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Assessing Observed Compliance With Integrated Management Of Childhood Illness Among Health Care Workers In Selected Phcs Of Abakaliki LGA Of Ebonyi State Nigeria

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Abstract:

Background: Integrated Management of Childhood Illnesses (IMCI) is central to improving child survival in Africa. Evidence has shown poor IMCI adherence which leads to increase under-five mortality.

Objectives: This study assess observed compliance with integrated management of childhood illness among health care workers in selected PHCs of Ebonyi state.

Methodology: The study utilizes cross-sectional designs using Non-probability convenience sampling technique to enrolled 84 healthcare workers who consented to the study. An overt observational technique were used for data collection. Descriptive statistics were employed to analyze the data using SPSS version 25 (IBM SPSS Statistics 25 and the Fisher's exact test). The study was conducted in 12 selected Primary Healthcare Centres in Abakilik Ebonyi State.

Results: The result reveal that healthcare workers performed better in treatment and counselling components of IMCI but showed gaps in comprehensive assessment, classification, and identification of feeding problems. The overall Observed compliance with IMCI shows moderate (58.7%) compliance.

Conclusion Compliance with IMCI was moderate among healthcare workers. However, training and refresher training, supportive supervision, mentorship and retaining experienced staff will improve compliance with IMCI.

Keywords: observe Compliance, health worker, IMCI, under-five mortality.

I. INTRODUCTION

Childhood morbidity and mortality are major public health challenges in many African countries. Despite global progress, under-five deaths remain disproportionately high across the continent (Pelden et al., 2025). Preventable and treatable illnesses account for most of these deaths (Safriana et al., 2024). Pneumonia, malaria, diarrhoea, measles, and malnutrition dominate the childhood disease burdens (Pinto et al., 2024). Weak health systems further exacerbate these outcomes, especially in low-resource settings (Mabuza et al., 2024). Pelden et al. (2025) acknowledged that addressing the quality of care management at the primary healthcare level is vital for better population childhood health outcomes.

In response to global burden of preventable childhood illnesses, the World Health Organisation (WHO) and the United Nations Children's Fund (UNICEF) introduced the Integrated Management of Childhood Illnesses strategy (IMCI; Ahun et al., 2023). The IMCI was designed to reduce child mortality through the use of standardized, evidence-

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based clinical guidelines (Tareke et al., 2024). The IMCI strategy integrates assessment, classification, treatment, and caregiver counselling (Amachree & Eleke, 2022). It also emphasizes the strengthening of the health system and community engagement (Pinto et al., 2024). IMCI targets common childhood illnesses within a single clinical encounter (Mwipopo & Manji, 2023). The IMCI integrated approach aims to improve efficiency and diagnostic accuracy.

African health systems have widely adopted the IMCI strategy since its introduction by the WHO and UNICEF. Many African countries integrated IMCI into their national child health policies (Isangula et al., 2023). Health workers at primary care facilities are the primary implementers of the strategy. These health workers include nurses, community health officers, and medical officers (Amachree & Eleke, 2022). Their compliance or adherence to the steps of assessment, classification, treatment, and caregiver counselling determines the effectiveness of the strategy. In other words, without health worker adherence, the expected benefits of the IMCI strategy cannot be realized.

Compliance refers to the extent to which health workers follow the IMCI assessment, classification, treatment, and counselling guidelines (McLaughlin et al., 2024). In this context, compliance is used interchangeably with adherence. It includes correct symptom assessment, classification, and treatment decisions. It also involves appropriate counselling and referral practices (Tareke et al., 2024). High compliance is associated with improved case detection and rational drug use (Amalia & Hadi, 2023). In contrast, low compliance undermines the quality of care and patient safety. Examining and addressing the health workers' IMCI compliance levels is therefore critical.

Health worker training alone may not guarantee sustained compliance or adherence to the IMCI strategy (Safriana et al., 2024). Skills may decline without supportive supervision and refresher training. Facility constraints may limit the application of the full guideline. Time constraints may limit a thorough assessment of the child. Caregiver experiences and expectations may influence prescribing behaviour. In line with the mentioned assertions, existing literature has reported variable observed compliance with IMCI guidelines across African settings. Some studies like Abebe et al. (2019) and Hordofa et al. (2024) report moderate to high adherence among trained health workers. Others like Kpoda et al. (2022) and Salem et al. (2019) describe poor assessment and incorrect treatment practices involving incomplete symptom checks and antibiotic overuse. Safriana et al. (2024) noted that stock-outs, workload, and inadequate supervision are the frequently reported barriers. Perhaps, contextual differences also further complicate the observed compliance outcomes.

Understanding compliance patterns is essential for child health policy. Evidence can guide targeted interventions to improve guideline adherence. Findings can inform training curricula, supervision models, and resource allocation decisions. Consequently, policymakers require synthesized evidence for decision-making, and clinicians could benefit from access to pooled adherence levels. Over the past decade, many of the primary studies that examined IMCI compliance in Africa lacked quantitative information on observed compliance outcomes. Additionally, recent changes in health system contexts warrant an update in evidence synthesis. This study observed the healthcare workers caring for under-five in their natural setting

The findings would contribute to child survival efforts in Ebonyi State Nigeria.

AIM OF THE STUDY

This study examine the observed compliance to the Integrated Management of Childhood illness among health workers in selected primary healthcare in Ebonyi state, Nigeria.

STUDY OBJECTIVE

To assess the observed compliance to the Integrated Management of Childhood illness among health workers in selected primary healthcare

II. METHODS

RESEARCH DESIGN

An overt observational method was employed among consenting respondents (Healthcare workers) in the selected primary healthcare centers in Ebonyi state Nigeria

SETTING

This study was conducted in all the 24 selected Primary Healthcare Centres (PHCs) in Abakaliki Metropolis Ebonyi State. They include the primary healthcare centres at Abakpa ward facility Ndiegu urban, Azuiyiokwu ward facility MCH. Azuiyiudele ward facility MCH Ekeaba, Azumini-azugwu ward facility Unagboke H/C, Ndiegu ward facility Onuebonyi MGDs, Timber shade ward Timbershade h/c, Izziunuhu ward facility Mphc Nkwegu. Amagu-enyigba ward facility Obulechi H/C, Edda ward Azuofia-edda H/C, Okpuitmo Ndiebor ward facility Gmelina H/C, Okpuitom Ndiebor ward facility okpanku HC, Amachi-Ndiebor ward facility Ndiofu MDGs and Amachi Ndiegu ward facility Akpa in Abakaliki metropolis. The Abakaliki metropolis comprises of two blocks with one under Abakaliki Local Government Area and the other under Ebonyi Local Government Area. The metropolis is not entirely urban; some parts are still rural and are mainly occupied by indigenes. The combined populations of both LGAs as at 2006 census were 276,909 (NPC, 2006). There are 63 public primary health centres and 41 registered private health centres in the two LGAs with 24 selected for NGOs supports (Abakaliki selected PHCs 14 while Ebonyi LGA has 10 selected). The health centres have all cadres ‘of health workers which includes; Visiting Doctors, Nurses, Midwives, community Health officers, Community Health Extension worker, JCHW and Volunteers health workers. The primary Health Care Centres manage cases ranging from delivery services, IMCI services, postnatal services, family Planning Services and other health services. The PHCs is open for 24hours services to the people.

POPULATION OF THE STUDY

The population of the study included Health workers who are working in 24 selected Primary Healthcare Centers (PHCs) which amounted to 108 healthcare workers. Those who were excluded from the study were Health workers who are on sick leave, maternity leave and causal leave and those who are not be willing to participate

SAMPLE TECHNIQUE

The study employed non- probability sampling technique to enrol 99 healthcare workers who consented to participate in this study.

SAMPLE SIZE

The sample size was 99 respondents from the study group who consented to participate in the study

INSTRUMENT FOR DATA COLLECTION

An adapted observational checklist from Integrated Management of Child Health (IMCI) Pre-Service Education Question Bank (WHO-EM/CAH/193/E) with 16 items was used for data collection from consenting respondents. The checklist consisted of three Appendix (A, B and C), where Appendix A elucidated the demographic characteristics of the respondents and Appendix B assessed the IMCI knowledge while Appendix C assessed the observed compliance with IMCI.

PROCEDURE FOR DATA COLLECTION

The data collection procedure began with meeting the officer in-charge of each health centre, explaining the aim of this study, thereafter potential participants were approached individually during break time and explained the study in detail to gain informed consent. The healthcare workers were observed individually while caring for the under-five without interfering with them. The scoring and interpretation of observed compliance with IMCI was scored as 0= Not done, 1=done, but not correctly, 2=done correctly. The data collection run from Monday to Friday.

METHOD OF DATA ANALYSIS

The data were analysed using Statistical Products and Service Solutions version 25 (IBM SPSS). To test the difference observed Compliance with IMCI and Socio-demographic variables, the Fisher's exact test was employed at a 0.5 significance level.

LIMITATIONS OF THE STUDY

The researcher encountered the following constraints during the course the study;

- ✓ The study only collected data from PHC facilities in the Abakaliki Metropolis. Therefore, these findings cannot be generalized to other PHC facilities across the State especially those in rural areas. Future research could explore compliance and factors influences it in the rural health facilities.
- ✓ This quantitative study employed an observational design, which means that causal relationships among the variables of interest could not be evaluated. Future studies using a longitudinal design would provide a better understanding of the interrelationships between variables over time and identify causal implications.
- ✓ The study was self-sponsors, the finance burden possess a barrier to the researcher

III. RESULTS

A total of 99 participants from the study population were used to assess the observed compliance with IMCI Among health care workers.

Table 1 summarized the Socio-demographic variables of the participants and showed that the majority of the respondents were aged 25-30 (53.8%), with CHEW (56.3%), 6-10years of work experience (35.0%), gender (86.3%) female, employment status (85.0%) and training status (33.2%) had training in the last 5years.

Socio-demographic Variables	Frequency (n=80)	Percentage (%)
Age (years)		
Under 25	5	6.3
25-35	43	53.8
36-45	22	27.5
Above 45	10	12.5
Gender		
Male	11	13.8
Female	69	86.3
Level of Education		
Nursing Diploma	8	10.0
Bachelor of Nursing	8	10.0
CHO	4	5.0
CHEW	45	56.3
JCHEW	8	10.0
Others	7	8.8
Years of experience in healthcare		
0-5	27	33.8
6-10	28	35.0
11-15	15	18.8
16 and above	10	12.5
Employment status		
Permanent	68	85.0
Retired	1	1.3
Volunteer	9	11.3
Student	2	2.5
Training on IMCI		
In the last five years and above	27	33.8
In the last three years	23	28.8
In the last six months	11	13.8
No training	19	23.8
Have you had any supportive supervision after the last training		

Yes	49	61.3
No	31	38.8
If yes, how often (n=49)		
Last 6 months	27	55.1
2 years	14	28.6
Five years and above	8	16.3

Table 1: Socio-demographic variables of the participants

Knowledge of Healthcare Workers on IMCI	Frequency (n=80)	Percentage (%)
Which of the following are among the 5 main causes of mortality in under-five children in the country? **		
Diarrhoeal diseases	72	90.0
Pneumonia	34	42.5
Road traffic injuries	9	11.3
Malnutrition	33	41.3
AIDS	11	13.8
For which of the following settings are the IMCI guidelines suitable for use? **		
Inpatient ward of a district hospital	14	17.5
Outpatient department of a hospital	14	17.5
First-level health facilities	64	80.0
Inpatient ward of a specialized hospital	15	18.8
Which of the following age groups do the IMCI clinical guidelines address?		
Birth up to 5 years	74	92.5
1 week up to 5 years	5	6.3
2 months up to 6 years	1	1.3
Which of the following actions does a pink-coded classification requires? **		
Give pre-referral treatment	19	23.8
Give medicines for home care	4	5.0
Advise mother when to return immediately	4	5.0
Refer urgently to hospital	58	72.5
Which of the following actions does a green-coded classification requires?		
Give pre-referral treatment	13	16.3
Advise mother on home care	63	78.8
Advise mother on antibiotic treatment	4	5.0
Which of the following colour-coded classification rows for fever of the IMCI chart booklet would apply to a 5-month-old child with fever and stiff neck?		
Pink colour-coded row	55	68.8
Yellow colour-coded row	21	26.3
Green colour-coded row	4	5.0
Which of the following colour-coded rows of the IMCI chart booklet applies to a 42-month-old child with diarrhoea who has sunken eyes, is thirsty and has no other problems?		
Pink colour-coded row	43	53.8
Yellow colour-coded row	26	32.5
Green colour-coded row	11	13.8
Which of the following colour-coded rows of the IMCI chart booklet applies to a 42-month-old child with diarrhoea who has sunken eyes, is thirsty and has no other problems?		
Antibiotics for pneumonia	33	41.3
Immunization	17	21.3
Prompt treatment of malaria	26	32.5
Exclusive breastfeeding	3	3.8
Treatment of tuberculosis	1	1.3

***Multiple options allowed*

Table 2: Knowledge of healthcare workers regarding Integrated Management of Childhood Illnesses (IMCI)

Table5: summarized the Association between socio-demographic variables and perceived compliance with IMCI among Health workers in selected PHCs of Ebonyi State. The analysis revealed that age, educational level, employment status, years of experience and training status had a statistically significant association with perceived compliance to IMCI protocols ($\chi^2 = 9.817$, $p<0.05$).

Socio-demographic Variables	observed Compliance with IMCI		χ2	P-value
	Poor	Good		
Age (years)				
Under 25	3(60.0)	2 (40.0)	9.817*	0.010
25-35	3 (7.0)	40(93.0)		
36-45	1 (4.5)	21(95.5)		
Above 45	0 (0.0)	10 (100)		
Gender				
Male	2(18.2)	9 (81.8)	1.421*	0.233
Female	5 (7.2)	64(92.8)		
Level of Education				
Nursing Diploma	0 (0.0)	8 (100)	12.300*	0.010
Bachelor of Nursing	1(12.5)	7(87.5)		
CHO	0 (0.0)	4 (100)		
CHEW	1 (2.2)	44(97.8)		
JCHEW	3(37.5)	5(62.5)		
Others	2(28.6)	5(71.4)		
Years of experience in healthcare				
0-5	6(22.2)	21(77.8)	6.710*	0.040
6-10	1 (3.6)	27(96.4)		
11-15	0 (0.0)	15 (100)		
16 and above	0 (0.0)	10 (100)		
Employment status				
Permanent	2 (2.9)	66(97.1)	16.579*	0.001
Retired	0 (0.0)	1 (100)		
Volunteer	4(44.4)	5(55.6)		
Student	1(50.0)	1(50.0)		
Training on IMCI				
In the last five years and above	2 (7.4)	25(92.6)	3.918*	0.240
In the last three years	1 (4.3)	22(95.7)		
In the last six months	0 (0.0)	11 (100)		
No training	4(21.1)	15(78.9)		
Have you had any supportive supervision after the last training				

Yes	2 (4.1)	47(95.9)	3.452*	0.102
No	5(16.1)	26(83.9)		
If yes, how often (n=49)				
Last 6 months	2(7.4)	25(92.6)	1.101*	0.679
2 years	0(0.0)	14 (100)		
Five years and above	0(0.0)	8 (100)		

*Fisher's exact test used

Table 4: Association between socio-demographic variables and observed compliance with IMCI among Health workers in selected PHCs of Ebonyi State

Items	0	1	2	%IMCI Standard
Assessment				
Check all danger signs	0	11	13	77.1
Ask if the child has cough or difficulty in breathing	1	8	15	79.2
Ask if the child has fever/ history of fever	0	7	17	85.4
Ask if the child has diarrhoea	1	4	19	87.5
Check for anaemia	6	10	8	54.2
Check if the child is malnourish	5	11	8	56.3
Ask if child has an ear problem	19	3	2	14.6
Check immunization and Vitamin A status of the child	0	0	24	100.0
Ask about other problems	13	7	4	31.3
Average Total				**65.0**
Classification				
General danger sign	1	14	9	66.7
Cough or difficulty in breathing	2	9	13	72.9
Diarrhoea	1	6	17	83.3
Ear problem	18	1	5	22.9
Fever (including measles)	0	7	17	85.4
Malnutrition	9	11	4	39.6
Anaemia	4	15	5	52.1
Average Total				**60.4**
Identification of feeding problems				
Ask about breastfeeding, other food or fluid, if feeding changed during illness	3	8	13	70.8
Identify feeding problem	17	7	0	14.6
Average Total				**42.7**
Treatment (given or identified)				
Identify pre-referral treatments	18	4	2	16.7
Prescribe identified treatment	1	1	22	91.7
Average Total				**54.2**
Counselling				
Give mother feeding counselling relevant to the child's age	0	5	19	89.6
Advise to give child extra fluid and continue feeding during illness	1	2	21	91.7
Explain when to return immediately	2	0	22	91.7
Explain reason for referral and gives a referral note	15	0	9	37.5
Teach mother to give oral drugs	1	3	20	89.6
Teach mother to treat local infection	16	3	5	27.1
Average Total				**71.2**
Average Grand Total				**58.7**

0 – Not done 1 – Done, but not correctly 2 – Done correctly

Table 5: Observed compliance with Integrated Management of Childhood Illnesses (IMCI) among healthcare workers from the observational checklist

IV. DISCUSSION

PARTICIPANT'S DEMOGRAPHIC VARIABLES

Findings from this study revealed that most of the respondents (53.8%) were within the age range of 25-35 years; this could be a result of this age range consisting of the middle-aged and working class health sector in Nigeria. This findings is in line with the findings in the study conducted by (Afolalu, 2020) which revealed that respondent's gender were predominantly female (86.3%). This aligns with the general pattern in nursing and community health officers.

Educational qualifications, it shows that CHEWs formed the largest category (56.3%) followed by Nurses. This may be because many Nurses may not like to work in the PHCs because of poor remuneration and no recreational activities among others. This may also lead to poor compliance with IMCI guidelines. This findings contradicts the findings in the study conducted by (Afolula 2020; Amachree & Eleke 2022) where majority of health workers were SJCHEW and Nurses. The respondents' years of experience shows that 6-10years (35.6%) dominate indicating that there are full compliance with IMCI guidelines. Majority of the participant were permanent staff (85.5%). This may be because of the recent employment by IMPACT project in Ebonyi State Primary health care. This findings contradicts the findings in the study conducted by (Duke et al., 2020) which shows that PHCs where dominated by volunteers.

Also, supportive supervision, 61.3% of the respondents have received training while 38% had not received any training. This result shows a gap in post-training reinforcement. There are need for follow up supervision by state primary health care. This findings is similar to the studies conducted by (Afolula, 2020 & Abubakar et al., 2023).

KNOWLEDGE OF HEALTHCARE WORKERS REGARDING INTEGRATED MANAGEMENT OF CHILDHOOD ILLNESSES (IMCI)

This study revealed moderate (68.8%) knowledge levels among health workers, with strong performance in identifying target age groups and the use of IMCI colour codes for some severe illnesses, but notable gaps in recognizing all major causes of under-five mortality, the range of IMCI interventions, and consistent application of case-based classifications. The knowledge gaps, particularly in pneumonia, malnutrition, and preventive interventions, could directly affect compliance with IMCI guidelines. This finding is perhaps because healthcare workers reported lack of training and refresher training on IMCI for the past few years. This finding is in line with the results of a Malawian study conducted by (Kilov et al., 2021) that found IMCI knowledge to be inadequate (4 out of 10; score 40%).

This study found that knowledge of IMCI among respondents without IMCI training was inadequate (11 out of

24 items; score 45.8%). This finding was in line with the results of a Malawian study conducted by (Kilov et al., 2021) that found IMCI knowledge to be inadequate (4 out of 10; score 40%). The proximity in findings could be linked to the design applied in the study. Furthermore, the findings is also in line with findings in [6, 7] which revealed that knowledge of IMCI among respondents without IMCI training was inadequate (score 45.8%, criterion 70%). However, the findings of this study contradicts the results of study conducted by (Mushelenga, 2021) which found that health workers knowledge of IMCI is high but there are poor compliance by HWs to IMCI in Burundi.

ASSOCIATION BETWEEN SOCIO-DEMOGRAPHIC VARIABLES AND PERCEIVED COMPLIANCE WITH IMCI AMONG HEALTH WORKERS IN SELECTED PHCS OF EBONYI STATE

The study found no significant association between gender ($p>0.05$) and compliance. This suggests that both male and female healthcare workers are equally capable of adhering to IMCI guidelines. Furthermore, the study found no significant association between IMCI training ($p>0.05$) or supportive supervision ($p>0.05$) and perceived compliance. This result is particularly noteworthy as training is a cornerstone of IMCI implementation. This finding may be due to several reasons, including a potential self-reporting bias, where participants might perceive their compliance to be high regardless of their training history. The study by (Steinhardt et al., 2019) also found no statistically significant association between nursing characteristics and IMCI compliance. Additionally, the cluster randomized trial (2022) found that while mobile health interventions improved supportive supervision and treatment, these changes were not statistically significant, which may offer a partial explanation for the non-significant findings this present study.

OBSERVED COMPLIANCE WITH INTEGRATED MANAGEMENT OF CHILDHOOD ILLNESSES (IMCI) AMONG HEALTHCARE WORKERS FROM THE OBSERVATIONAL CHECKLIST

The observed compliance with Integrated Management of Childhood Illnesses (IMCI) guidelines is moderate at 58.7%, with notable variations across different components. While healthcare workers show strengths in certain areas, significant gaps remain in others, particularly in assessment and classification. The findings align with existing research that highlights both the positive impact of IMCI training and the persistent challenges in its consistent application. Healthcare workers demonstrate high compliance in several areas, including checking immunization and Vitamin A status (100%), asking about diarrhoea (87.5%) and fever (85.4%), as well as treatment prescription (91.7%). Counselling components, such as advising on fluids/feeding (91.7%) and explaining when to return (91.7%), also show strong adherence. Whereas Compliance is very low for asking about ear problems (14.6%) and other problems (31.3%). This poor assessment translates into low classification rates for ear problems (22.9%) and malnutrition (39.6%). Furthermore, there is a disconnection between asking about feeding history (70.8%) and identifying actual feeding problems (14.6%). Finally, identification of pre-referral treatments (16.7%) and counselling on referral reasons (37.5%) and local infection treatment (27.1%) were poorly executed.

The overall compliance of 58.7% observed in the table is similar to the 58% high-level implementation reported by (Abebe et al., 2019) in Ethiopia. This indicates a general trend of moderate adherence rather than full, consistent application of IMCI protocols. The data shows that while certain components like treatment and counselling are performed well, others like comprehensive assessment are neglected.

IMPLICATIONS OF THE FINDINGS

The main aim of integrated management of childhood illness was to improve under-five health and well-being and it has been proved to be very effective in reducing under-five mortality as seen in the present study, and should be encouraged. The results of this study will be useful for other researchers working in primary health care centers on child morbidity and mortality. In addition, it will be useful in formulating policies to help reduce under-five mortality in Nigeria and globally.

V. CONCLUSION

In this study, IMCI level of knowledge was moderate, although the study recorded moderate perceived and observed compliance among healthcare workers. There was statistical significant association between perceived compliance and socio-demographic variables of the respondents. In addition to training and frequent re-fresher IMCI training for healthcare providers, retaining of experienced staff, mentorship and supervision should be explored.

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