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Assessment of Integrated Management of Childhood Illness Program in Primary Health Care Facilities in Kafr El Sheikh District, Egypt

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ABSTRACT

Background and Aim: The Integrated Management of Childhood Illness (IMCI) program is a World Health Organization (WHO) and United Nations International Children's Emergency (UNICEF) initiative aimed at reducing childhood morbidity and mortality through evidence-based protocols in primary healthcare settings. In Egypt, the IMCI strategy has significantly contributed to improved child health outcomes. This study aimed to assess the performance of healthcare workers and the satisfaction of childcare givers with IMCI services in Kafr El Sheikh District.

Subjects and Methods: A cross-sectional study was conducted in four primary healthcare (PHC) facilities, including both urban and rural units. The sample included 68 healthcare workers and 383 systematically selected childcare givers. Data were collected through structured interviews and observational checklists based on WHO IMCI guidelines. Healthcare workers' performance was evaluated across assessment, classification, treatment, and communication components.

Results: Among the childcare givers, 60.8% expressed satisfaction with IMCI services. Key reasons included short waiting times (38.6%) and effective communication with physicians (22.7%). Among healthcare workers, 75.2% demonstrated satisfactory practice levels. The highest performance was seen in treatment (61.9%) and assessment (55.9%), while classification was suboptimal in 60.3% of cases. Significant associations were found between healthcare worker performance and factors such as experience and training. Facilities showed good availability of essential IMCI medications and equipment, although documentation and supervision practices were inconsistent.

Conclusion: IMCI was well implemented, particularly in clinical care and caregiver satisfaction, but gaps in education, documentation, and classification persist. Better training and supervision are recommended.

Keywords: IMCI, Primary healthcare, Childhood illness, Caregiver satisfaction, Healthcare worker performance.

INTRODUCTION

The Integrated Management of Childhood Illness (IMCI) program, initiated by the WHO and UNICEF, is designed to tackle the primary causes of childhood morbidity and mortality, particularly in low- and middle-income countries. This program combines preventive and curative interventions to improve health care quality for children under five, aiming to reduce childhood mortality rates and enhance health outcomes through evidence-based guidelines for health care providers [(1)].

The effectiveness of the IMCI program depends on factors such as the quality of training received by health care providers, the availability of essential supplies, and performance to IMCI protocols at the facility level. Previous research indicates that consistent performance to IMCI guidelines by health care providers significantly improves child health outcomes; however, challenges remain, including varying levels of provider compliance and caregiver satisfaction, both of which impact the program's success [(2)]. In Egypt, where significant reductions in child mortality have been observed over last decades, the IMCI program has played an essential role in strengthening child health services, especially at the PHC level [(3)].

This study aimed to assess the current state of IMCI implementation within the selected facilities in Kafr El Sheikh District. By assessing health care workers' practice of IMCI program for children in primary health care facilities in Kafr El Sheikh District and determining the satisfaction of childcare givers regarding IMCI program services.

SUBJECTS AND METHODS

Study Design and Setting: This cross-sectional study was conducted in four primary healthcare (PHC) facilities in Kafr El-Sheikh District, Egypt, from December 2022 to December 2024. The facilities included two urban units (a primary healthcare center in Kafr El-Sheikh City and a family medicine unit in Sakha City) and two rural units (Al-Hamrawi and Dafreyah family medicine units). These units collectively serve approximately 2,500 under-five children monthly.

Study Population and Sampling: The study included all healthcare physicians (n=33) and nurses (n=35) working in the selected PHC facilities, as well as 383 caregivers of under-five children attending for immunization. Caregivers were selected using systematic sampling technique (every 5th caregiver). Sample size was calculated using Epi-Info 7.2.3.0 software based on a total population of 2,500, expected frequency of 50%, acceptable margin of error of 5%, and 95% confidence level.

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Data Collection Tools: Data were collected from October 2023 to March 2024 using:

1. **Healthcare Provider Questionnaire:** Collected socio-demographic characteristics and occupational qualifications, including experience with Integrated Management of Childhood Illness (IMCI).
2. **Caregiver Questionnaire:** Assessed caregivers' satisfaction with healthcare services and their perceptions of healthcare workers' practices in child illness management and treatment.
3. **Observational Checklist:** Adapted from the WHO "Health Facility Survey Tool" to evaluate healthcare facilities' performance according to IMCI guidelines. The checklist assessed seven components: assessment, classification, treatment, communication, equipment and supplies, drug availability, and facility records.

Scoring System: The practice score of healthcare workers was calculated based on caregivers' responses (0-10 points), with scores ≥60% (6-10) considered satisfactory and <60% (0-5) unsatisfactory. For the observational checklist, each correctly performed item received 1 point and 0 if not performed. The total practice score ranged from 0-33 and was categorized as optimal (scores above median: 17-33) or suboptimal (scores below median: 0-16).

Ethical Considerations:

The study was approved by the Ethical Committee of Tanta Faculty of Medicine. Official approvals were obtained from the Dean of the Faculty of Medicine and the Directorate of Health Affairs in Kafr El-Sheikh. Informed consent was obtained from all participants, and confidentiality of data was ensured. The Helsinki Declaration was followed throughout the study's conduct.

Data Analysis: Descriptive statistics (frequencies, percentages, means, standard deviations) were used to summarize socio-demographic data, satisfaction levels, performance, and equipment availability.The Chi-square test was mainly used to examine associations between variables such as training status and healthcare workers' practices, satisfaction levels, and equipment availability.Fisher's exact test was applied when expected cell counts were small.T-tests or ANOVA may have been used for comparing group means, though not explicitly stated.

Validity and Reliability: The questionnaires were tested for face and content validity by three experts in public health and community medicine. The face validity was 93% and the content validity index was 91%. Reliability was assessed using Cronbach's Alpha, which was 0.802.

RESULTS

Table 1 highlights the socio-demographic characteristics of the studied healthcare workers: The age distribution shows that 35.5% of workers fall within the 30 to less than 35 years groups. The mean age of healthcare workers was 35.1years ± 6.1. 55.9% of the studied participants were females. Regarding experience years, 44.1% of workers have less than five years of experience and the experience mean was 6.67 years ±4.12. The job roles were 51.5% nurses and 48.5% physicians. Regarding training in the Integrated Management of Childhood Illness (IMCI), 55.9% of healthcare workers attended training courses, out of them 86.9% attended one-week training courses.

Table (1): Socio-demographic characteristics of the studied health care workers.

Socio-demographic characteristics	The studied health care workers (n =68)	
	n	%
Age Years		
<30	13	19.1
30-	24	35.3
35-	11	16.2
≥ 40	20	29.4
Range Mean ± SD	26 - 47 35.1 ± 6.1	
Sex		
Male	30	44.1
Female	38	55.9
Experience years		
<5	30	44.1
5–10	21	30.9
>10	17	25.0
Range Mean ± SD	1-16 6.67 ± 4.12	
Job		
Physician	33	48.5
Nurse	35	51.5
Attending training courses in IMCI		
Yes	38	55.9
No	30	44.1
Duration of training (n =38)		
One week	33	86.9
Two weeks	5	13.2

Table 2, the socio-demographic characteristics of the studied child caregivers, as shown in revealed that 82% of caregivers fall within the age range of 20 to 35 years. The mean age was 27.13 years ± 5.96. Out of the total, 82.5% were female, and 67.4% resided in rural areas. When considering the distance from their homes to the health facility, 53.3% lived far away from the facility. The number of children in the family reveals that 53.5% had three or more children. The relationship to the child shows that 69.7% were mothers. Regarding educational levels, 44.6% had secondary education and 41.8% hold university or postgraduate degree. In terms of occupation, 34.5% were not working and 30.3% were government employees. Family income data indicates that 40.9% reported having enough income.

Table (2): Socio-demographic characteristics of the studied childcare givers

Socio-demographic characteristics	The studied childcare givers (n=383)	
	n	%
Age Years		
<20	35	9.1
20-	123	32.2
25-	76	19.8
30-	114	29.8
>35	35	9.1
Range Mean ±SD	17 - 43 27.13 ± 5.96	
Sex		
Male	67	17.5
Female	316	82.5
Residence		
Urban	125	32.6
Rural	258	67.4
Distance from home to health facility		
Near	149	38.9
Far	204	53.3
Very far	30	7.8
Number of children in the family		
1 and 2	178	46.5
3-5	205	53.5
Relation to the child		
Mother	267	69.7
Father	67	17.5
Relative	49	12.8
Education level		
Illiterate/primary	52	13.6
Secondary	171	44.6
University /postgraduate	160	41.8
Occupation		
Not working	132	34.5
Skilled worker	93	24.3
Government Employee	116	30.3
Professional skilled	42	10.9
Family income		
Not enough	100	26.2
Enough	157	40.9
Enough and saving	126	32.9

Table 3 shows that 60.8% of caregivers were satisfied with the services. The causes of satisfaction include short waiting times (38.6%) and the good manner of communication by physicians (22.7%).

On the other hand, dissatisfaction was mainly due to the bad way of communication with the physician (44.7%) and long waiting time (30.0%).

Table (3): Satisfaction of childcare givers regarding IMCI services

Satisfaction regarding IMCI services	The studied childcare givers (n=383)	
	n	%
Satisfaction with the services		
Yes	233	60.8
No	150	39.2
Causes of satisfaction (n=233)		
• Short waiting time	90	38.6
• Good manner of physician communication	53	22.7
• Good dealing of health team worker	50	21.5
• Good quality of child examination	40	17.2
Causes of dissatisfaction (n=150)		
• Bad way of communication with physician	67	44.7
• Long waiting time	45	30.0
• Unavailable prescribed treatment	38	25.3

Table 4 describes the healthcare workers' practices related to child illness diagnosis and treatment under the Integrated Management of Childhood Illness (IMCI) framework: When asked whether the health care workers mentioned a diagnosis for their child, 77.0% were informed, with the most common diagnosis being upper respiratory tract infections (47.5%) and anemia (33.9%). Out of caregivers, (89.6%) reported that; Healthcare workers (HCWs) prescribed treatment for their child. Among those prescribed treatments, antibiotics were the most common (32.1%), followed by iron supplements (26.2%).

Furthermore, 56.8% of caregivers mentioned that; the HCWs described the way to take the treatment, 73.9% prescribed the drug dosage and 78.3% prescribed the drug frequency. When asked about follow-up visits, 73.9% of caregivers were informed by HCWs, 70.7% caregivers were advised to return after one week.

Additionally, 55.4% of caregivers reported that the HCWs mentioned signs and symptoms requiring an immediate return to the health facility, with fast or difficult breathing being the most frequently mentioned (29.7%). It is notable that only 44.1% of the HCWs mentioned the type of feeding, leaving more than half of them (55.9%) of caregivers uninformed. Out of child caregivers, 84.3% received a vaccination card, and a small percent (13.1%) were given a mother card. Overall, 75.2% of healthcare workers had a satisfactory practice level, while 24.8% exhibited unsatisfactory practices.

Table (4): **Health care workers practice of child illness diagnosis and treatment related to Integrated Management of Childhood Illness (IMCI) depend on the answer of care givers**

Practice of health care workers according to answers of care givers	The studied child care givers (n=383)	
	n	%
The health care worker:		
Mentioned diagnosis for the child	295	77.0
-If yes, types of diagnosis		
Upper respiratory tract infection	140	47.5
Anemia	100	33.9
Parasitic infestation	33	11.2
Others (acute ear infection, dysentery)	22	7.4
Prescribed treatment for the child	343	89.6
-If yes, types of treatment		
Antibiotic	110	32.1
Iron	90	26.2
Antipyretic	77	22.5
ORS	33	9.6
Antiparasitic	22	6.4
Others (zinc, cough sedative)	11	3.2
Described the way to take treatment	252	65.8
Prescribed the dose of drug	283	73.9
Prescribed the frequency of drug	300	78.3
Mentioned when to return for follow up	283	73.9
-If yes		
After one week	200	70.7
After two weeks	69	24.4
After three weeks	14	4.9
Mentioned alarming symptoms for immediate return	212	55.4
-If yes, the symptoms		
Develop fast or difficult breathing	63	29.7
Not able to drink or breastfeed	60	28.3
Condition worsens	44	20.8
Develops fever	31	14.6
Blood in stool	14	6.6
Mentioned the type of feeding	169	44.1
Gave vaccination card	323	84.3
Gave mother card	50	13.1
Total practice level		
Satisfactory (0-5)	288	75.2
Unsatisfactory (6-10)	95	24. 8
Practice total scores (0-10)		
Range	2-9	
Mean±SD	6.55±1.67	

Important note: practice level was classified into satisfactory (if ≥ 60 % of total scores) and unsatisfactory (if <60 % of total scores).

Table 5 shows the relationship between HCWs training and the assessment parameters of IMCI: the results show that the highest percentage of non-trained HCWs assessed danger signs (70.0%) followed by an equal percentage assessed weigh-related parameters and main symptoms (66.7%). In comparison 55.3% of trained HCWs assessed nutrition and immunization followed by an equal percentage assessed danger sign and main symptoms (52.6%). Temperature registration was significantly higher among non-trained HCWs, with 73.3% recording the temperature compared to only 34.2% of trained HCWs. There were also significant differences in three parameters related to danger signs and main symptoms, with non-trained HCWs more likely to assess the following: Ability to drink and breastfeed, 70% of non-trained HCWs assessed this compared to 34.2% of trained HCWs. Extent of vomiting, 63.3% of non-trained HCWs assessed this, compared to 36.8% of trained HCWs. As regard palmar pallor, 60% of non-trained HCWs assessed this compared to 34.2% of trained HCWs.

Table (5): Relationship between attending training of health care workers and assessment parameters of IMCI.

Positive assessment parameters of IMCI	Health care workers (n=68)				χ^2 test	P value
	Trained n=38		Non-trained n=30			
	N	%	n	%		
Weight -related assessment						
Weighing and recording the weight	23	60.5	21	70.0	0.66	0.417
Weight against growth chart	18	47.4	18	60.0	1.07	0.300
Temperature registration	13	34.2	22	73.3	10.27	0.001*
Mean frequency	**18**	**47.4**	**20**	**66.7**	**2.49**	**0.111**
Danger signs						
Ability to drink and breastfeed	13	34.2	21	70.0	8.59	0.003*
Extent of vomiting	14	36.8	19	63.3	4.71	0.030*
History of convulsion or convulsing at presentation	26	68.4	23	76.7	0.57	0.452
Lethargy or unconscious	27	71.1	22	73.3	0.043	0.835
Mean frequency	**20**	**52.6**	**21**	**70.0**	**2.112**	**0.146**
Main symptoms						
Presence of fever	22	57.9	21	70.0	1.06	0.304
Cough and difficulty in breathing	23	60.5	24	80.0	2.98	0.084
Diarrhea	22	57.9	23	76.7	2.64	0.104
Ear problems	17	44.7	18	60.0	1.56	0.211
Visible sever wasting	16	42.1	16	53.3	0. 85	0.357
Palmar pallor	13	34.2	18	60.0	4.50	0.034*
Edema of both foot	27	71.1	22	73.3	0.04	0.835
Mean frequency	**20**	**52.6**	**20**	**66.7**	**1.36**	**0.243**
Nutrition and immunization						
Checking child vaccination card included the recommended vaccination	15	39.5	17	56.7	1.99	0.158
Child feeding	22	57.9	19	63.3	0.207	0.649
Feeding change during illness	26	68.4	20	66.7	0.02	0.878
Mean frequency	**21**	**55.3**	**18**	**60.0**	**0.15**	**0.695**

*Significant.

Table 6 provides data on healthcare workers' performance in three IMCI components: classification, treatment, and communication. HCWs showed high performance to treatment-related tasks (61.9%) followed by communication component (54.4%). They showed less performance to child classification (39.7%). Regarding treatment components, HCWs showed high performance to treating the child (72.1%) and identifying the treatment (67.6%). According to communication components, HCWs showed higher performance to explaining when and how to give medication (69.1% and 64.7%, respectively) and lower performance to verifying caregiver comprehension (42.7%) and giving the first dose of medication in the facility (38.2%). Also showed mixed performance across four key areas: Assessment, classification, treatment, and communication. The optimal practice level was recorded for treatment (61.8%) followed by communication (57.4%). The suboptimal practice level was recorded for classification (60.3%) followed by assessment of cases (44.1%). Regarding the total practice level of healthcare workers, it was 50% optimal and 50% suboptimal.

Table 6: Distribution frequency by average of performance of HCWs to treatment, classification, and communication components of IMCI and their practice as regards flowchart of IMCI

IMCI components	The studied HCWs (n=68)	
	n	%
Classification component		
-Classification of the child	27	39.7
Treatment component		
Treat the child	49	72.1
Refer the child if needed	39	57.4
Identify the treatment	46	67.6
Record name of treatment	44	64.7
Record formulation	44	64.7
Record amounts each time	40	58.8
Record number of times /days	39	57.4
Record total days	39	57.4
Total mean frequency	42	61.9
Communication component		
Explanation on how to give the medication	44	64.7
Explanation on when to give the medication	47	69.1
Verifying caregiver comprehension of all doses and frequency	29	42.7
Giving the first dose of medication in the facility	27	38.2
Instruction and advice about breastfeeding and feeding	37	54.4
Asking about mother health (at least one question)	40	58.8
Information about the signs for bring the child immediately	34	50.0
Total mean frequency	37	54.4

Practice of HCWs as regards flowchart of IMCI	**Optimal**		**Suboptimal**	
	n	**%**	**n**	**%**
Assessment of cases	38	55.9	30	44.1
Classification of cases	27	39.7	41	60.3
Treatment	42	61.8	26	38.2
Communication	39	57.4	29	42.6
Total Practice level	34	50	34	50

N.B. Practice level was classified into optimal if more than median and suboptimal if less than median of total scores.

Table 7 reveals the relationship between attending training of HCWs and classification and treatment components of IMCI: For the classification component, HCWs who had not attended training were significantly more likely to classify the child (53.3%) compared to those who had attended training (28.9%), with a significant difference. For the treatment component, HCWs who attended training were significantly more likely to treat the child (86.8%) compared to those who had not attended training (63.3%), with a significant difference, where a higher percentage of trained HCWs (65.8%) recorded total days, compared to non-trained HCWs (46.7%), but this difference was not statistically significant.

Table (7): **Relationship between attending training of health care workers and classification and treatment components of IMCI**

IMCI components	The health care workers (n=68)				χ^2 test	P value
	Trained n=38		Non-trained n=30			
	n	%	n	%		
Classification component (Classification of the child)						
Yes	11	28.9	16	53.3	4.164	0.041*
No	27	71.1	14	46.7		
Treatment component						
Treat the child	26	68.4	23	76.7	0.566	0.452
Refer the child if needed	19	50.0	20	66.7	1.90	0.168
Identify the treatment	24	63.2	22	73.3	0.79	0.373
Record name of treatment	25	65.8	19	63.3	0.04	0.833
Record formulation	26	68.4	18	60.0	0.52	0.471
Record amount each time	20	52.6	20	66.7	1.36	0.243
Record number of times /days	23	60.5	16	53.3	0.355	0.551
Record total days	25	65.8	14	46.7	2.51	0113
Total mean frequency	33	86.8	19	63.3	5.149	0.023*

* Significant

Table 8 shows varying levels of equipment availability across the four healthcare centers. KFS has full equipment availability (100%), Sakha and Elhamrawi have 87.5% availability with equal percents, missing items like stock cards and vaccination or counseling cards, which could affect record-keeping. Defriha has the lowest availability (62.5%), lacking essential items such as stock cards, vaccination cards, and IMCI chart booklets.

Table (8): Equipment component of IMCI in primary health care facilities.

Equipment component	KFS center	Sakha	Elhamrawi	Defriha
Vaccines and needles appropriate for vaccinations	1*	1*	1*	1*
Functioning fridge, ice packs and cold boxes	1*	1*	1*	1*
Functional tongue depressors, thermometers	1*	1*	1*	1*
Stock cards/drug logbook	1*	1*	0*	0*
Source of clean water	1*	1*	1*	1*
Accessible and working baby scale	1*	1*	1*	1*
Child vaccination cards and mothers' counselling cards	1*	0*	1*	0*
IMCI chart booklet	1*	1*	1*	0*
Total equipment component availability	100 %	87.5%	87.5%	62.5%

N.B: *1* – available, 0* – not available.*
KFS= Kafr El Sheikh

DISCUSSION

Caregiver satisfaction in the current study with IMCI services was high (60.8%), with most expressing positive experiences due to short waiting times, effective communication, and thorough examinations. However, 39.2% reported dissatisfaction, primarily related to communication issues with healthcare staff (44.7%).

Similarly, **in Ethiopia, Ketero *et al.*** [4] found an overall mean satisfaction score of 63.4%, with dissatisfaction regarding waiting time (23.4%), explanation about treatment (33.6%), and medicine availability (19.2%). **Abd El Fatah *et al.*** [3]**, in Egypt** reported higher satisfaction (96.3%), with the main dissatisfaction reasons being unprofessional physician behavior (54.5%) and inadequate communication (45.5%). **Turcotte-Tremblay *et al.*** [5] **in Nigeria** identified that process of care factors like adequate explanations and medication availability significantly influenced satisfaction. **In Egypt, Osman *et al.*** [6] reported even higher satisfaction (94.2%), notably higher than the current study, possibly due to the predominant rural residence (67.4%) of caregivers in our study.

Our study found that most healthcare workers (HCWs) demonstrated satisfactory practice levels (75.2%), though a substantial portion showed unsatisfactory practices (24.8%). Most caregivers (77%) confirmed receiving information about their child's diagnosis, with respiratory infections being most frequent (47.5%), followed by anemia (33.9%).

Abd El Fatah *et al.* [3]**, in Egypt** reported that 12.7% of children had pneumonia/cough according to IMCI classification. **Kagoda** [7]**, in Uganda** found that 61% of health workers assessed children for primary symptoms.

Regarding treatment practices, 89.6% of caregivers indicated that HCWs prescribed treatment, with antibiotics being most frequent (32.1%), followed by iron supplements (26.2%). Most caregivers reported that HCWs specified dosage (73.9%) and informed about follow-up visits (73.9%).

Abd El Fatah *et al.* [3]**, in Egypt** reported highly satisfactory levels regarding drug prescription, though more than half of caregivers stated that HCWs didn't reveal follow-up timing and warning signs. **Kodoga** [7]**, in Uganda** found that less than 15% of health workers could identify danger signs, with only 28.8% referring severe cases.

Our study revealed gaps in some aspects of care: only 44.1% of physicians discussed feeding practices, and while most caregivers (84.3%) received vaccination cards, only 13.1% received mother cards.

Similarly, **Krüger *et al.*** [8] **in Namibia** found most health workers didn't inquire about breastfeeding. **Kagoda** [7] **in Uganda** reported only 34% of health workers assessed breastfeeding or feeding problems, 37% checked immunization status, and just 27% administered vaccines on the same day. **Pillay** [9] **in South Africa** found only 20% of health workers provided feeding counseling.

Our assessment showed relatively high optimal performance in assessment (56%) and treatment (62%) components, whereas classification was weaker (60% suboptimal). Communication was optimal among more than half of HCWs (57.4%).

In contrast, **Abdo *et al.*** [10] **in Egypt** found 100% of physicians met standards in classification and treatment, 86.1% in case evaluation, but none achieved accepted standards in communication. **El-Ayady *et al.*** [11] **in Egypt** observed the highest performance score for disease classification (100%). **Abdelsalam *et al.*** [12] **in Egypt** revealed that 80.9% of physicians

demonstrated suboptimal practice, particularly in communication and case assessment steps.

The total mean frequency of assessment parameters, treatment, and communication components in our study were all greater than 50%, suggesting reasonable implementation consistency. Similarly, **Pinto *et al.* [13] in East Timor** reported total mean performance above 50% for assessment and treatment, but below 50% for communication.

Interestingly, our study found that non-trained HCWs more frequently assessed critical danger signs than trained counterparts. Untrained HCWs showed higher completion rates for classification tasks, while trained HCWs recorded treatment details more thoroughly. Non-trained HCWs were more likely to address urgent care signs and breastfeeding advice.

These unexpected findings might be explained by studies like the one **in Tanzania [14]**, which found that 69% of healthcare workers felt their IMCI training was inadequate for consistent application. **In South Africa [15]**, researchers noted challenges in skilled clinician availability due to inadequate staffing and high turnover. **Tawfiq *et al.* [16] in Afghanistan** found significant effects of IMCI training on care quality. **Abdelsalam *et al.* [12] in Egypt** noted that 83.4% of healthcare workers recommended improved training for better IMCI implementation, while **Salem *et al.* [17] in Egypt** identified challenges including lack of trained staff and insufficient mentoring. A systematic review by **Aldahmashi *et al.* [18]** found that IMCI training enhances healthcare worker skills, with diagnostic accuracy increasing by 30-80% and treatment guideline adherence improving by 40%.

Equipment availability across the four primary health centers was generally positive, with essential equipment, vaccines, and cold storage consistently available. However, gaps included absence of IMCI chart booklets in some centers and missing stock logbooks. **Okankwu *et al.* [19] in Nigeria** found that IMCI equipment was widely available (65.9%) but only moderately adequate (42.6%). A study **in Bangladesh [20]** found that only 44% of facilities had IMCI chart booklets, and essential equipment availability varied considerably.

Drug availability assessment showed most centers were well-stocked with essential medications, though with discrepancies in antibiotics and iron supplements. **Pradhan *et al.* [21] in Pakistan** found that no facilities had 100% stock of essential supplies. **Bishai *et al.* [22] in Uganda** highlighted drug shortages as a major constraint, while **Pariyo *et al.* [23] in Uganda** emphasized that availability of basic drugs and equipment is critical for proper IMCI application.

A critical gap identified was the lack of record-keeping on supervisory follow-ups for trained HCWs across all centers. **Prosper *et al.* [24] in Tanzania** emphasized that effective supervision is crucial for sustaining IMCI practices. **Rowe *et al.* [25] in Benin** revealed multiple barriers to consistent supervision, including poor coordination and inadequate management skills. A study in South Africa identified minimal post-training supervision as among the weakest areas of IMCI implementation [26].

CONCLUSION

The implementation of the IMCI program in primary healthcare facilities is generally effective, with a majority of healthcare workers demonstrating satisfactory practice levels and most childcare givers expressing satisfaction with the services provided. Strengths were observed in treatment and assessment components, while notable deficiencies were identified in case classification and caregiver counseling. Factors such as healthcare worker training and experience had a significant influence on performance, particularly in communication and clinical decision-making. Additionally, although essential drugs and equipment were largely available, inconsistencies in supervision, record-keeping, and caregiver education highlight areas for improvement. Strengthening training, enhancing follow-up systems, and improving communication strategies are recommended to optimize IMCI implementation and ensure better health outcomes for children.

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