Hawassa University College of Medicine and Health science, School of public Health.

Implementation of Integrated Management of Neonatal and Childhood Illness Guidelines and Associated Factors among Health Professionals at Public Health Facilities in Guji Zone, Oromia Region Southern Ethiopia, 2023

A Facility Based Cross-Sectional Study.

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Hawassa, Ethiopia

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A Facility Based Cross-Sectional Study.

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APPROVAL SHEET

This is to certify that the research entitled "**Implementation of Integrated Management of Neonatal and Childhood Illness Guidelines and Associated Factors among Health Professionals at Public Health Facilities in Guji Zone, Oromia Region Southern Ethiopia, 2023''** was done by **Jemal Ayub** and offered for partial fulfillments of the requirement for the degree of **Master of public health in Reproductive health** and has been carried out under our supervision. Therefore, we recommend that it has been accepted in partial fulfillment of the requirements of research

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SGS APPROVAL

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ABSTRACT

Introduction: Integrated Management of Neonatal and Childhood Illness strategy is a management of the most common childhood conditions, with a focus on the most important causes of death. Nevertheless, there is limited information and evidence on its implementation status and operational constraints which has limited the development of intervention strategies in line with child mortality rate reduction.

Objective: To assess health professionals' Utilization of the integrated management of neonatal and childhood illness guidelines and associated factors at public health facilities in Guji Zone, Oromia Region Southern Ethiopia, 2023.

Methods: Across sectional study was conducted among 284 randomly selected health professionals at Guji Zone. Data were collected using Self-administered questionnaire. The collected data were cleaned, coded and entered into epi-data and exported to SPSS version 21 for data analysis. Descriptive statistics was used to describe the study population in relation to socio-demographic and other relevant variables. Binary logistic regression was used to identify factors associated with implementation of IMNCI. In the variable model, covariates with p-values ≤ 0.25 were selected to be included in the multivariable model. The Adjusted Odds Ratio (AOR) with a 95 % Confidence Interval (CI) and p-value of ≤ 0.05was computed to show the strength of the association. The model fitness was checked using Hosmer Reshow model with the P-value of ≥0.05.

Results: Data were obtained from 286 health care professionals working in four districts, with a response rate of 100%. The high-level implementation of IMNCI among health professionals in selected districts of Guji Zone was 75.2%. Receiving IMNCI training (AOR: **1.8(1.06-15.16)** and Received IMNCI follow up training (AOR: **8(3.0-11.9)** were independent determinants of implementation of IMNCI.

Conclusion: A variety of factors can determine utilization of IMNCI. Of these, level of qualification and IMNCI training. Improving health professionals' level of qualification and providing adequate IMNCI training would improve IMNCI utilization.

***Key words**; Integrated Management of Neonatal and Childhood Illness, Implementation, Guji Zone*

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ACRONYMS AND ABBREVIATIONS

CI	Confidence interval
FMOH	Federal Ministry of Health

HC	Health Center
HW	Health workers
ICCM	Integrated community case management
IDI	In depth interview
IMNCI	Integrated Management of Neonatal and Childhood Illness
LMIC	Low- and middle-income country
MCH	Maternal and Child Health
OPD	Outpatient department
PHCNs	Primary health care nurses
PLTIS	Potentially life-threatening illness
UNICEF	United Nation International Children Emergency Fund
WHO	World Health Organization

1. INTRODUCTION

1.1. Background

Integrated Management of Neonatal and Childhood Illness (IMNCI) strategy is integrated case management of the most common childhood conditions, with a focus on the most important causes of death. The IMNCI clinical guidelines promote an evidence-based, syndromic approach to case management that supports the rational, effective and affordable use of diagnostic tools and drugs (1).

IMNCI includes both preventive and curative elements that are implemented by families and communities as well as by health facilities. The IMNCI strategy includes three main components these include: improving case management skills of healthcare staff, improving the health systems and improving family and community health practices (2).

The IMNCI guidelines depend on case detection using few simple clinical signs and allow empirical treatment based on action oriented classification rather than the exact diagnosis (3). The IMNCI guidelines give instructions for how to routinely assess a child for general danger signs (or possible bacterial infection in a young infant), common illnesses, malnutrition and anemia, and to look for other problems. In addition to treatment, the guidelines incorporate basic activities for illness prevention (4).

Deaths of children under the age of five continue to occur on a large scale, especially in developing countries, despite the availability of effective health technologies. On a global level, there are five diseases responsible for over 70% of these deaths: pneumonia, diarrhea, malnutrition, measles and malaria (5).

In 2018, World Health Organization (WHO) reported that pneumonia, diarrhea and malaria were among the highest common causes of under-five child mortality. Nutrition-related factors were also alarming as causing 45% of death to the under-five in sub-Saharan countries (6). Shortage of trained health professionals, scarcity of diagnostic supports and lack of drugs and equipment are among the challenges for improving the survival of children under the age of five years. To address this, WHO and United Nation International Children Emergency Fund (UNICEF) designed the IMNCI strategy (7).

Practical guidelines have been developed by ministries of health and many local organizations in an attempt to decrease undesirable variation of health care and to improve its quality. Since the early 1980s symptom specific algorithms and training programs have been developed by WHO (3).

1.2. Statement of problem

A global evaluation of the IMNCI in terms of impact, cost and effectiveness was conducted in many Low- and middle-income countries (LMICs) and confirmed the importance of the strategy. IMNCI improved health professionals performance and quality of care (8).

Every year in low-income countries, more than 10.2 million children die before they reach their fifth birthday, the majority of them in their first year of life. The highest death rates, of one child in 13 dying before his or her fifth birthday, are found in sub-Saharan Africa where child mortality is increasing (6).

Over the past 10 years, declines in under-five mortality were observed globally but uneven with still highest rates of child mortality in Sub-Saharan African countries. In these countries, health conditions like pneumonia, diarrhea, malaria and measles, and neonatal causes are responsible for over 70% of all deaths in children under the age of five years (7).

Every day, millions of parents take children with potentially fatal illnesses to first-level health facilities such as clinics, health centers and outpatient departments of hospitals. In some countries, three in four episodes of childhood illness are caused by one of five health conditions: pneumonia, diarrhea, malnutrition, measles and malaria (9).

In Ethiopia, the mortality rate of under-five children is one of the highest, which is more than 321,000 every year; among them, more than 70% is caused by diarrhea, pneumonia, measles, malnutrition, and malaria. Presentation of the child with more than one condition led to the development of the IMNCI strategy (10).

`Study conducted in Yifat cluster, North Shewa Zone, Amhara regional state showed that the overall IMNCI implementation was 58% as high-level implementation and 42% as low-level implementation. Also this study revealed that the implementation of IMNCI was higher among

IMNCI trained health care professionals compared to those who always referring chart booklet (11).

Efforts has been made by the government of Ethiopia in attempt to overcome this problem and further decrease child mortality rate. For example trying to increase the cumulative number of Health centers (HC) providing IMNCI and training Health Extension Workers (HEWs) on the issues to manage childhood illness at community level, however the implementation of the IMNCI strategy may get hindered by many challenges (11).

Even though under five and neonatal mortality is decreased every year through different strategy primarily by IMNCI still know the reduction is not much as expected, which could be due to poor implementation and inconsistent use of IMNCI guidelines (12).

The challenges in implementing the IMNCI strategy in Ethiopia are lack of adequate health system support, poor adherence to IMNCI guidelines, long duration of training, high turnover among trained staff, inadequate supervision, and insufficient availability of drugs, equipment, and referral facilities (13).

The IMNCI has been implemented in Ethiopia for years. Nevertheless, there is a gap in implementation of IMNCI by health professionals. Mostly Health professionals' practice incomplete implementation of IMNCI guideline andapplication of IMNCI stages. Also, children under the age of five not assessed for danger signs, combined illness, combined treatment, pre referral drug, counsel and follow up. Despite, there is limited information and evidence on IMNCI implementation status in Ethiopia has limited the development of intervention strategies in line with child mortality rate reduction. This study aims to assess implementation of Integrated Management of Neonatal and Childhood illness Guidelines among health professionals and associated factors at public health facilities in Guji Zone, Southern Ethiopia, 2023.

1.3. Significance of the study

Despite, there is limited information and evidence on IMNCI implementation status in Ethiopia has limited the development of intervention strategies in line with child mortality rate reduction.

Data from this study will be used to improve implementation in IMNCI guideline among Health professionals and provide quality of care based on IMNCI guideline.

Data from this study will be useful for selected district included in the study and Guji zone health department to improve implementation in IMNCI guideline among health professionals. This study will also provide information on IMNCI guideline to study participants and data collectors during data collection period.

Data from this study will be useful to health planners working on integrated management of neonatal and child hood illness to design better programs and addresstheidentified problems.

The findings of this study may also serve as an input for further research and may create inspiration to other researchers to conduct similar researches in the wider range at a country level. Lastly, the study findings will be useful in reduction of under-five mortality and morbidity.

2. LITERATURE REVIEW

2.1. IMNCI implementation

Study result from Benin indicated that 63.6% of children under the age of five received treatment for all their potentially life-threatening illness (PLTIS) accordance with IMNCI protocol and 77.8% received lifesaving treatment (clinically effective treatment even if not as IMNCI Protocol) (14).

Study done in South Africa revealed that seventy-seven IMNCI trained health professionals were evaluated. In most cases health professionals used IMNCI to assess presenting symptoms but did not implement IMNCI comprehensively. All but one health professional referred to IMNCI guidelines during the period of observation. From observed health professional 9(12%) checked general danger signs in every child and 14(18%) assessed all the main symptoms in every child (15).

Study done in Egypt showed that the highest IMNCI implementation reported was that of writing disease classification (100%). With regard to infants aged up to 2 months, the highest physicians IMNCI implementation reported jaundice and possible bacterial infection assessment (100% and 95% respectively). Only 85.7% of physicians were complied with weight assessment. For children aged from 2 months up to 5 years physicians were generally well complied with IMNCI guidelines especially forassessmentof dangerous signs and possible bacterial infection (3).

systematic review and meta study conducted in lower resource setting country indicated that health professionals' were two times more likely to correctly classify illness and three times more likely to prescribe medication and treat the children(16).

The result from Yifat cluster, South East Ethiopia showed that IMNCI protocol utilization was 58.7%.The overall IMNCI implementation was 58% as high-level implementation and 42% as low-level implementation (11).

A study done in West Arsi Zone, South East Ethiopia found that the magnitude of IMNCI implementation was 58.7% (2). Another study conducted in Shire revealed that the prevalence of IMNCI implementation was 54.2% (12).

2.2. IMNCI implementation factors

Study result from Peru showed that health professionals trained in IMNCI overall coverage levels among doctor and nurses was 10.3% (17).

1. Socio demographic factors

A study done in Benin revealed that factors affecting case management qualities are; younger health professionals significantly outperformed older ones, infant received better than older ones, children with danger sign, those with more complex illness and those with anemia received worse care. Health care supervision was associated with improved performance (14).

2. Capacity building factors

Study conducted in Baquba city showed that 78.4 % of health professionals were trained on IMNCI protocol. These study found that about three quarters of health professionals recording or

checking the weight of child and this is higher than the study done in Ethiopia, Which found that 47% of health professionals weighed the children (18). Study in Tanzania found that only 51%of health professionals interviewed had been trained. Also study in Tanzania showed

Evaluation of pre-service training on IMNCI in Ethiopia showed that main challenges included in the pre service teaching were constraints with trained staff and other resources each by 28 (82.3%) programs. IMNCI was included in student evaluation by all programs (100%). The overall mean score of students clinical practice was 63.5% (7).

Study conducted in Yifat Cluster, Amahara region showed that the odds of IMNCI utilizations among nurses who had attended IMNCI training were 2.76 times higher compared to nurses who had not attended IMNCI training (11).

Study done at West Arsi Zone, Oromia region indicated that the most common issues encountered in the implementation of IMNCI were lack of trained staff (56.2%), lack of essential drugs and supplies (37.3%), and irregular supportive supervision (89.2%) (13).

3. Service-related factors

Study done from Tikrit city showed that trained health professionals had significantly higher knowledge (85.05 ± 6.60) compared to trained health professionals from districts (70.13 ± 13.17). Also there was a significant difference in knowledge, attitude and practice in IMNCH among the trained and non-trained health professionals and between those from different districts and between the doctors and other paramedical staff (19).

Study result in Kenya found that Evaluation on IMNCI implementation indicated that the main access and implementation challenges of under-five children health care interventions in sub-Saharan African County included: health facility challenges such as lack of drugs and commodities, under-staffing, poor referral systems, negative attitude of health professionals. The findings were found to be of significant importance in constructing and reviewing programs for under-five children (20).

Study conducted in Yifat Cluster, Amahara region showed that Nurses who had practice of always referring chart booklet during every case management process were three times more likely to utilize IMNCI protocols compared to their counterparts (11).

Study conducted in West Arsi Zone showed that always referring IMNCI chart booklet were 2.95 times more likely to implement IMNCI protocol compared to their counterparts(2).

4. Health professional's related factors

Study in Tanzania found that from trained health professionals 69% expressed understanding of the IMNCI guideline. Most of the respondents (77%) had a positive attitude that IMNCI guideline was a better approach in managing common childhood illnesses especially with the reality of resource constraint in the health facilities(21).

Study result from Nigeria indicated that nurses' years of experience in paediatric setting had little or no influence on their knowledge and practice of IMNCI; nurses' knowledge of IMNCI affects their implementation (22).

2.3. Conceptual frame work

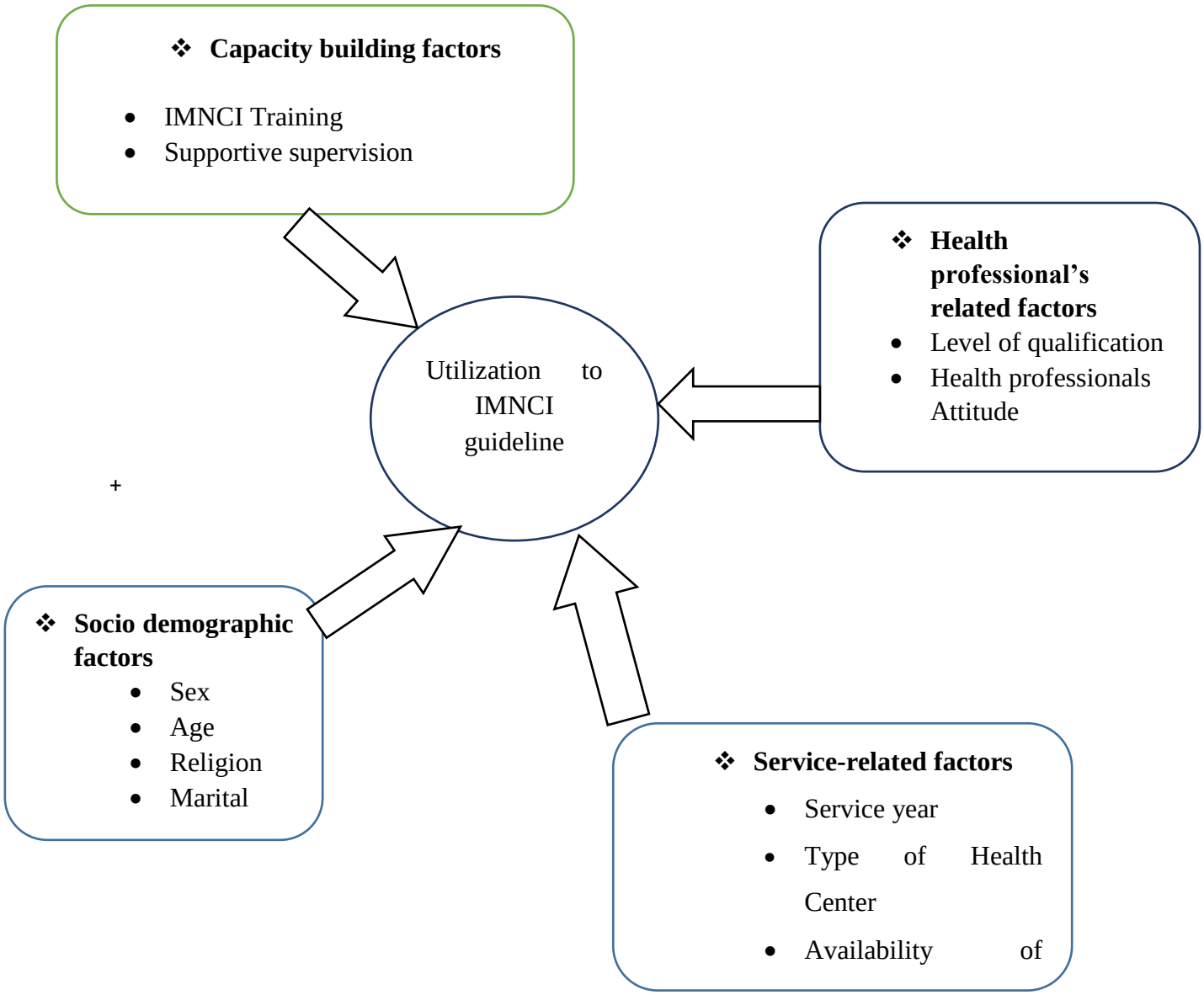


Figure 1: Conceptual frame work on IMNCI Implementation adapted from different literatures (1-3).

3. OBJECTIVES

3.1. General objective

- To assessutilization of Integrated Management of Neonatal and Childhood illness Guidelines among health professionals and associated factors at public health facilities in Guji Zone, Southern Ethiopia,2023.

3.2. Specific objectives

- To assessutilization of Integrated Management of Neonatal and Childhood illness Guidelines among health professionals and associated factors at public health facilities in Guji Zone, Southern Ethiopia,2023.

- To identify factors associated with implementation of Integrated Management of Neonatal and Childhood illness Guidelines among health professionals and associated factors at public health facilities in Guji Zone, Southern Ethiopia, 2023.

4. MATERIALS AND METHODS

4.1. Study Area and Period

The study was conducted in Guji zone, south Ethiopia. Guji is one of zone in Oromia Regional state of Ethiopia. The capital town of zone is Negelle, which is located at 690 kilometer from Addis Ababa to south on the way Addis Ababa to Moyale international road. Based on figure from CSA 2010, the zone has an estimated total population of 1,200,944 of which 608,878 were male with annual growth rate of 2.9%. About 218,440 live in urban and 982,504 in rural areas. According to data from zonal health department there are 50 Health centers, and 3 Primary hospitals in Guji zone. Study was conducted from April 1/2023 to May 30/2023 (Guji Zonal health department).

4.1. Study Design

Facility based Cross-sectional study was conducted.

4.2. Population

4.2.1. Source population

All health care providers working at under-five out- patient department (OPD) at public health facilities in Guji zone.

4.2.2. Study population

Health care providers working at under- five outpatient department (OPD) (General Physician, Nurses, Health Officer) in selected district at public health facilities in Guji zone.

4.3. Inclusion and Exclusion Criteria

4.3.1. Inclusion criteria

- Health professionals working at under- five OPD at least six month were included in the study.

4.3.2. Exclusion criteria

- Health professionals who were sick, on maternity and annual leave and also not available during the date of data collection period.

4.4. Sample Size Determination

The sample size for magnitude of IMNCI implementation was determined using single population proportion formula with an assumption of a proportion of P=42% of low level implementation of IMNCI study conducted at Amhara region (11). d=5% marginal error and CI=95% confidence interval of certainty. Based on this assumption the actual sample size was;

$$\mathbf{n= \frac{(Z\alpha/2)^2\, p\,(1- p)}{d^2}}$$

Where,

n=is the required sample size

Z α /2 = critical value at 95% confidence level of certainty (1.96).

d= the margin of error between the sample and population (5%).

p =42%

Q=1-0.42=0.58

$$n= \frac{(Z\alpha/2)^2\, p\,(1- p)}{d^2}$$

$$n= (1.96)^2(0.42*0.58) / (0.05)^2$$

n= 374

The following adjustment formula was used since the total population was <10,000

= n / (1 + n/N)

Total number of health professionals in Gedeo zone, N=322

The following adjustment formula for the sample size = n / (1 + n/N)

n = 374/ (1+374/322)

n= 173

Design effect, DE = $1+\rho\,(n'-1)$

Where ρ = intra cluster correlation coefficient

n' = average cluster size. But when "ρ" is not known from previous similar study, we can use design effect of 1.5, 2 or 3 simply without any calculation.

We can use Design effect=1.5, because of limitation of resource

We calculate sample size using design effect of 1.5 times 173 = 260

By using 10% non response rate = 286

The final sample size, n = **<u>286</u>**

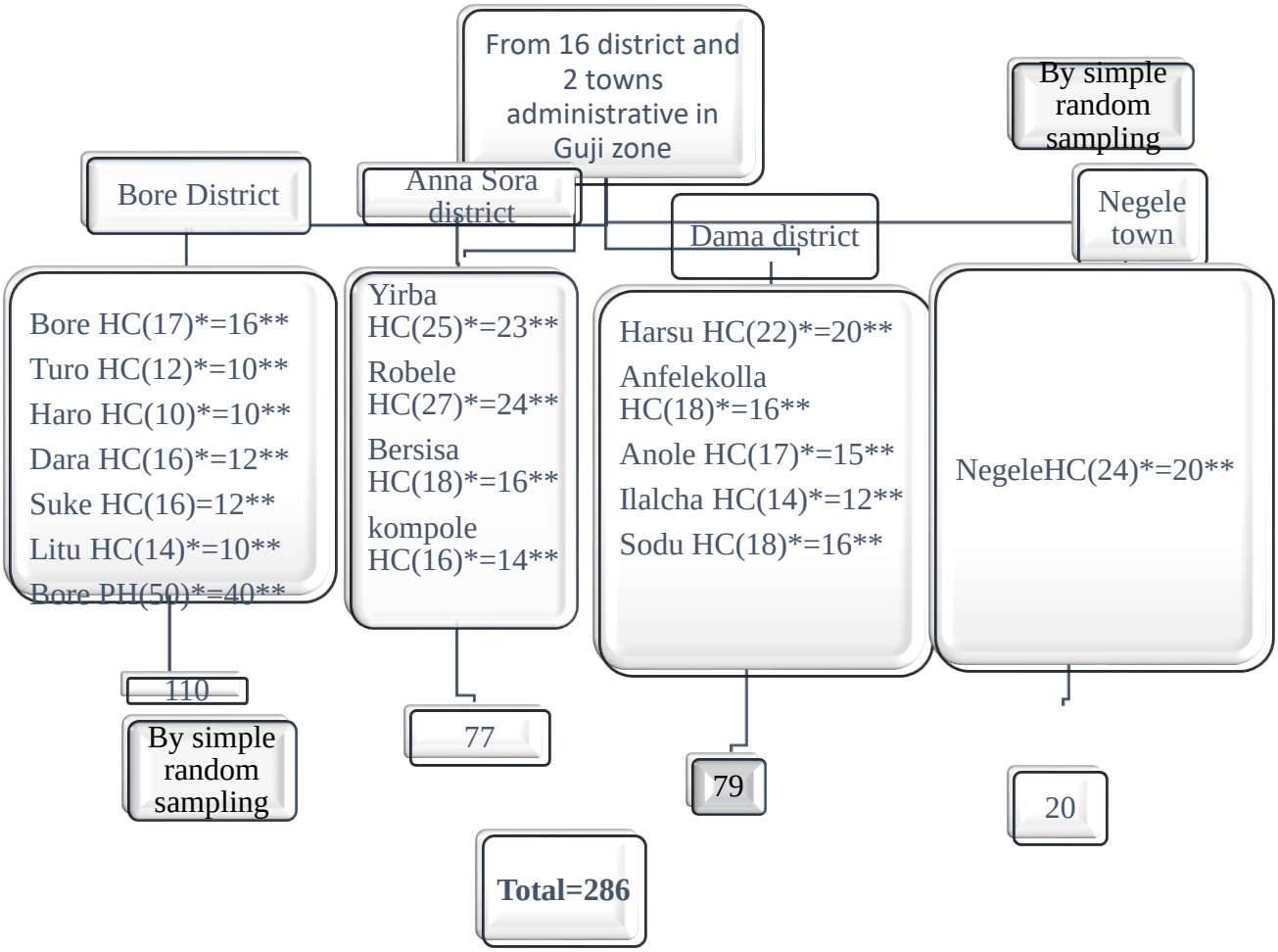
Table 1: Sample size determination for the factors associated with IMNCI implementation

Variables	% exposed	% unexposed	Ratio un exposed to exposed	CI	AOR	Power	sam ple size	adding 10% non-response rate	Reference
Attended IMNCI training	37.0	18.4	0.7	95%	2.60	80	211	232	
Lack of supervision	48.9	30.8	1.48	95%	2.15	80	258	286	(11)

3.6. Sampling Technique (Procedures)

For quantitative data**;** In Guji zone there were sixteen district and two administrative towns. Three (3) districts and one (1) town were selected based on high under-five morbidity and mortality rate were purposively selected. All health facilities from selected districts and administrative town were included in the study. From each health facilities, health care providers were selected by simple random sampling after population proportion allocation were made.

For qualitative data; In Depth Interview (IDI) were conducted with two key-informants per health facility) focal person(like under-five OPD) and one from WoHO/ districts MCH coordinator were selected purposely in selected woreda of public health facilities in Guji zone during the study period.



* = Eligible staff
**= Staff after proportional allocation

Figure 2: Sampling Technique of the study

4.1. Study Variables

4.1.1. Dependent variable

Utilization of IMNCI

4.1.2. Independent variables

Socio-demographic factors: Sex, age, religion, marital status

Capacity building factors: IMNCI training, supportive supervision

Health professional's factor: Level of qualification, Health professionalsAttitude

Service-related factors: Service year, Type of Health center, Availability of IMNCI guide lines, Essential drugs and supplies

4.8. Operational definitions

Components of IMNCI; According to IMNCI strategy there are six components (assess, classify, identify treatment, treat, counsel and follow-up) (23).

IMNCI Implementation- is an application of the strategy or the guidelines in a comprehensive and holistic manner (11).

Comprehensive implementation -Ability of the facility to equip complete essential drugs & equipment for the five conditions (Malaria, Pneumonia, Diarrhea, Measles and Malnutrition) affecting children below five years of age to allow dispensation under one roof to holistically manage and application of all IMNCI case management stages.

Holistic intervention for below 2 months: Health managing of children below 2 months by critically assessing children before prescribing a comprehensive and holistic therapy for temperature, very severe disease, jaundice, diarrhea, feeding problem for breast fed and non-breast fed and HIV/AIDS .

Holistic intervention for 2-59 months: Health managing of children below five years by critically assessing children before prescribing a comprehensive and holistic therapy for Pneumonia, Diarrhea, Malaria, Measles, Malnutrition.

The level of Implementation: From six IMNCI components, assessment component selected and service-related factors was evaluated to classify the level of implementation**.** After comprehensive question about assessment of child and service-related factors was asked and computed, those who scored above the mean were considered in the category of high-level implementation and those who scored below and equal to the mean were considered in the category of low-level implementation.

Positive attitude; -

Negative attitude; -

4.9. Data Collection Instruments

Structured questionnaire was adapted from different literatures (5,7,8, 11, 21) to collect data (socio demographic factors, health professionals related factors, service related factors, capacity building factors). To assess the level of implementation, comprehensive implementation question was prepared.

4.10. Data Collection Procedures

The questionnaire was first prepared in English, then translated to Amharic and back translated to English. Three trained nurses were employed for data collection. Data was collected using self-administered questionnaire (composed of socio demographic, health professional's related factors, capacity building factors, service-related factors) from sampled health professionals. From six IMNCI components, assessment component and service-related factors was evaluated to classify the level of implementation**.** After comprehensive question about assessment of child and service-related factors was asked and computed, those who scored above the mean were considered in the category of high-level implementation and those who scored below and equal to the mean were considered in the category of low-level implementation.

4.11. Data Processing and Analysis

Collected data was entered into Epi-Data version 3.1 and exported to SPSS version 21 for data analysis. Frequency and percentages were used to describe the study population in relation to socio-demographic and other relevant variables. A descriptive and analytical statistical method was used to describe and infer the findings. In order to identify factors associated with implementation of IMNCI guidelines among health professionals; binary logistic regression was done. In the variable model, covariates with p-values ≤ 0.25 were selected to be included in the multivariable model. The Adjusted Odds Ratio (AOR) with a 95 % confidence interval (CI) and p-value of ≤0.05 was computed to show the strength of the association. The model fitness was checked using Hosmer Lemshow model with the P-value of ≥0.05.

4.12. Data Quality Control

Three data collector nurses and one supervisor were participated in the data collection. One-day training was given for data collectors. Before data collection pretest on 5% of the total sample size was conducted in Bore woreda, Bore health center and the necessary modification was accommodated. Completeness of the data was checked daily and immediate action was taken.

4.13. Ethical Consideration

Letter of ethical clearance was obtained from Hawassa University, College of Health Science, School of public Health, department of reproductive health. Official permission letter was sent to Guji zone health department. The purpose and importance of the study was explained and Verbal consent was taken from respondents. Unwilling participants and those who wish to quit their participation at any stage were informed to do so without any restriction.

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5. RESULTS

5.1. Socio-demographic characteristics of the study participants

A total of 286 health professionals were included in the study with the response rate of 100%. Regarding the socio demographic characteristics, more than half 148 (51.7%) of the participants were male. The mean ages of study participants were 27.5 (SD = ±5.5). More than half 149 (52.1%) were Orthodox. Regarding profession type, 163 (57%) were BSc and above (Table 2).

Table 2: Socio-demographic characteristics of the study participants, Guji Zone, 2023 (n=286).

Variables		Frequency	%
Sex	Male	148	51.7
	Female	138	48.3
Age category	25-29	31	10.8
	30-34	184	64.3
	≥ 35	71	24.8
Religion	Orthodox	149	52.1
	Protestant	129	45.1
	Muslim	8	2.8
Level of qualification	Diploma	123	43.0

	Degree	163	57.0
Marital Status	Single	180	62.9
	Married	106	37.1

There was high-level utilization of IMNCI guideline with 75.2% (Figure 3).

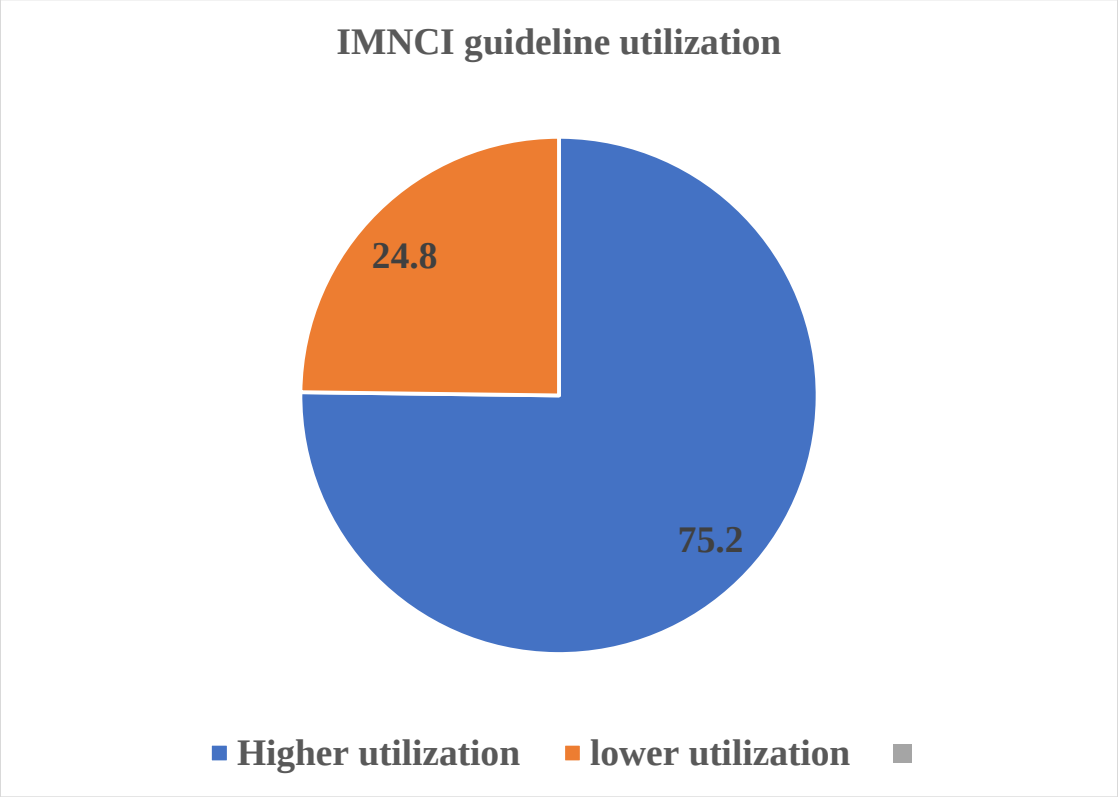

Figure 3: The level of IMNCI guideline utilizationamong health professionals in Guji Zone, 2023.

5.1. Implementation of comprehensive assessment for below two months new born

All study participants (n=286) have assessed the age, sex and feeding problem for breast fed new-born. Only 7 (2.4%) and 8 (2.8%) of the study participants assessed length and weight of the new-born during the study. Regarding assessment of HIV AIDS status of the mother, 6 (2.1%) of the study participants have assessed HIV AIDS status of the mothers (Table 3).

5.2. Implementation of comprehensive assessment for 2-59months

All study participants (n=286) assessed age, sex, presenting compliant, cough, diarrhea, ear problem, malnutrition and feeding problem. Only 73 (25.5%) and 84 (29.4%) of the study participants have assessed length/height and anemia status of the children aged 2-59 months, respectively. Similarly, only 32 (11.2%) of the study participants assessed vitamin A status of the children aged 2-59 months (Table 4).

Table 3: Implementation of comprehensive assessment for below two-months newborn, Guji Zone, 2023 (n= 286).

Variables		Frequency	%
Assessed age	Yes	286	100
	No	0	0
Assessed sex	Yes	286	100
	No	0	0
Assessed Weight	Yes	281	98.3
	No	5	1.7
Assessed Length	Yes	7	2.4
	No	279	97.6
Assessed Temperature	Yes	215	75.2
	No	71	24.8
Assessed presenting compliant	Yes	284	99.3

	No	2	0.7
Assessed breathing problem	Yes	125	43.7
	No	161	56.3
Assessed gestational age	Yes	228	79.7
	No	58	20.3
Assessed weight first 7days	Yes	8	2.8
	No	278	97.2
Assessed VSD and LBI	Yes	214	74.8
	No	72	25.2
Assessed Jaundice	Yes	165	57.7
	No	121	42.3
Assessed Diarrhea	Yes	208	72.7
	No	78	27.3
Assessed HIV AIDS	Yes	6	2.1
	No	280	97.9
Assessed feeding problem for BF	Yes	286	100
	No	0	0
Assessed feeding problem for NBF	Yes	284	99.3
	No	2	0.7
Assessed immunization status	Yes	209	73.1
	No	77	26.9
Assessed Vitamin A status of the mother	Yes	26	9.1
	No	260	90.9
Assessed other problem	Yes	142	49.7

	No	144	50.3
Assessed maternal danger sign	Yes	141	49.3
	No	145	50.7

Table 4: Implementation of comprehensive assessment for 2-59 months, Guji Zone, 2023.

Variables		Frequency	%
Assessed Age	Yes	286	100
	No	0	0
Assessed Sex	Yes	286	100
	No	0	0
Assessed weight	Yes	284	99.3
	No	2	0.7
Assessed length/height	Yes	73	25.5
	No	213	74.5
Assessed temperature	Yes	285	99.7
	No	1	0.3
Assessed presenting compliant	Yes	286	100
	No	0	0
Assessed general danger sign	Yes	278	97.2
	No	8	2.8
Assessed cough	Yes	286	100
	No	0	0
Assessed Diarrhea	Yes	286	100
	No	0	0

Assessed Fever	Yes	226	79.0
	No	60	21.0
Assessed Ear problem	Yes	286	100
	No	0	0
Assessed Anemia	Yes	84	29.4
	No	202	70.6
Assessed Malnutrition	Yes	286	100
	No	0	0
Assessed HIV AIDS	Yes	161	56.3
	No	125	43.7
Assessed TB	Yes	205	71.7
	No	81	28.3
Assessed Immunization status	Yes	283	99.0
	No	3	1.0
Assessed Vitamin A status	Yes	32	11.2
	No	254	88.8
Assessed mebendazole/albendazole	Yes	245	85.7
	No	41	14.3
Assessed feeding problem	Yes	286	100
	No	0	0
Assessed other problem	Yes	147	51.4
	No	139	48.6

5.2. IMNCI service-related characteristics

All study participants (n=286) had worked in the under-five OPD. Among study participants, 78 (27.3%) had service year greater than or equal to 10 years. Regarding IMNCI training, only107

(37.4 %) of the study participants received IMNCI training in-service training. Among these, 75 (70.1%) and 32 (29.9%) received the training for 7and 5 days, respectively. Concerning number of children treated perday, 95 (33.2%) greater than 15 children was treated per day.With regard to time spent on consultation,194 (67.8%) spent 5 minutes on consultation. Regarding type of health center, 183(64%) was type A health center (Table 5).

Table 5: IMNCI service-related characteristics, Guji Zone, 2023, (n= 286).

Variables	**Category**	**Frequency**	**%**
Service year	≥10	78	27.3
	<10	208	72.7
Worked in under five OPD	Yes	286	100
	No	0	0
Received IMNCI Training	Yes	107	37.4
	No	179	62.6
Type of IMNCI Training n=107	Pre service training	0	0
	In service training	107	100
Duration of IMNCI Training	5 days	32	29.9
	7 days	75	70.1
Received IMNCI follow up training	Yes	2	0.7
	No	105	36.7
Received IMNCI supportive supervision	Yes	220	76.9
	No	66	23.1
Number of children treated per day	≥15	95	33.2
	<15	191	66.8
Apply all stages of IMNCI	Yes	88	30.8
	No	198	69.2

Time spent on consultation	5 minutes	194	67.8
	10 minutes	90	31.5
	15 minutes	2	0.7
Availability of IMNCI guideline	Yes	277	96.9
	No	9	3.1
Availability of Essential drugs	Yes	209	73.1
	No	77	26.9
Facility Type	Type A Health center	183	64.0
	Type B Health center	83	29.0
	Primary Hospital	40	14.0

5.6. IMNCI case management stages

Out of the six steps of IMNCI case management protocol, almost all 285 (99.7%) always assessed the child condition and 284 (99.3%) of the study participants treated the children illness, respectively. One hundred two (35.7%) of the study participants always classified the child's illness and 59 (20.6%) identified treatment for the child's condition. Less than half 130 (45.5%) of the study participants counseled the care taker and 46 (16.1%) provided follow-up care (Table 6).

Table 6: IMNCI Case management process, Guji Zone, 2023 (n= 286).

Variables	Category	Frequency	%
Assess the child's condition	Always	285	99.7
	Sometimes	1	0.3
Classify the child's illness	Always	102	35.7
	Sometimes	129	45.1

	Not difficult	55	19.2
Identify Treatment	Always	59	20.6
	Sometimes	164	57.3
	Not difficult	63	22.0
Treat the child	Always	284	99.3
	Sometimes	2	0.7
Counsel the caretaker	Always	130	45.5
	Sometimes	109	38.1
	Not difficult	47	16.4
Provide follow-up care	Always	46	16.1
	Sometimes	70	24.5
	Not difficult	170	59.4

5.6. Participants' agreement level on IMNCI Strategy

Among study participants 175 (61.2%) had Positive Attitude that IMNCI had boosted their self-confidence and skills in managing patients under 5 years of age. More than quarter 208 (72.7%) of the study participants had Positive Attitude that IMNCI leads to longer patient waiting queues because of the time spent to apply all the stages of the IMNCI case management protocol per under 5 patients. With regard to partial implementation of IMNCI, 208 (72.7%) had Positive Attitude that IMNCI is partially implemented because the IMNCI trained nurses take too long time assessing the under 5 patients and non-IMNCI trained nurses take over care of other children waiting in the queue (Table 7).

More than quarter 213 (74.5%) the participants had Positive Attitude that IMNCI reduced follow-up visits by under-5 patients because of the through and accurate case management during initial visit. Regarding whether the study participants always refer IMNCI chart booklet in the clinic during case management of every presentation, less than quarter 195 (68.2%) of them had Positive Attitude that they referred the IMNCI chart booklet. Majority 282 (98.6%) had Negative Attitude that all IMNCI trained nurses at their health facility applied all the stages of the IMNCI protocol during case management of children < 5 years (Table 7).

5.6. Experience in implementing the guidelines and procedures of the IMCNI strategy

More than quarter 219 (76.6 %) had Positive Attitudethat IMNCI is a user-friendly. Majority 254 (88.8%) of the study participantshad Negative Attitudethat IMNCI is easy to understand and apply. More than quarter226 (79 %) of study participantshad Positive Attitudethat IMNCI is time consuming.Majority 282 (98.6 %) of the participants had NegativeAttitudethat IMNCI is not practical. Majority 275 (96.2%) of the respondents had NegativeAttitudeon the idea that IMNCI is difficult to understand and apply (Table 8).

Majority 272 (95.1%) of the respondents had NegativeAttitudethat their supervisor did not appreciate rationale for IMNCI. Similarly, majority 234 (82%) of the respondents had NegativeAttitudethat patient nurse ratio didn't allow for the use of IMNCI strategy. Majority 282 (98.6%) of the study participants had NegativeAttitudethat IMNCI guidelines are too simple. Less than quarter 189 (66.1%) of the study participants had PositiveAttitudetowards IMNCI by some clinical officers and doctors.

Table 7: Participants' agreement level on IMNCI Strategy, Guji Zone, 2023 (n= 286).

Variables	**Category**	**Frequency**	**%**
IMNCI has boosted my confidence and skills	Positive Attitude	175	61.2
	Negative Attitude	111	38.8
IMNCI leads to longer patient waiting queues	Positive Attitude	208	72.7
	Negative Attitude	77	26.9
IMNCI is partially implemented	Positive Attitude	208	72.7
	Negative Attitude	77	26.9

IMNCI reduced follow-up visits	Positive Attitude	213	74.5
	Negative Attitude	72	25.2
Not practical to always refer IMNCI chart booklet	Positive Attitude	195	68.2
	Negative Attitude	91	32.0
All IMNCI trained nurse apply all stages of IMNCI Protocol	Positive Attitude	4	1.4
	Negative Attitude	282	98.6
Health Facility lay-out not suitable	Positive Attitude	8	2.8
	Negative Attitude	277	97.0
Case management practice of IMNCI trained nurse and non IMNCI trained nurse are inconsistent	Positive Attitude	281	98.3
	Negative Attitude	5	1.7

Multivariate analysis of factors affecting utilization IMNCI protocol by nurses in public health institutions in guji zone.

Table 3: Bivariate and multivariate results of the factors Associated with IMNCI utilization by nurses in public health institution, Guji zone, April 2016, **n=286**.

Variables		**Yes** **Nº (%)**	**No** **Nº (%)**	**COR (95% CI)**	**AOR (95% CI)**	**P-value**
Received IMNCI Training	**Yes**	**69(24.1**	**71(24.8**	**2.7(1.7-5.2)**	**1.8(1.06-15.16)**	**0.001***
	No	**38(13.2**	**108(37.7**	**1**	**1**	
Received IMNCI follow up training	**Yes**	**12(4.1)**	**79(27.6)**	**16(7.0-17.5)**	**8(3.0-11.9)**	**0.001***
	No	**95(33.2)**	**100(35)**	**1**	**1**	
Received IMNCI supportive supervision	**Yes**	**95(33.2)**	**123(43.0)**	**3.6(3.02-12.7)**	**1.7(1.55-6.13)**	**0.001***
	No	**12(4.1)**	**56(19.5)**	**1**	**1**	
Apply all stages of	**Yes**	**76(26.5)**	**128(44.7)**	**2.7(1.02-**	**1.2(1.581-**	**0.002***

IMNCI	**No**	**11(3.8)**	**51(17.8)**	**3.91)** **1**	**5.36)** **1**	
Availability of IMNCI guideline	**Yes** **No**	**88(30.7)** **19(6.6)**	**108(37.7)** **71(24.8)**	**3.04 (1.08-3.8)** **1**	**3.2 (1.6-8.3)** **1**	**0.024***
My supervisor does not appreciate rationale for IMNCI	**Yes** **No**	**20(6.9)** **87 (30.4)**	**127(44.4)** **52(18.1)**	**9.4(1.63-11.83)** **1**	**4.2(2.03-6.83)** **1**	**0.014***
Availability of Essential drugs	**Yes** **No**	**89(31.1)** **18(6.2)**	**100(34.9)** **79(27.6)**	**3.9(1.06-4.03)** **1**	**2.7((1.07-3.64)** **1**	**0.022***
Always referring chart booklet	**Yes** **No**	**92(32.1)** **15(5.2)**	**99(34.6)** **80(28)**	**4.9(3.5-7.8)** **1**	**2.2(1.1-4.3)** **1**	**0.020***
Lack of follow up training	**Yes** **No**	**84(29.3)** **23(8.04)**	**114(39.8)** **65(22)**	**2.8(1.91-16.8)** **1**	**2.2(2.16-22.6)** **1**	**0.001***

5. DISCUSSION

This study revealed that the high-level IMNCI implementation was 75.2%(1.2-6.9).This finding is relatively higher than the study conducted in other parts of Ethiopia particularly, in North Shewa Zone, high-level IMNCI implementation of 58% (11),West Arsi Zone high-level IMNCI implementation of 58.7% (2) and Shire high-level IMNCI implementation of 54.2% (12). This may be due to the differences in study period and area.

In the assessment of children aged up to 2 months, more than half (57.7%) of study participants reported to have assessed jaundice. This is lower than study finding from Egypt which showed 100% of the physicians have reported to have assessed jaundice (3). This may be due to lack of adequate training on IMNCI guideline and variation in level of qualifications.

In the present study, 99.3% of health professionals reported that they had assessed weight for children aged 2 months up to 5 years. Similarly, majority (99.7%) and (99.3%) of the study participants always assessed and treated the child illness, respectively. This is higher than study finding from Egypt (3). Study conducted in Egypt indicated that for children aged from 2 months up to 5 years only 85.7% of physicians were complied with weight assessment. This may be due to lack of emphasis by health professionals on IMNCI guideline implementation.

This study showed that 97.2% and 100% of the health professionals assessed danger signs and presenting compliant, respectively. This is higher that study from South Africa which indicated in most cases health professionals used IMNCI to assess presenting symptoms but did not implement IMNCI comprehensively(15). This study added that only 12% checked general danger signs in every child and 18% assessed all the main symptoms in every child.

In the present study, only 37.4% of health professionals received IMNCI training which is still below WHO recommendation that states at least 60% of health care professionals seeing sick children in the health facilities are trained in IMNCI (11). This is comparable to study conducted in West Arsi Zone which revealed 40% of health professionals were attended IMNCI training (2). This finding is higher than study result from Peru which showed that health professionals trained in IMNCI were only 10.3% (17). But, lower than study from North Shewa Zone(11), Baquba city(18) and Tanzania (21) which showed (57.7%), 78.4% and 51% of health professionals were trained on IMNCI strategy, respectively. This difference could be due to trained staff turnover and high cost of training.

In this study, compared to non-trained, those who had received IMNCI training were more than two times more likely to implement IMNCI protocol with 95% CI: (1.12, 5.49). This finding is in agreement with study conducted in different parts of Ethiopia, particularly, North Shewa(11) and West Arsi (2). The study conducted in North Shewa revealed that the odds of IMNCI utilizations among health professionals who had attended IMNCI training were **8**times higher compared to health professionals who had not attended IMNCI training. The other study result from West Arsi Zone also indicated that the odds of IMNCI utilizations among nurses who had attended IMNCI training were 2.76 times higher compared to nurses who had not attended IMNCI training (2).

The present study showed that health professionals who received IMNCI supportive supervision were 76.9%.This finding is lower than study conducted in West Arsi Zone, which indicated health professionals who had irregular supportive supervision were 89.2% (13). The difference could be probably due to lack of emphasis by governmental and non-governmental institutions on IMNCI supportive supervision. A study done in Benin also revealed that health care supervision was associated with improved performance (14).

In this study, always referring IMNCI chart booklet were not significantly associated with IMNCI implementation. This finding is different from West Arsi Zone, showed that always referring IMNCI chart booklet were **2.2**times more likely to implement IMNCI protocol (2).

The current finding showed that lack of essential drugs was 26.9%. This finding is lower than the result of study conducted done at West Arsi zone, indicated that lack of essential drugs and supplies were 37.3% (13).

In this study, IMNCI supportive supervision, correctly classify illness, prescribe medication and treat the children were not significantly associated with IMNCI implementation. This finding is different from systematic review and meta study conducted in lower resource setting country indicated that health care workers were two times more likely to correctly classify illness and three times more likely to prescribe medication and treat the children (16).

Limitation of the study

- As the study was cross-sectional, we can infer association but not causation from our results.
- The result of this study depended on self-administered questionnaire, may create social desirability bias.
- The result of this study not supplemented by qualitative study.

6. CONCLUSION AND RECOMMENDATIONS

6.1. CONCLUSION

In this study, there was Good implementation of IMNCI guideline among health professionals in selected districts of Guji Zone. Receiving IMNCI training and level of qualification with first degree and above were independent determinants of high-level implementation of IMNCI. Improving health professionals' level of qualification and providing adequate IMNCI training would improve IMNCI implementation. An understanding of these factors can help inform the development of strategies to improve performance in IMNCI implementation.

6.2. RECOMMENDATION

- Zonal health department, Regional healthdepartment, Ministry of health and NGOs should have work together to provide quality IMNCI implementation by focusing on improving health professionals' qualification and providing IMNCI training.

- IMNCI training is very crucial for IMNCI implementation; should be given great emphasis by government and stakeholders.
- IMNCI facilitators should give emphasis on IMNCI follow-up training.
- Pre service and In-service IMNCI training is very important for IMNCI implementation, should be given great emphasis byMinistry of health and stakeholders.
- Further research should be done in the wider range at a country level.

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ANNEXES

Annex I: Information Sheet

My name is ……I am here on the behalf of Jemal Ayub Hebo who is a master's student in Hawassa university school of public health, department of reproductive health. He is working his thesis on implementation of Integrated Management of Neonatal and Childhood illness Guidelines among health professional and associated factors at public health facilities in Guji Zone, Southern Ethiopia,2023. Prior to this I will be explaining information about the study and requesting you to participate in the study. The participation in this study is voluntary; you can also withdraw at any time from the study if you feel uncomfortable. Refusal to participate will not affect your work or care you shall seek at any of the health facilities in any way. Confidentiality will be ensured by not using your name or address on the questionnaire and final thesis report. There are no risks involved in participating in this study. The study has no immediate benefits to the respondents, but will have benefits later in improving the uptake of IMNCI service utilization among children and thereby help to reduce child morbidity and mortality. I welcome any question if you have any about the study and your participation. Should

you have any questions about the research or any related matters, please contact the researcher at:

Mobile: +251-9-12-67-54-48. Email: jemsboldayub@gmail.com

Annex II: Consent sheet

I, the undersigned, understand the nature of the study, benefits, my right to voluntary participation, confidentiality and withdrawal from the study without any victimization. I have had the opportunity to ask questions and answered to my satisfaction. I hereby freely consent to take part in this study.

Signature of the participant_____ Date_____

Supervisor: Name _____signature_____ Date_____/_____/____

Interviewer: Name: _____signature_____ Date_____/_____/____

Your participation will be greatly appreciated

Annex III: Questionnaire

Part one :- Sociodemographic related characteristics of respondents			
S/no	Questions	Response category	Skip
101	Sex	1. Male 2. Female	
102	Age	----------Years	
103	Religion	1. Protestant 2. Orthodox 3. Catholic 4. Muslim 5. Other specify	
104	Level of qualification	1. Diploma 2. Degree 3. Master 4. Physician	

		5. Other Specify	
105	Profession type	1. Clinical Nurse 2. BSC Nurse 3. Health Officer 4. Master(MPH/RH) 5. General Physician 6. Other Specify	
106	Marital status	1. Married 2. Single 3. Divorced 4. Widowed	
Part two:-Comprehensive Assessment Questions Below Two Month Young New Born			
201	Have you ever assessed Age for all sick below two months young new born in weeks?	1. yes 2. no	
202	Have you ever assessed Sex for all sick below two months young new born?	1. yes 2. no	
203	Have you ever assessed Weight for all sick below two months young new born in grams?	1. yes 2. no	
204	Have you ever assessed Length for all sick below two months young new born in centimeter?	1. yes 2. no	
205	Have you ever assessed Temperature for all sick below two months young new born in degree centigrade?	1. yes 2. no	
206	Have you ever assessed presenting complaint for all sick below two months young new	1. yes 2. no	

	born?		
207	Have you ever assessed Breathing problem at Birth for all sick below two months young new born?	1. yes 2. no	If no skip to Q209
208	If Question no 207 is yes, which Breathing Problem at Birth for all sick below two months young new born you assessed? (More than one answer is possible)	1. not breathing 2. gasping 3. poor breathing (< 30/min) 4. blue tongue /lips	
209	Have you ever assessed Gestational Age of Mother	1. yes 2. no	
210	Have you ever assessed Weight (First 7 Days) for all sick below two months young new born?	1. yes 2. no	
211	Have you ever assessed Very Severe Disease and Local Bacterial Infection for all sick below two months young new born?	1. yes 2. no	If no skip to Q213
212	If Question no 211 is yes, which sign of Very Severe Disease and Local Bacterial Infection for all sick below two months young new born you assessed? (More than one answer is possible)	1. feeding difficulty 2. convulsion 3. RR/min 4. Fast breathing 5. sever chest in drawing 6. umbilicus: red /pus draining 7. temperature 8. skin pustules 9. moves only when stimulated 10. no movement when stimulated	
213	Have you ever assessed Jaundice for all sick below two months young new born?	1. yes 2. no	If no skip to Q215

214	If Question no 213 is yes, which sign of Jaundice for all sick below two months young new born you assessed? (More than one answer is possible)	1. yellow palms and soles 2. yellow Face or eyes 3. no discolor	
215	Have you ever assessed signs of Diarrhea for all sick below two months young new born?	1. yes 2. no	If no skip to Q217
216	If Question no 215 is yes, which sign of Diarrhea for all sick below two months young new born you assessed? (More than one answer is possible)	1. duration of days 2. blood in stool 3. moves only when stimulated 4. no movement when stimulated 5. restless /irritable 6. sunken eyes 7. skin pinch slow- very slow	
217	Have you ever assessed HIV/AIDS for all mothers who have young new born below two months?	1. yes 2. no	
218	Have you ever assessed Breast feeding Problem for all sick below two months young new born?	1. yes 2. no	If no skip to Q220
219	If Question no 218 is yes, which sign of Feeding Problem (For Breastfeeding) for all sick below two months young new born you assessed? (More than one answer is possible)	1. any breast-feeding difficulty 2. < 8 breast feeding /24 hours 3. switching breast frequently 4. not increasing breast feeding during illness 5. receive other foods	

		6. under weight(Wt/Age) 7. mouth ulcer 8. poor positioning 9. poor attachment 10. poor suckling 11. no feeding problem(not underweight)	
220	Have you ever assessed Feeding Problem (For Non-Breast feeding) for all sick below two months young new born?	1. yes 2. no	If no skip to Q222
221	If Question no 220 is yes, which sign of Feeding Problem (For Non-Breast feeding) for all sick below two months young new born? (More than one answer is possible)	1. unhygienic milk preparation 2. inappropriate replacement feed 3. Insufficient replacement feeds 4. Mixing breast milk and other feeds 5. bottle feeding 6. under weight(Wt/Age) 7. mouth ulcer 8. no feeding problem(not underweight)	
222	Have you ever assessed Immunization Status for all sick below two months young new born?	1. yes 2. no	
223	Have you ever assessed Vitamin A Status of Mother for all sick below two months young new born?	1. yes 2. no	
224	Have you ever assessed Other Problems for all sick below two months young new born ?	1. yes 2. no	
225	Have you ever assessed Maternal Danger Signs (< 6 weeks)?	1. yes 2. no	

Part three:- Comprehensive Assessment Questions 2 Month- 59 Month			
301	Have you ever assessed Age for all sick 2 month-59-month young children in month?	1. yes 2. no	
302	Have you ever assessed Sex for all sick 2 month-59-month young children?	1. yes 2. no	
303	Have you ever assessed Weight for all sick 2month-59-month young children in kg?	1. yes 2. no	
304	Have you ever assessed Length/Height for all sick 2 month-59-month young children in cm?	1. yes 2. no	
305	Have you ever assessed Temperature for all sick 2 month-59-month young children in ^{0}c?	1. yes 2. no	
306	Have you ever assessed presenting complaint for all sick 2 month-59-month young children?	1. yes 2. no	
307	Have you ever assessed General Danger Signs for all sick 2 month-59-month young children?	1. yes 2. no	If no skip to Q309
308	If Question no 307 is yes, which General Danger Signs for all sick 2 month-59-month young children you assessed? (More than one answer is possible)	1. un able to drink or breast feed 2. Vomiting everything 3. history of convulsion 4. convulsing now 5. lethargic/unconsciousness	
309	Have you ever assessed Cough/Difficult Breathing for all sick 2 month-59-month	1. yes 2. no	If no skip

	young children?		to Q311
310	If Question no 309 is yes, which signs of Cough/Difficult Breathing for all sick 2 month-59-month young children you assessed? (More than one answer is possible)	1. duration of days 2. respiratory rate 3. fast breathing 4. chest Indrawing 5. stridor	
311	Have you ever assessed Diarrhea for all sick 2 month-59-month young children?	1. yes 2. no	If no skip to Q313
312	If Question no 311 is yes, which signs of Diarrhea for all sick 2 month-59-month young children you assessed? (More than one answer is possible)	1. no of days 2. blood in stool 3. lethargic /unconscious 4. restless or irritable 5. sunken eyes 6. un able /drink poorly 7. drinks eagerly /thirsty 8. skin pinch very slowly - slowly	
313	Have you ever assessed Fever for all sick 2 month-59-month young children?	1. yes 2. no	If no skip to Q315
314	If Question no 313 is yes, which signs of Fever for all sick 2 month-59-month young children you assessed? (More than one answer is possible)	1. No of days 2. Malaria Risk area 3. History of measles within 3 months 4. stiff neck 5. Bulged fontanel 6. Generalized rash 7. Cough/ Runny nose/ Red eyes 8. Mouth ulcers: Deep/ - Extensive 9. Eyes :pus draining/Corneal clouding 10. Blood film	

315	Have you ever assessed Ear Problem for all sick 2 month-59-month young children?	1. yes 2. no	If no skip to Q317
316	If Question no 315 is yes, which signs of Ear Problem for all sick 2 month-59-month young children you assessed? (More than one answer is possible)	1. ear pain 2. ear discharge 3. pus draining 4. tender swelling behind the ear	
317	Have you ever assessed Anemia for all sick 2 month-59-month young children?	1. yes 2. no	
318	Have you ever assessed Malnutrition for all sick 2 month-59-month young children?	1. yes 2. no	If no skip to Q320
319	If Question no 318 is yes, which signs of Malnutrition for all sick 2 month-59-month young children you assessed (More than one answer is possible)	1. Edema 2. WFL/H 3. Visible sever wasting 4. MUAC 5. Medical complication 6. Dermatosis 7. Appetite test	
320	Have you ever assessed HIV/AIDS for all sick 2 month-59-month young children?	1. yes 2. no	
321	Have you ever assessed Tuberculosis (TB) for all sick 2 month-59-month young children?	1. yes 2. no	If no skip to Q323
322	If Question no 321 is yes, which signs of	1. fever/night sweating	

	Tuberculosis (TB) for all sick 2 month-59-month young children you assessed? (More than one answer is possible)	2. contact with known TB patient 3. contact with MDR TB patient 4 .swelling/discharging wound 5. sign of malnutrition/MAM/SAM	
323	Have you ever assessed Immunization status < 24 month for all sick 2 month-59-month young children?	1. yes 2. no	
324	Have you ever assessed Vitamin A greater than or equal to 6 months for all sick 2 month-59-month young children?	1. yes 2. no	
325	Have you ever assessed Mebendazole/Albendazole greater than or equal to 24 months for all sick 2 month-59-month young children?	1. yes 2. no	
326	Have you ever assessed Feeding problem for all sick 2 month-59-month young children?	1. yes 2. no	
327	Have you ever assessed Other Problems for all sick 2 month-59-month young children?	1. yes 2. no	
Part four :- IMNCI service-related questions			
401	How long have you been serving as health professional?	---------years / -------- month	
402	Have you ever worked in a Pediatric/Children ward or under five OPD?	1. yes 2. no	If no skip to Q 404
403	If yes to # 402, How long have you been	---------years / --------	

	serving in under five clinics?	month	
404	Have you ever received IMNCI training?	1. yes 2. no	If no skip to Q 409
405	If yes to # 404, which IMNCI training did you received?	1. pre-service training 2. in-service training	
406	What was the duration of IMNCI training?	----------days	
407	Have you received IMNCI follow-up training?	1. yes 2. no	
408	How long you stayed after IMNCI training?	---------years / -------- month	
409	Have you ever received IMNCI Supportive Supervision?	1. yes 2. no	
410	In average how many sick children would you treat per day?	----------	
411	Do you apply all the stages of the IMNCI case Management process to all under 5 patients?	1. yes 2. no	If no skip to Q 413
412	If Yes for Q 411 what things Challenged you applying all the stages of the IMNCI case Management process to all under 5 patients? (More than one answer is possible)	1. Features of IMNCI is complex 2. Lack of IMNCI training 3. Lack of resources 4. Patient over loads 5. Lack of supervision 6. Lack of knowledge 7. Lack of good attitude 8. other specify	
413	How many times wound you spent on consultation?	---------minute	
414	Is their IMNCI guide line in your facility(Availability of IMNCI guide line)	1. yes 2. no	

415	Are their essential drugs (ORS, ORT Corner, Amoxicillin, Gentamycin, Ampicillin IV) to treat sick child on the shelf?	1. yes 2. no	
416	What is your facility type	1. Type A Health Center 2. Type B Health Center 3. Type C Health Center 4. Primary Hospital	

DECLARATION

I, the undersigned, declare that this thesis is my original work, has not been presented for a degree in this or any other university and that all sources of materials used for the thesis have been fully acknowledged.

Name: _____

Signature: _____

Name of the institution: _____

Date of submission: _____

This thesis has been submitted for examination with my approval as University advisor.

Name and Signature of the first advisor _____

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Name and Signature of the second advisor _____

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