



Factors Influencing Implementation of Integrated Management of Childhood Illnesses (IMCI) among Health Care Workers in Selected Primary Health Centres in Ibadan, Nigeria

Oladokun, Temitope Florence^{1*}, Odetola, Titilayo Dorothy² and Abiona, Mary³

¹*Oyo State College of Nursing and Midwifery, Eleyele (School of Basic Midwifery, Kishi);*

²*Department of Nursing, Faculty of Clinical Sciences, College of Medicine, University of Ibadan, and* ³*Department of Nursing, Faculty of Clinical Sciences, College of Medicine, University of Ibadan*

***Corresponding Author:** Oladokun, Temitope Florence. Email: temitopelflorenceoladokun@gmail.com

Abstract

BACKGROUND

Despite adopting IMCI as the main thrust of child survival strategy in Nigeria, the mortality rate of children under five years old in Nigeria was last reported at 100.2 per 1000 in 2017. This study was conducted due to the paucity of the historical study found in Nigeria identifying possible encounters in implementing the IMCI strategy by healthcare workers in Primary Health Centres. Such information is critical to guide further program implementation and improving IMCI services. The study aimed to assess the factors influencing the implementation of IMCI among healthcare workers in selected Primary Health Centres in Ibadan.

MATERIALS AND METHODS

A descriptive cross-sectional design with a mixed methodology approach was used to collect data for this study. For quantitative data, structured and semi-structured questions of four sections were developed by the researcher and used to collect data from health care workers in the PHCs except for the head nurses while an interview guide was developed to conduct a Key Informant Interview (KII) with the head nurses. A multi-stage sampling technique was used in selecting the study participants. The respondents and key informants were Nurses, CHOs, CHEWs and head nurses working at the PHCs of the selected LGAs who were willing to participate in the study. The data collection lasted for four weeks. Data collected were sorted, coded and checked for error or variation using the statistical package for social sciences (SPSS) version 21.0 and further subjected to descriptive, inferential statistics and thematic analysis. Statistical significance (P value) was set at ≤ 0.05 .

RESULTS

Results showed that majorities (68.1%) of the respondents were trained in IMCI, and a significant number (65.3%) had adequate knowledge about IMCI. Slightly above average out of the participants had strong perceptions of lack of adequate trained staff (52.8%) and scarcity of trained staff concerning numerous children searching for treatment (52.8%) as barriers to implementing IMCI. The identified motivators for implementing IMCI were the training and retraining of healthcare workers and the provision of working aids.

CONCLUSION

Therefore, it is recommended that appropriate measures should be taken to reduce the barriers and improve the motivators for IMCI implementation.



Keywords: *Integrated Management of Childhood Illnesses (IMCI), Primary Health Centres (PHCs)*

[*Afr. J. Health Sci.* 2022 35(5): 662-670]

Introduction

Globally, infectious diseases, including pneumonia, diarrhoea and malaria, along with pre-term birth, birth asphyxia and trauma, and congenital anomalies remain the leading causes of death for children under five [1], which prompted the World Health Organization (WHO) and United Nations International Children Emergency Fund (UNICEF) to launch the Integrated Management of Childhood Illnesses (IMCI) in the 1990s in a bid to reduce morbidity and mortality associated with these preventable conditions [2, 3].

IMCI (Integrated Management of Childhood Illnesses) offers a holistic approach to managing childhood morbidity; it has three components: case management training, strengthening of the health system, and improvement of family and community practices for child health and development [4]. The strategy focuses on the child as a whole rather than on a single disease or condition. The child has been treated holistically with evidence-based interventions feasible to implement in countries where most child deaths occur [5]. For IMCI to impact, the above three components must go together in tandem [6]. This means that at least 60% of health workers who manage under-fives in 80% of health facilities should be trained in IMCI case management [6]. Trained health workers must also be supervised to reinforce their skills [7].

Since 1995, the IMCI strategy has been adopted and implemented in more than 100 countries. This was followed by a series of Multi-Country Evaluations (MCEs) to examine the effectiveness of the IMCI strategy in improving child health standards. However, an unexpected finding was that childhood mortality rates remained high despite adopting and

implementing the IMCI strategy [8]. Some published articles provided evidence that healthcare professionals do not adhere to the IMCI-recommended practices [9, 10, 11]. It appeared that healthcare professionals had a tendency to trust their own skills and experiences while assessing cases and making a diagnosis. While this could be true, it is also possible that there is a lack of support and follow-ups by governments and healthcare policymakers to ensure the actual practice of IMCI-recommended guidelines.

Furthermore, a study in Africa revealed that health workers are implementing IMCI. However, assessments were frequently incomplete, and children requiring urgent referrals were missed. Suggestions have been made that if coverage of critical child survival interventions is to be improved, interventions are required to ensure competency in identifying specific signs and to encourage comprehensive assessments of children by IMCI practitioners [12]. This is also corroborated by another study in Malawi, where it was concluded that IMCI non-severe pneumonia care was sub-optimal in her health facilities in 2013–2014, with inadequate assessments and prescribing practices that must be addressed to reduce the leading cause of mortality [13]. Child's symptoms and age, malaria diagnosis and provider training were primary influences on assessment and treatment practices [13].

In Nigeria, several studies offer essential findings that have implications for case management in her health care settings. A study carried out at Edo state that a range of factors at various levels can influence the case-management quality, and many of these influences can be outside a manager's direct control [14]. For example, health workers' age had one of the most consistently strong negative



influences on case management quality. Although health worker age might be a proxy for another factor (e.g., experience or resistance to change) more directly related to poor performance, it is a measurable indicator and points to the importance of evaluating individual health worker performance regularly and having targeted follow-up with poorly performing individuals [14].

While many factors may influence the implementation of IMCI, a study showed that inadequate professional aids like wall charts and chart booklets for proper IMCI implementation are lacking, and nurses have had to improvise materials when taking care of a sick child. They also reiterated that supervision of IMCI implementation by the institutions was rare and inconsistent and the emergency drugs, according to the IMCI recommended list, were not usually available in the paediatric unit, which made case management difficult and ineffective [6]. A study hypothesised that once a government perceives IMCI-recommended practices as a practical intervention, it will support its implementation using healthcare units' management, resulting in more focus on IMCI-related teaching and training [11].

Knowing that primary health care thrives on availability and accessibility and the majority of the clinics are predominantly led by nurses, Community Health Officers (CHOs) and Community Health Extension Workers (CHEWs) with medical officers conducting occasional sessions; it is somewhat surprising that there are limited published researches on the factors influencing implementation of IMCI among these group of health care professionals in Primary Health Centres in Nigeria.

Based on this, the researcher assessed the factors influencing the implementation of Integrated Management of Childhood Illnesses (IMCI) among healthcare workers in selected Primary Health Centres in Ibadan.

Materials and Methods

Study design

This research utilised a cross-sectional design with a mixed method approach where quantitative and qualitative data were collected to determine the factors influencing the implementation of IMCI among healthcare workers in selected Primary Health Centres in Ibadan. For quantitative data, structured and semi-structured questions of four sections were used to collect data from healthcare workers in the PHCs, except for the head nurses. For the qualitative data, the researcher developed an interview guide to conduct a Key Informant Interview with the head nurses.

Study population

The population was health care workers in Primary Health Centres of Ibadan North, Ibadan North-West, Ibadan South-East, Akinyele, Egbeda and Lagelu Local Government Areas.

Sampling technique

A multi-stage sampling technique was adopted. Stage one involved A Random sampling technique through balloting to select three urban and three rural Local Governments Areas in Ibadan. Stage 2: Four wards were randomly selected from each local government area. Stage 3: One Primary Health Care facility was randomly selected from each ward to give 24 Primary Health Centres (PHCs). Stage 4: Two health care workers were selected conveniently from each category of health care professionals (Nurses, CHOs and CHEWs) with the exclusion of the head nurses to give a total of 144 Primary Health Care workers. One head nurse was selected from each Local Government Area as a key informant to make a total of 6 head nurses for the Key Informant Interview, making a total sample size of 150.



Procedure for data collection

A letter of introduction was obtained from the Department of Nursing, the University of Ibadan. Ethical approval was sought and collected from the Oyo State Ministry of Health Research Ethics Review Committee to facilitate the data collection. This approval was submitted to the medical officer of health of each Local Government Area. Informed consent was obtained from the participants, and the questionnaires were administered to respondents through face-to-face contact. The questionnaire was in four sections, semi-structured and self-administered based on the set objectives.

A Key-Informant interview (KII) was also conducted with one head nurse randomly selected from each Local Government Area in Ibadan to complement the quantitative data. The KII guide assisted in the interview, which lasted between 10 to 15 minutes. These were audiotaped, and notes were taken.

Two research Assistants engaged and trained on confidentiality, correct/complete filling of the questionnaire, purpose and objectives of the study, and the research ethics. They assisted with distributing and retrieving the questionnaire, recording tape, and taking notes during the KII. The data collection lasted for four weeks.

Validity and reliability of the instrument

The use of relevant literature ensured the face and content validity of the questionnaire and checklist. The items were matched with the study objectives and research questions. The instruments were checked by the researcher and strengthened for clarity, adequacy of content, appropriateness and ability to elicit accurate information concerning the study's objectives, research questions and hypotheses. The data collection tools were piloted with 5% of the study population who were not included in the study.

Method of data analysis

The data was sorted, coded, and entered into the computer and checked for errors and variations using Statistical Package for Social Science version 21.0 (SPSS 21.0). The data were then analysed using descriptive, inferential statistics and thematic analysis. Statistical significance (P value) was set at ≤ 0.05 .

Ethical considerations

The ethical approval was obtained from the Oyo State Ministry of Health Research Ethics Review Committee, AD 13/479/1635. This study was conducted according to the requirements of the Helsinki declaration.

Results

Socio-demographic variables

A total of 58 participants (40.3%) were between the ages of 20 – 39 years, while 86 (59.7%) were between 40 – 59 years. Moreover, 103 (71.5%) were married. Besides, 108 (75.0%) belonged to the Christian faith. The population of nurses among the participants were 50 (34.7%). All the Key informants were female, their greatest proportion (66.7%) being CNO (Chief Nursing Officer), while the remaining (33.3%) were ACNO (Assistant Chief Nursing Officer). The response rate was 100%.

Years of IMCI training.

Concerning the years of training, 98 (68.1%) were trained in IMCI, and the remaining were not trained. Also, the most significant proportion of the participants, 89 (61.8%), have been trained for 1-10 years.

Levels of knowledge and implementation of IMCI

Only 94 participants (65.3%) had adequate Knowledge about IMCI, while a significant number of participants, 111 (77.1%), were able or tended to implement IMCI while others did not.



Perceived barriers to the implementation of IMCI

The majority had strong perceptions of lack of adequate trained staff (52.8%), scarcity of trained staff with the number of children in search of treatment (52.8%), shortage of essential drugs and supplies (52.8%), frequent temporary staff shortages (44.4%), lack of motivation and retention of health care workers (39.6%) and absence of upgrade courses (32.6%) as barriers to the implementation of IMCI.

Perceived motivators for the implementation of IMCI

The key informants were asked what they think would improve IMCI implementation in their facilities. Many emphasised training and retraining of healthcare workers as significant motivators for IMCI implementation. This is reflected in the responses below:

"We merely use general knowledge; we do not have formal training on IMCI implementation, so I believe it is imperative for the training to be improved. This will also help us achieve one staff to one patient if there is enough competent staff".

"To be honest, many of our staff here complain because we are few compared to the children that visit our centre and like you know, this IMCI process is time-consuming, so I will suggest that the government train more health workers in the IMCI strategy".

Others suggested that working aids be provided as it would improve their implementation of the IMCI strategy. This is reflected in the response below:

"Hmmm...I would say provision of charts and booklets. Like when I was treating a person yesterday I could not recollect some things, I was looking for the training manual which was used when I went for the training like two years ago. If a book is provided, like on our table you will see a booklet on malaria, on child

immunisation, you cannot easily get lost; you can easily refer to it".

Discussion

Socio-demographic parameters

Findings from this study revealed that most of the respondents were within the age range of 40-59 years; this could be a result of this age range consisting of the middle-aged and working class in Nigeria. Also, most respondents were married, while only a few were single. This is not unexpected, given the age range of many of them. Most of the respondents were Christians, while only a few were Muslims; this could be a result of Christian's belief in western education more than Muslims in Nigeria. The professions share the exact percentages because they were equally selected.

Most of the respondents and key informants were trained in IMCI, while only a few were not trained, and the most significant number of the respondents have been trained for 1-10 years, while that of the key informants was between 1-3 years.

Level of knowledge of health workers on IMCI

The majority of the respondents had adequate knowledge about IMCI, and this corroborates a study on factors influencing the implementation of Integrated Management of Childhood Illness (IMCI) by healthcare workers at public health centres & dispensaries in Mwanza, Tanzania where it was revealed that the majority of the trained health workers in Tanzania expressed understanding of the IMCI approach [15]. This finding also supports another study that observed that healthcare workers had a good knowledge of the IMCI strategy with positive attitudes towards the IMCI strategy and commented that it is a better approach to managing common childhood illnesses [16].



Respondents' level of implementation of IMCI

Findings from the study showed that a significant number of the respondents tended to implement IMCI while few did not have the tendency to do so; this is in support of a study which found healthcare workers to have a good knowledge of IMCI strategy with positive attitudes towards it, believing that it is a better approach in managing common childhood illnesses [16]. Another study on Integrated Management of Neonatal and Childhood Illness implementation by nurses in four districts of the West Arsi zone of Ethiopia revealed that more than half of the nurses interviewed were trained and likely to implement the IMCI strategy [5]. The findings corroborate a survey in six community health centres in India that showed that IMCI-trained nursing personnel had good knowledge and attitude towards child care [7].

Perceived motivators for implementation of IMCI

The majority of the respondents indicated training and retraining of healthcare workers as a motivator to the implementation of IMCI; this is in support of a study on implementation, knowledge and resource availability of IMCI in Malawi, which showed that healthcare workers need to be supported and trained regularly in order to be more conversant with the IMCI approach [4].

Others suggested the provision of working aids in the likes of wall charts and booklets as an essential motivator to IMCI implementation; this corroborates a study which revealed that inadequate professional aids like wall charts and booklets for proper IMCI implementation were lacking and nurses have had to improvise materials when taking care of a sick child [6].

Perceived barriers to the implementation of IMCI

The majority responded that lack of adequate trained staff and scarcity of trained staff concerning numerous children in search of treatment are barriers to the implementation of IMCI, while only a tiny percentage disagreed; this is in support of a study on Health system factors affecting the implementation of integrated management of childhood illness (IMCI): qualitative insights from a South African province, where health workers reported an inadequately trained staff complement for their workload [12]. Most respondents agreed that a shortage of essential drugs and supplies could be a barrier to implementing IMCI; this supports a study which showed a shortage of essential drugs and supplies as a significant barrier to IMCI implementation [6].

A sizeable number of the respondents reported frequent temporary staff shortages. At the same time, some indicated high turnover among trained staff as a barrier to IMCI implementation, and many also agreed that a lack of motivation and retention of healthcare workers is a barrier; this corroborates a study where most healthcare workers (80%) were reported to believe that most in-charges and supervisors were not fully supported in the implementation of IMCI and the reasons as to why health care workers felt their supervisors not fully supportive were lack of regular supportive supervision on IMCI and lack of mentoring on IMCI approach at the sites/health facilities leading to frequent turnover [17].

A little below average responded that one of the barriers to IMCI implementation is the absence of upgrade courses; this supports a study on factors influencing the implementation of integrated management of childhood illness (IMCI) by healthcare workers at public health centres & dispensaries in Mwanza, Tanzania where it was revealed that there were no refresher



courses for health care workers who have been trained on IMCI since the time IMCI was introduced leading to knowledge decay [15].

Some responded that time constraints to practice IMCI is a barrier to its implementation; this is in support of a study on awareness and implementation of Integrated Management of Childhood Illness (IMCI) among nurses in paediatric settings of selected hospitals in Ibadan, Nigeria, which showed that there was a need for improved staffing on paediatric wards/clinics to allow for proper IMCI implementation as many of the respondents indicated that time is a barrier [6], considering that the IMCI guidelines required adequate time for proper assessment, treatment and caretaker counselling to take place and have such would increase the average time for assessing and treating children [17].

Few of the respondents also indicated a lack of clarity on roles and responsibilities, and a centralised drug dispensing system, as barriers to IMCI implementation; these are in agreement with the findings from a study which showed that lack of clarity on roles and responsibilities amongst various stakeholders on IMCI related activities resulting to duplication or omission of tasks and non-availability of national Essential Drug List leading to centralised drug dispensing system are significant barriers [12].

Study strengths and limitations

This study utilised a mixed methodology approach, providing a more comprehensive understanding of the research problem. It was, however, limited to healthcare workers in Ibadan, Oyo State, Nigeria.

Conclusion

The IMCI program is regarded positively by healthcare workers in Primary Health Centres in Ibadan. They are optimistic that full implementation of IMCI will occur if there is regular training and retraining of health workers and the provision of working aids. However,

significant barriers impede a sustainable IMCI implementation.

These barriers identified by the majority of healthcare workers were lack of adequate trained staff, scarcity of trained staff in relation to the number of children requiring treatment, shortage of essential drugs and supplies, frequent temporary staff shortages, high turnover of healthcare workers and absence of upgrade courses. Therefore, appropriate measures should be taken to reduce the barriers and improve the motivators for IMCI implementation.

Recommendations

The following recommendations are made based on the findings of the study:

1. For IMCI to be appropriately implemented, adequately and efficiently, the following aspects are recommended: staffing to promote effective attendance to children in timely and adequate availability of updated IMCI chart booklets and IMCI-recommended drugs times. Essential drugs should be provided in each facility to improve IMCI implementation so that children are treated effectively.

2. Supportive supervision reduces work-related stress and stimulates a positive attitude towards implementing IMCI. It is imperative to ensure adequate provision of capacity-building opportunities for healthcare workers to empower them to take ownership and accountability in promoting effective and efficient IMCI implementation.

3. Thus, there is also a strong need for better education and training for healthcare workers, particularly in PHCs, both for those already trained in IMCI and those not yet trained.

4. The quality of care provided to sick children must be routinely monitored to assess practitioners' adherence to IMCI guidelines.

5. Policy guidance on appropriate duty allocation and rotation of health workers in health facilities must be ensured. This must ensure the adequate allocation of trained staff for the effective delivery of primary health services for



children daily, considering the patient load, clinic infrastructure and operating hours (especially for Primary health centres).

Competing interests: No competing Interests

References

1. **World Health Organization.** Children: improving survival and well-being; 2020 September 8 [cited 2020 March 19]; Available from: <https://www.who.int/news-room/fact-sheets/detail/children-reducing-mortality>.
2. **World Health Organization.** Integrated management of childhood illness; 2021 [cited 2021 June 3]; Available from: <https://www.who.int/teams/maternal-newborn-child-adolescent-health-and-ageing/child-health/integrated-management-of-childhood-illness/>
3. **Lal P, Upadhyay A, Garg S K, Pandey A K.** Impact of Integrated Management of Childhood Illness (IMCI) Training on Case Identification and Management Skills among Undergraduate Medical Students in a Developing Country: A Case-control Study. *J Med Edu.* 2020; 19(4):e110046. doi: 10.5812/jme.110046.
4. **Kilovk, Hildenwall H, Dube A, Zadutsa B, Banda L, Langton J, et al.** Integrated Management of Childhood Illnesses (IMCI): a mixed-methods study on implementation, knowledge and resource availability in Malawi. *BMJ PO.* 2021; 5(1). doi:<http://dx.doi.org/10.1136/bmjpo-2021-001044>
5. **Seid SS, Sendo EG.** A survey on Integrated Management of Neonatal and Childhood Illness implementation by nurses in four districts of West Arsi zone of Ethiopia. *Pediatric Health Med Ther.* 2018 January 8;9:1-7. doi:10.2147/PHMT.S144098.
6. **Adekanye OE, Odetola, TD.** Awareness and Implementation of Integrated Management of Childhood Illness (IMCI) Among Nurses in Paediatric Settings of Selected Hospitals in Ibadan, Nigeria. *IOSR-JNHS.* 2014 Jan 1; 3(5):29-34. doi:10.9790/1959-03532934
7. **Joshi P, Vatsa, M.** Knowledge, Attitude and Performance of IMNCI Trained Nursing Personnel: An Evaluative Survey. *Indian Journal of Paediatrics.* 2013 Aug 6; 81(5).doi:10.1007/s12098-013-1166-9
8. **Lange S, Mwisongo A, Mæstad O.** Why don't clinicians adhere more consistently to guidelines for the Integrated Management of Childhood Illness (IMCI)? *SocSciMed.* 2014 Mar;104:56-63. doi: 10.1016/j.socscimed.2013.12.020
9. **Ahmed HM, Mitchell M, Hedt B.** National implementation of Integrated Management of Childhood Illness (IMCI): policy constraints and strategies. *Health Policy.* 2010 Jul;96(2):128–33. doi: 10.1016/j.healthpol.2010.01.013
10. **Pradhan NA, Risvi N, Sami N, Gul X.** Insight into implementation of facility-based integrated management of childhood illness strategy in a rural district of Sindh, Pakistan. *Global Health Action.* 2013; 6(1). doi: <http://dx.doi.org/10.3402/gha.v6i0.20086>
11. **Al Araimi FAF.** A Hypothetical Model to Predict the Potential Impact of Government and Management Support in Implementing Integrated Management of Childhood Illness Practices. *Oman Med J.* 2017 May;32(3):221–226. doi: 10.5001/omj.2017.41.
12. **Pandya H, Slemming W, Saloojee H.** Health system factors affecting implementation of integrated management of childhood illness (IMCI): qualitative insights from a South African province. *Health Policy and Planning.* 2018 March;33(2):171–182. <https://doi.org/10.1093/heapol/czx154>
13. **Johansson EW, Nsona H, Carvajal-Aguirre L, Amouzou A, Hildenwall H.** Determinants of Integrated Management of Childhood Illness (IMCI) non-severe



pneumonia classification and care in Malawi health facilities: Analysis of a national facility census. *J Glob Health*. 2017 Dec;7(2):020408. doi: 10.7189/jogh.07.020408.

14. **Steinhardt LC, Onikpo F, Kouamé J, Piercefield E, Lama M, Deming MS, Rowe AK.** Predictors of health worker performance after Integrated Management of Childhood Illness training in Benin: a cohort study. *BMC Health Serv Res*. 2015 July 21;15:276. doi: 10.1186/s12913-015-0910-4.
15. **Kiplagat A, Musto R, Mwizamholya D, Morona D.** Factors influencing the implementation of integrated management of childhood illness (IMCI) by healthcare workers at public health centers & dispensaries in Mwanza, Tanzania. *BMC Public Health*. 2014 March 25;14:277. doi: 10.1186/1471-2458-14-277.
16. **Ali AM.** Knowledge, attitudes and practices of health care workers in the implementation of integrated management of childhood illness for under-fives: a case study of wete district government-owned health facilities; 2015.
17. **Meno FO, Makhado L, Matsipane M.** Factors inhibiting implementation of Integrated Management of Childhood Illnesses (IMCI) in primary health care (PHC) facilities in Mafikeng sub-district. *Science Direct*. 2019;11:100161. doi:<https://doi.org/10.1016/j.ijans.2019.100161>