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Effectiveness of Structured Teaching Programmed Among ANM Regarding IMNCI Guidelines

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Abstract: Over 70% of child deaths in India are caused by five prevalent diseases: fever (15%), ARI (6%), gut separation (9%), hunger (46%), and often a mix of these six. The IMNCI method was implemented to address kid concerns. An organized ANM teaching program on IMNCI principles in Dehradun, Uttarakhand, is evaluated in this study. This pre-experimental, one-group pre-test, post-test design study investigated the effects of STP on ANMs' knowledge of IMNCI standards for assessing and treating unwell young babies by creating an information booklet. The 60 ANMS in chosen health centers used a pre-experimental, one-group pre-test post-test design. After STP administration, 63% of post-test knowledge scores were adequate, and 37% were moderate for assessment and treatment of ill young infants aged up to 2 months based on IMNCI standards. Post-test knowledge (22.60) is significantly greater than pre-test (13.40). This study found that the structured instruction program improved ANMs' awareness of IMNCI standards for assessing and treating ill new-borns up to 2 months old. Therefore, the study shows that teaching programs and health campaigns to improve IMNCI guidelines' knowledge and abilities are necessary.

Keywords: Structured Teaching Program; Social Well-Being; Economic Development; Low- and Middle-Income Countries (LMICS); Health Problems; Curative Elements; Primary Healthcare; National Rural Health Mission.

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1. Introduction

Children's health includes physical, mental, and social well-being. Parents of under-five-year-old children are concerned about their health and safety. Under-five-year-old children are at the highest risk of getting the five killer diseases: pneumonia, malaria, diarrhea, measles, and malnutrition [10]. At the global level, the neonatal period had the highest age-specific risk in both 2000 and 2015. Mortality rates among young children are the best single indicator of child health in low- and middle-

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income countries (LMICs), and they are often also used as indicators of general social and economic development. The traditional rates of stillbirth, neonatal, postnatal, and child mortality [1] are equivalent to the death probabilities for these age groups. If you suffer from a lack of iron, iodine, vitamin A, or zinc, you are not alone. More over half of the world's under-5 fatalities are attributable to one of these conditions. Newer estimates put one-third of the under-5 death rate attributable to IUGR, stunting, and severe wasting [9].

Low birth weight (LBW) and malnutrition account for about half of the infant and child mortality rates in our nation under the age of five. The World Health Organization (WHO), the United Nations Children's Fund (UNICEF), and other organizations began working on the Integrated Management of Childhood Illness (IMCI) framework in the 1990s to address this problem. The goal of the integrated medical care initiative for children (IMCI) is to ensure the health and happiness of each individual kid [7]. Improved growth and development, as well as a decrease in mortality, disease, and disability, are the goals of this initiative for children younger than five. Families, communities, and healthcare institutions all play a role in IMCI's preventative and curative components [1].

Integrated Management of Neonatal and Childhood Illness (IMNCI) is the name given to this approach in 2003 when it was implemented in India. Included in the revision is the World Health Organization and the United Nations Children's Fund generic IMCI strategy, which serves as the backbone of the Reproductive and Child Health II and National Rural Health Mission plans for the health of infants and children. Case management of acute respiratory infections (ARIs), diarrhea, worm infestations, malnutrition, measles, malaria, etc., as well as preventative and curative health services like immunizations and complementary and alternative feeding emphasized by this IMNCI approach. In order to improve nutritional status and appropriate care-seeking behavior with treatment compliance, it also incorporates community-based and home-based treatments [5]. IMNCI lays forth a plan to improve child health outcomes by enhancing healthcare systems, educating primary healthcare personnel in case management, and encouraging healthier habits at home and in the community, such breastfeeding. Nevertheless, there have been obstacles to the worldwide adoption of IMNCI, such as the high expense of implementation due to the necessity of lengthy case management training and continuous supervision follow-up [6].

Children under the age of five make up the bulk of the population at risk for mortality from preventable childhood illnesses, and these are the specific populations that the IMNCI clinical guidelines aim to help [2]. The guidelines promote pharmacological and diagnostic tool rationality, effectiveness, and affordability using an evidence-based syndromic approach to case management [3]. Instead of relying on gut feelings, anecdotal evidence, or unproven theories of pathophysiology, doctors practicing evidence-based medicine stress the significance of analyzing data from clinical trials. A more practical and economical method of patient management is the syndromic approach when clinical and laboratory resources are scarce.

Reasonable and successful actions might be guided by a thorough and methodical evaluation of common symptoms and carefully chosen clinical findings. The severity of the child's condition, potential health problems, and possible care actions (e.g., urgent referral, managing with available services, or managing at home) can be determined using an evidence-based syndromic approach. Active community and family participation in healthcare and intervention adaptation to health system capacity and function are additional IMNCI goals [14]. There are primarily three parts to the IMNCI strategy:

- Improving case management skills of healthcare staff
- Improving health systems
- Improving family and community health practices

Health facilities can implement the IMNCI method to improve the following: the rate of correct diagnosis of pediatric illnesses in out-patient settings; the rate of proper integrated treatment of all major illnesses; the rate of caregiver counseling; and the rate of referral for children with life-threatening illnesses. When used in the comfort of one's own home, IMNCI encourages healthy habits including getting regular checkups, improving one's diet and preventative care, and following doctors' orders to the letter [13]. The IMNCI package was customized to meet the needs of children in India by a team of experts, including child health researchers, academics from the Indian Academy of Pediatrics (IAP), and the National Neonatology Forum (NNF). India has incorporated newborn care within its modified package because it is a key concern in reducing the infant mortality rate in the country. Included in this bundle is care for infants from birth to five years old, as well as newborns and young infants (those less than two months old) [14].

1.1. Research Statement

A pre-experimental study to assess the effectiveness of a structured teaching program on knowledge regarding the assessment and treatment of sick young infants aged up to 2 months based on IMNCI guidelines among ANMs of selected health centers of Dehradun, Uttarakhand to develop an information booklet.

2. Review of Literature

The purpose of the study by Devi [13] is to determine how well health care providers understand the IMNCI recommendations for treating children younger than five years old who have diarrhea. This investigation made use of a quantitative research strategy. The research used a descriptive survey approach. From the Chandrapur Development Block in the Kamrup(M) District of Assam, 150 health workers from ASHA and Anganwadi programs were selected using a probabilistic, multistage random sampling technique. The results show that health workers' knowledge of the IMNCI guidelines for diarrhea in children under the age of five was distributed as follows: 62.6% had moderate knowledge, 26.7% had inadequate knowledge, and 10.7% had adequate knowledge. According to the results, most medical professionals have a moderate understanding of the IMNCI recommendations for treating children under the age of five who have diarrhea. In order to decrease mortality and morbidity among children younger than five years old, health staff should proactively educate themselves on IMNCI standards.

In order to gauge health professionals' familiarity with Integrated Management of Neonatal and Childhood Illness at some health centers in Amritsar, Punjab, Joshi et al. [14] ran a pilot research. The researchers in this study gathered their data using a practical sampling technique and a quantitative research approach. The research sample consisted of forty health workers, including community health officers, ASHA workers, medical officers, and advanced practice nursing students. The self-structured questionnaire had a reliability coefficient of 0.815 according to Cronbach's Alpha. In terms of subject availability, the feasibility of the pilot study was determined. Based on the findings of this study, it was found that out of the health workers surveyed, 16 had average knowledge, 13 had good knowledge, 8 had weak knowledge, and just 3 had good knowledge. According to the results, most medical professionals aren't familiar with all the facets of IMNCI.

Jabade et al. [15] have given this study to assess the knowledge and effectiveness of a structured teaching program on IMNCI among the health workers in the Primary Health Centre of Pune. An evaluative research approach was used for the study. The pre-experimental design was carried out on 50 samples of health workers. The results show that the majority of the health workers, 30 [60%], have average knowledge, 13 [26%] have poor knowledge, and 7[14%] have good knowledge. Whereas, in the post-test test, 38[68%] had average knowledge, 12 [24%] had good knowledge, and 4[8%] had poor knowledge on the subject of IMNCI among health workers. As the post-test score was higher than the pre-test score, it was concluded that the structured teaching program found effective and improved the knowledge level of the health workers regarding IMNCI.

A study was carried out by Karthi et al. [4] at E.S. College of Nursing in the Villupuram district of Tamil Nadu to evaluate the nursing students' knowledge of the assessment and treatment of children under the age of five according to the IMNCI recommendations. The study utilized a quantitative research approach and a descriptive design [16]. Using a non-probability convenient sampling procedure, fifty B.Sc.(N) III students were chosen. The results show that out of 50 nursing students, 32 (or 64% of the total) had sufficient knowledge, 14 (or 28% of the total) had moderate knowledge, and 4 (or 8% of the total) had insufficient understanding on assessing and treating children under the age of five according to IMNCI guidelines. The study found that most nursing students had sufficient understanding of how to evaluate and care for children younger than five years old according to IMNCI standards [11].

Oswal Hospital's nursing staff in Ludhiana, Punjab, was the subject of a descriptive study by Thakur et al. [17] that sought to gauge their familiarity with IMNCI. They picked one hundred registered nurses from each ward in the hospital. With an average score of 36.4, 15% of the nursing staff exhibited exceptional expertise, according to the survey. Nearly half of the nurses on staff had excellent knowledge (mean score of 27.1%), 30% had ordinary knowledge (mean score of 22.6%), and 6% had below-average knowledge (mean score of 14.5%). Among the most important results, 57% of the staff nurses with degrees from private universities demonstrated a high level of familiarity with IMNCI. A maximum knowledge score of 8 was achieved by staff nurses who received their professional training from private institutes affiliated with parent hospitals. The study also found that institution of professional training, field of work, and years of experience all had a role in the integrated care of newborn and childhood illness [12].

3. Materials and Methods

For the present study, a quantitative research approach and a pre-experimental one-group pre-test and post-test design were selected in order to evaluate the effectiveness of a structured teaching program on the level of knowledge regarding the assessment and treatment of sick infants up to 2 months based on IMNCI guidelines among ANM’s. The study subjects were the ANMs female health workers working in the community health centers and Primary health centers of the Dehradun. A sample of 60 ANMs from CHCs and PHCs of Raipur and Doiwala, Dehradun Uttarakhand were selected by Purposive sampling technique. A self-structured knowledge questionnaire was formulated to assess the knowledge of ANMs regarding the IMNCI and its guidelines shared with the participants in CHC Community Health Centre to collect data. The reliability of the tool was assessed by the Test-Retest method, in which the $r \geq 0.77$ for the tool. The calculated $r = 0.83$, which means the tool is reliable.

Data analysis was carried out in SPSS-20. In data analysis, frequency and percentage, mean, and standard deviation were calculated.

4. Analysis and Interpretation

Section I: Findings frequency and percentage distribution of demographic variables of ANMs.

Table 1: Frequency and percentage distribution of the demographic characteristics of ANM's working health centers of Dehradun (N=60)

No.	Variables	Frequency(f)	Percentage (%)
1.	**Age**		
	18-25	8	13.3%
	25-35	10	16.7%
	35-45	18	30.0 %
	Above 45	24	40.0 %
2.	**Training received from** Government institutions and	50	83.3%
	Private Institutions	10	16.7%
3.	**Residential Area** Rural Urban	2	3.3%
		58	96.7%
4.	**Year of Experience**		
	1-5 year	9	15.0%
	5-10 year	11	18.3%
	10-15 year	18	30.0%
	More than 15 year	22	36.7%
5.	**IMNCI training attended**	53	88.3%
	Yes	7	11.7%
	No		
6.	**Source of information**		
	Books	17	28.3%
	Newspaper	00	0.0
	In service education	43	71.7%
	Any other	00	0.0

Table 1 depicts the socio-demographic profile of ANM's working health centers in Dehradun. The study involves 60 ANM health workers working in health centers of Dehradun, Uttarakhand.

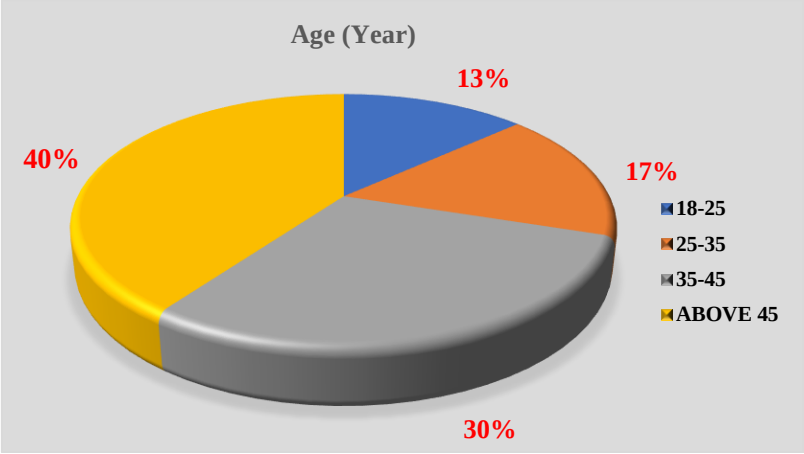

Figure 1: Distribution of respondents by age year

In age distribution, 13% of respondents were in the age group of 18-25 years, 17% of respondents in 25-35 years, 30% of respondents in 35-45 years, and 40% of respondents were above 45 years of age (Figure 1).

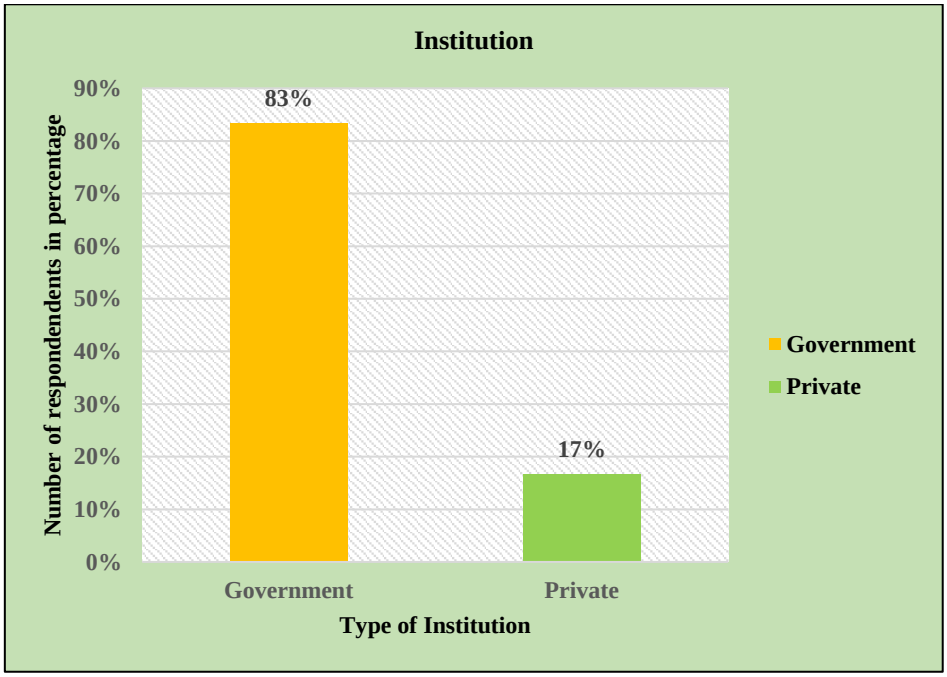

Figure 2: Distribution of responses by the type of Institution

In the distribution of institutions, 50(83.3%) of respondents belong to government institutions, and 10(16.7%) of respondents belong to private institutions (Figure 2).

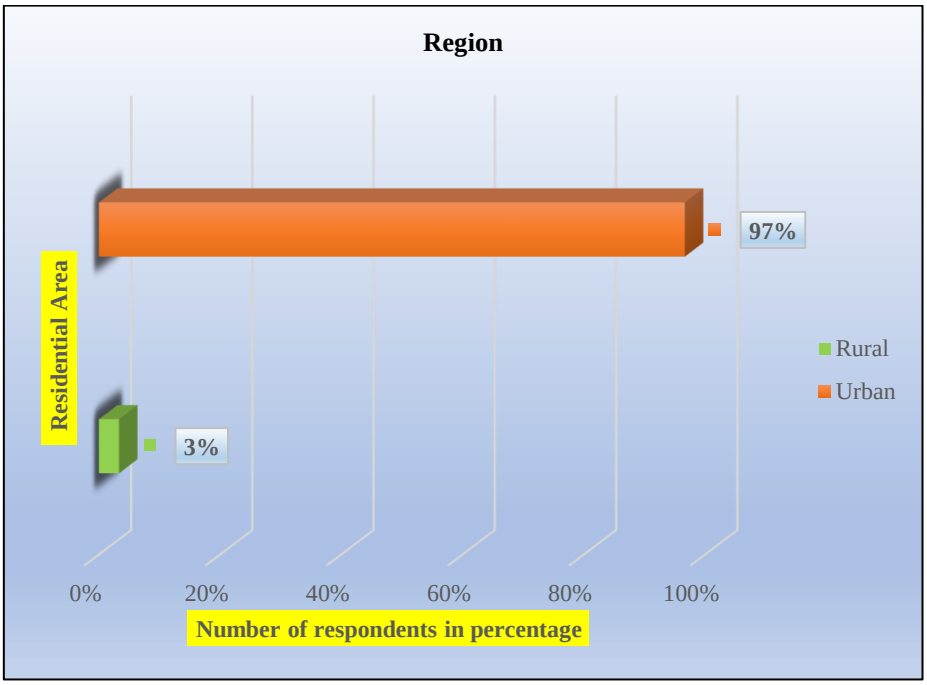

Figure 3: Distribution of respondents by region

Among the residential areas, 2(3%) of respondents belong to rural areas, and 58 (97%) of respondents belong to urban areas (Figure 3).

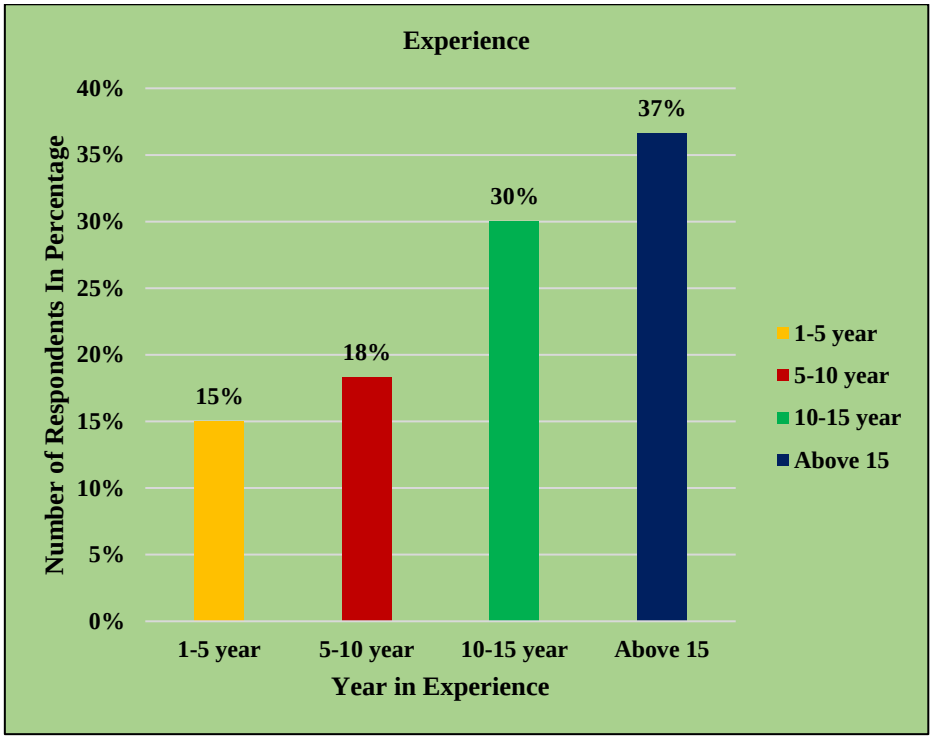

Figure 4: Distribution of respondents by the year of experience

In the year of experience, 9(15%) of respondents have 1-5 years of experience, 11(18.3%) of respondents have 5-10 years of experience, 18(30%) of respondents have 10-15 years of experience and 22(36.7%) of respondents have above 15 years of experience in their fields (Figure 4).

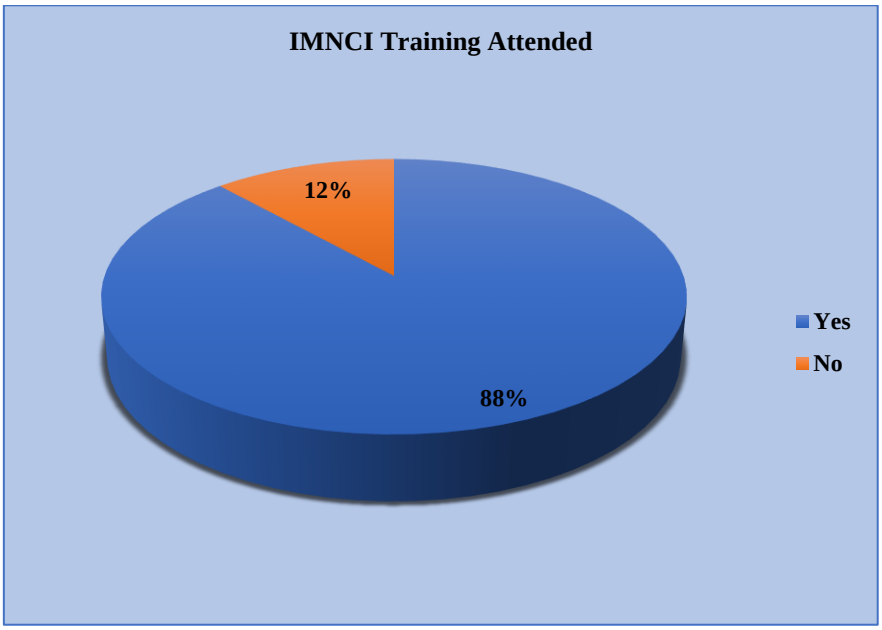

Figure 5: Distribution of respondents by IMNCI training attended

In the distribution of training attended by IMNCI, 53(88.3%) of respondents attended the training, and 7(11.7%) had not attended the training of IMNCI (Figure 5).

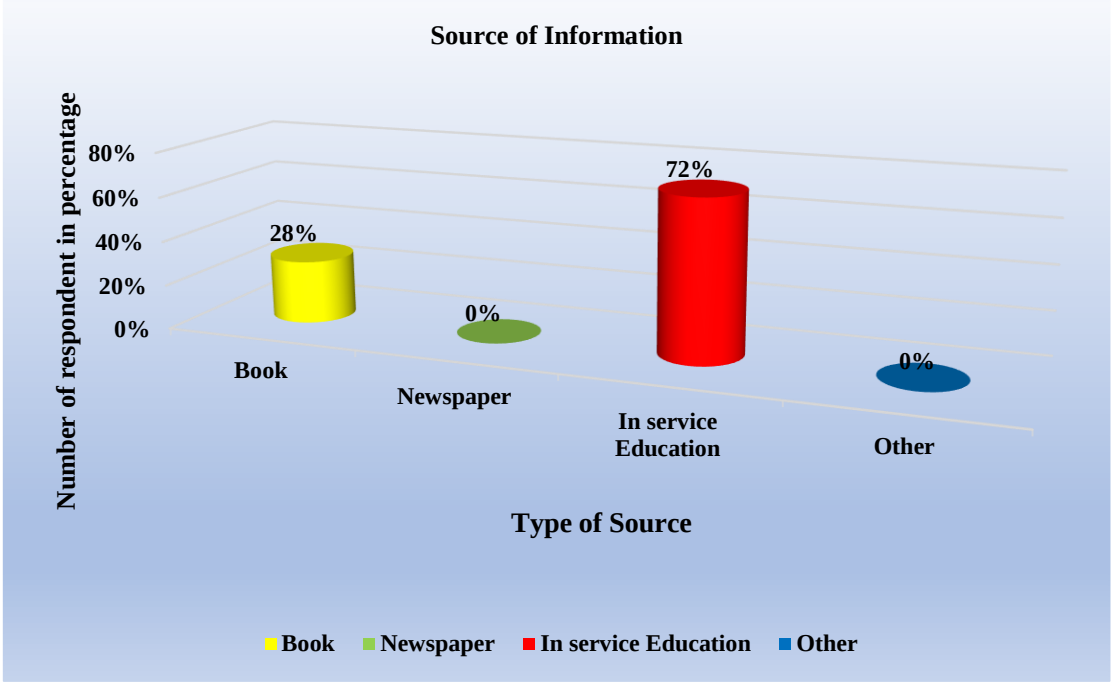

Figure 6: Distribution of respondents by source of information about IMNCI

In the source of information about IMNCI, 17(28.3%) of respondents knew about IMNCI through books, 43 (71.7%) of respondents knew about IMNCI through in-service education, and none of them learned about IMNCI through newspapers or any other sources (Figure 6).

Section II: Findings related to the distribution of respondents according to the pre-test and post-test level of knowledge regarding the assessment and treatment of sick young infants aged up to 2 months based on IMNCI guidelines among ANMs.

Table 2: Frequency and percentage distribution of pre-test and post-test score value (N=60)

Level of knowledge	Score Range (Value)	Pre-test		Post-test	
		Frequency (n=60)	Percentage (%)	Frequency (n=60)	Percentage (%)
Inadequate knowledge	Below 50%	45	75.0%	00	0.0
Moderate knowledge	51-75%	15	25.0%	22	36.7%
Adequate knowledge	Above 75%	00	0.0	38	63.3%

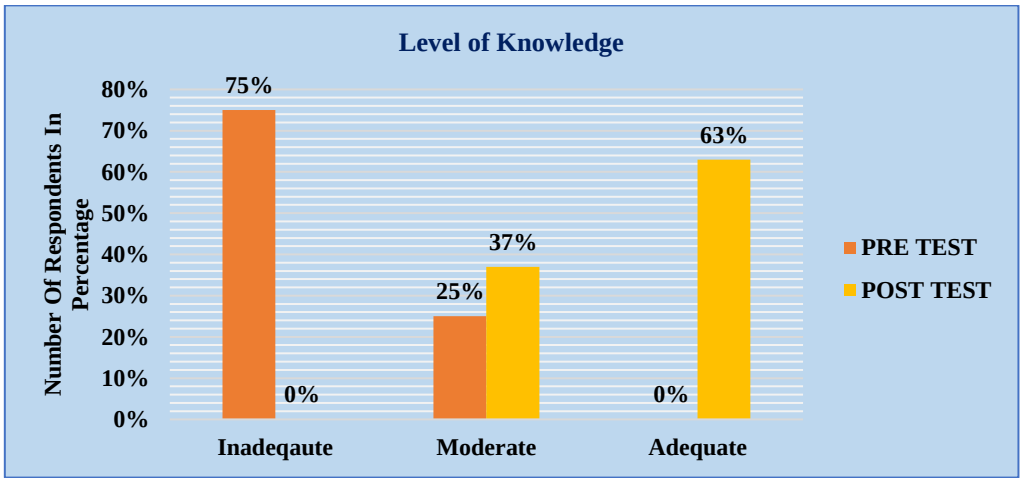

Figure 7: Distribution of respondents by pre and post-test level of knowledge

Table 2 and Figure 7 show that in the pre-test, 75% of respondents had inadequate knowledge, 25% of respondents had moderate knowledge, and none had an adequate level of knowledge about the assessment and treatment of sick young infants aged up to 2 months based on IMNCI guidelines. Similarly, 37% of respondents have moderate knowledge, 63% of respondents have adequate knowledge, and none had an inadequate level of knowledge in the post-test score about the assessment and treatment of sick young infants aged up to 2 months based on IMNCI guidelines.

Section III: Findings related to the effectiveness of structured teaching program on assessment and treatment of sick young infants aged up to 2 months based on IMNCI guidelines. Distribution of mean, standard deviation, range, and mean percentage of pre-test and post-test knowledge among the ANMs regarding the assessment and treatment of sick young infants aged up to 2 months based on IMNCI guidelines.

Table 3: Comparison between Pre-test and Post-test in the level of knowledge regarding the assessment and treatment of sick infants aged up to 2 months based on IMNCI guidelines N=60

Knowledge Score	Mean	Standard Deviation	Mean Difference	't' value	Df	p-value	Result
Pre-test	13.40	2.650	9.2	20.02	59	0.001	Significant
Post-test	22.60	2.451					

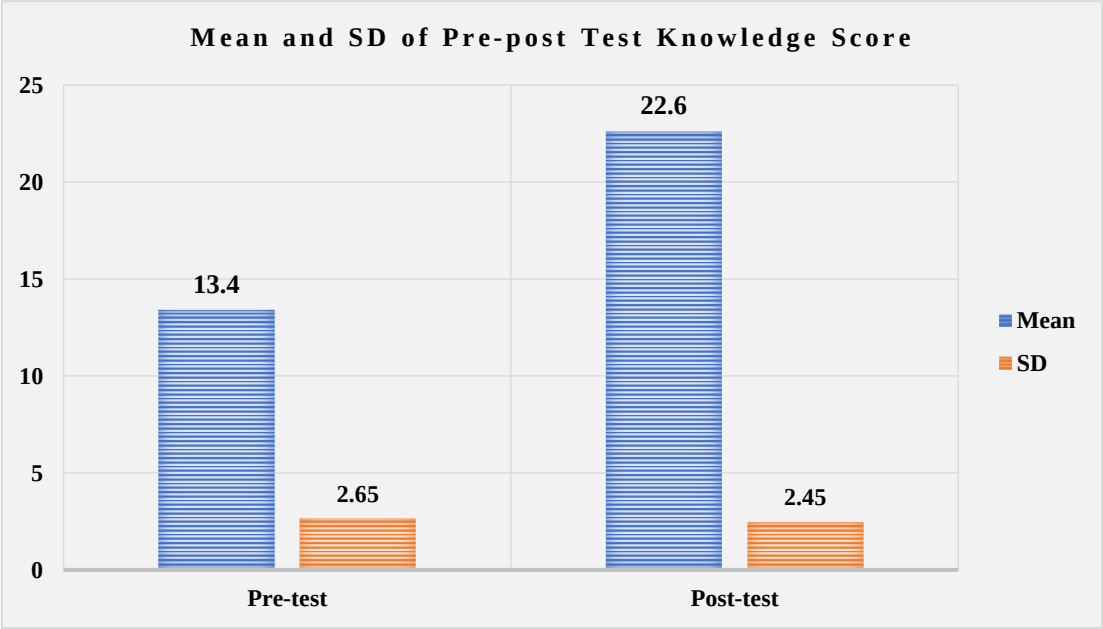

Figure 8: Bar diagram showing the mean and standard deviation (S.D) values for the pre and post-test scores

Table 3 shows that the mean of post-test knowledge scores was higher than the pre-test knowledge scores. The obtained 't'value was 20.2, and the table value at DF (59) was 1.6716 with a p-value of 0.001. Mean pre-test and post-test knowledge scores were computed and found to be 13.40 and 22.60, respectively, which was significantly higher than their mean pre-test. Hence, the score predicts the significant difference between the mean of pre-test and post-test at $p<0.05$ level.

Therefore, it can be said that the structured teaching program was effective in increasing the knowledge level among ANMs. There is a significant difference between the levels of knowledge among ANMs before and after the administration of a structured teaching program (Figure 8).

Section IV: Findings related to the association between the pre-test level of knowledge and the selected demographic variables of ANMs.

Table 4: Association between the pre-test levels of knowledge score among ANMs with demographic variables (5N=60)

No.	Demographic variables	Pre-test Knowledge		Chi-square value
		Inadequate (n=45)	Moderate (n=15)	
1.	**Age**			
	a. 18-25 year	0	8	30.356*
	b. 25-35 year	7	3	
	c. 35-45 year	15	3	
	d. Above 45 year	23	1	
2.	**Institute**			
	a. Government	42	8	12.960*
	b. Private	3	7	
3.	**Experience**			
	a. 1-5 year	3	6	
	b. 5-10 year	7	4	14.074*
	c. 10-15 year	14	4	
	d. Above 15 year	21	1	
4.	**Training received**			
	a. Yes	45	8	23.774*
	b. No	0	7	
5.	**Source of information**			
	a. Books	7	10	
	b. Newspaper	0	0	14.473*
	c. In service education	38	5	
	d. Any other	0	0	

**Significant at p<0.05 level*

Table 4 shows the association between the pre-test knowledge of ANMs regarding the assessment and treatment of sick young aged up to 2 months based on IMNCI guidelines and their socio-demographic variables. There is a significant association between the level of knowledge and age groups of ANMs, the type of institute studied, the year of experience they have, the training they received at IMNCI, and the source of information attended at p<0.05 level.

5. Discussion

Level of knowledge regarding the assessment and treatment of sick young infants aged up to 2 months based on IMNCI guidelines among ANMs: This study shows the level of knowledge. In the pre-test knowledge score, the majority of 45(75%) of respondents had inadequate knowledge, and 15(25%) of respondents had moderate knowledge regarding the assessment and treatment of sick young infants aged up to 2 months based on IMNCI guidelines. Whereas, in the post-test knowledge score, the majority of 38(63%) of respondents had adequate knowledge, and 22(37%) of respondents had moderate knowledge regarding the assessment and treatment of sick young infants aged up to 2 months based on IMNCI guidelines. The study findings were supported by a study conducted in 2018, which shows that in the pre-test, the majority of 33(66%) had poor knowledge, 16(32%) had average knowledge, and only 1(2%) had good knowledge about IMNCI guidelines. Whereas, in the post-test majority, 33(66%) had moderate knowledge, and 17(37%) had good knowledge about IMNCI guidelines.

Effectiveness of the structured teaching program among the ANMs regarding the assessment and treatment of sick young infants aged up to 2 months based on IMNCI guidelines: The findings of the study show that the post-test mean knowledge score is significantly higher than the pre-test mean knowledge score. After administering a structured teaching program, the post-test knowledge score (22.60+2.45) in comparison to the pre-test knowledge score (13.40+2.65) was higher. The statistical paired 't' test for the overall level of knowledge score is found to be 20.2, which is greater than the table value 1.6716 at a p<0.05 level of significance. Therefore, it can be said that the structured teaching program was found effective in increasing the level of knowledge of ANM. The study findings were supported by a study conducted in 2020, which shows that the post-test mean estimation of information was 34.08 with an SD of 3.16, which was higher than the pre-test estimation of information was about 11.7 with an SD of 3.6. The mean distinction between pre-test and post-test information was 22.38, and the esteem was 39.79, which was noteworthy at (p=0.05) [8]. Another study conducted in 2018 revealed that in the control group, they scored in pre-test 55.1% and 6.05% in the post-test. The difference between pre-test and post-test is only 5.4%. However, in

the experimental group, the pre-test health workers scored only 43.4% on knowledge scores. After the implementation of STP, they scored 87.98%. The difference is 44.58%. This 44.58% difference in knowledge is the effectiveness of STP. The health workers gained 44.58% more knowledge due to STP [9].

Association between the pre-test knowledge and demographic variables of ANMs: The present study shows that there is a significant association between the pre-test level of knowledge with the demographic variables, i.e. age ($\chi 2$=30.356, institution ($\chi 2$=12.960), year of experience ($\chi 2$=14.074), training received of IMNCI ($\chi 2$= 23.774) and source of information ($\chi 2$=14.473) all were statistically significant at the level $p<0.05$. The study findings were supported by a study conducted in 2017, which indicates the association between the knowledge scores of age in years ($\chi 2$=0.655), gender ($\chi 2$=0), professional qualifications ($\chi 2$=0.377), total year of experience ($\chi 2$=0.377), source of information ($\chi 2$=0.545), worked in children ward ($\chi 2$=0.545). Except for age, gender, and professional qualifications, all were statistically significant at the level of $p<0.0510$. Another similar study conducted in Andhra Pradesh in 2016 shows that there is an association between the level of knowledge at IMNCI's place of residence and the type of Institution studied and refresher course attended [11].

6. Conclusion

From the findings of the present study, it is concluded that the level of knowledge regarding the assessment and treatment of sick young infants aged up to 2 months based on IMNCI guidelines among the ANMs was inadequate during the pre-test assessment. However, the findings of the post-test show that the knowledge scores of the ANMs have improved after the administration of the structured teaching program. Therefore, the study revealed that the structured teaching program was found to be very effective in improving the knowledge of the ANMs regarding the assessment and treatment of sick young infants aged up to 2 months based on IMNCI guidelines.

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Ethics and Consent Statement: This research was carried out in line with ethical standards. Informed consent was obtained, and participants were assured that their identities would remain confidential and their responses anonymous.

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