates a significant gap in awareness about the AMB strategy in Ghangola Village, reflecting broader rural trends of limited access to healthcare education and resources. This knowledge gap may result from inadequate outreach, insufficient engagement by healthcare providers, and limited exposure to information sources. The low percentage of individuals with good knowledge (13.3%) suggests a need for targeted educational initiatives. Enhancing awareness through local health workers, community meetings, accessible informational materials, and involvement of community leaders could improve knowledge levels and the effectiveness of the AMB program.

As noted by Kapil et al. (2019), anemia often receives low priority from states because it is a "hidden" disease without obvious symptoms, unlike measles or diarrhea. There is minimal counseling provided to beneficiaries or caretakers about the benefits and minor side effects of IFA supplements, leading to poor compliance. Additionally, weekly IFA supplementation for children aged 6-19 years is a newer program component, and village-level health workers, ICDS functionaries, and school teachers still lack adequate training and orientation on its implementation per the I-NIPI guidelines[26].

These results highlight the need to enhance awareness of the Anemia Mukt Bharat (AMB) strategy in Ghangola Village. Improving knowledge about anemia prevention and control is crucial for the success of the AMB initiative and better community health outcomes. Increased awareness can ensure that targeted groups receive necessary supplements, adopt healthy behaviors, and utilize available services, ultimately contributing to reduced anemia prevalence in rural India.

Conclusion

Addressing these gaps through tailored educational campaigns, integration of AMB education into existing health policies, and further research on socio-cultural influences will be crucial to achieving the program's objectives and reducing anemia prevalence in rural areas. Strengthening community engagement and enhancing the role of health educators, policymakers, and researchers can significantly contribute to the success of the AMB initiative and improve health outcomes in the community.

Recommendations

For Health Educators:

- Develop targeted educational campaigns for occupations with lower knowledge levels.
- Use diverse media channels, including TV and the internet, to expand outreach.
- Organize community workshops in areas with low awareness of the AMB strategy.

For Policymakers:

- Integrate AMB education into existing health programs to reach all demographics.
- Allocate funding and resources for community-based anemia education initiatives.

For Researchers:

- Investigate the reasons behind knowledge gaps across demographic groups.
- Study the influence of socio-cultural factors on knowledge and attitudes towards anemia prevention.

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Conflict of Interest- NIL

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