

Are Primary Health Care Workers in Ikere Local Government Area of Ekiti State Making Diagnosis or Classification of Diseases before Giving Treatment?

Rasheed Adeyemi Adepoju^{1*}, Folorunso Ayodeji Onipede², Olusegun Emmanuel Adeoye²

¹Ekiti State Primary Health Care Development Agency

²Master of Public Health, University of South Wales, Treforest, UK

³PHD, Lead City University, Ibadan, Nigeria

Abstract

Diagnosis is the establishment of a disease condition affecting an individual by a clinician. It is the end result of a process in which a clinician synthesis various combinations of symptoms and signs exhibited by a patient to make a list of possible disease conditions afflicting the patient. This study aimed to ascertain whether Primary Health Care Workers In the Ikere Local Government of Ekiti State were making diagnoses or classifications of diseases before giving treatments. The purpose of this study was to ascertain whether Primary Health Care Workers In the Ikere Local Government of Ekiti State were making diagnoses or classifications of diseases before giving treatments. The study was a retrospective cross-sectional in nature and used secondary data from eight (8) primary health centers within the Local Government, comprising of two (2) Comprehensive and six (6) Basic Health Centers. A total of 513 out-patient cards were examined in the eight selected health facilities. Data was collected and analysed using SPSS version 2.0. Attempt at making a diagnosis were made in 206(40.2%), while no diagnosis were made in 307 (59.6%). 40 different diagnoses were made with malaria alone, 113 (54%) been the most diagnosed. Other diagnoses included wound 17 (8.1%), road traffic accident 10 (4.8%), malaria in combination with typhoid 8 (3.8%), malaria with peptic ulcer and malaria with infection at 2 (1%) each, dysentery, and typhoid 4 (1.9%) each. The uses of physical examination and laboratory investigation as well as diagnosis/ classification before treatment, were low.

Keywords: Classification, Diagnosis, Primary health care, Primary health care workers.

Introduction

Diagnosis is the establishment of a disease condition affecting an individual by a clinician. It is from the Greek word gnosis, meaning knowledge. Traditionally, diagnosis is defined as the art of determining a disease from its signs and symptoms [1]. In medical practice, it is regarded as the goal of clinical problem-solving equivalent to finding the solution to a riddle [2]. It is the end result of a process in which a clinician synthesis various combinations of symptoms and signs exhibited by a patient to make a list of possible disease

conditions afflicting the patient. The clinician then uses relevant laboratory tests to make a definitive diagnosis. It is a complex transition process that starts with a patient giving the history of his illness to the clinician, who then uses this to classify his illness and indicate relevant specific treatment appropriate for the classified illness [3]. To ease the tasks of diagnosis, medical research has done a lot in the definitions and characterizations of diseases in a comprehensive system that reflects their differences and similarities [4].

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*Corresponding Author: eniolaye99@yahoo.com

Establishing the definitive diagnosis is crucial for institution of effective and efficient management of identified disease conditions. Diagnosis provides information that enables healthcare providers to select the appropriate treatment for the benefit of the patients [5]. Failure to establish a diagnosis before commencing treatment will most likely lead to treatment of symptoms, which has negative clinical and economic consequences. In addition, making appropriate diagnosis provides information that may reduce length of admission, reduce inappropriate use of drugs, and reduce the length of sick leave resulting in more efficient utilization of scarce health and public resources [5]. Treatment without diagnosis is likely to be inefficient, expensive, and less satisfying.

Singh et al opined that diagnosis is one of the most important tasks of a clinician [6]. This is not only because it gives a sense of satisfaction for the identification of cause of disease but also because it provides powerful aids for clinical reasoning in the management of such disease [2]. Furthermore, diagnosis enables health care providers to provide useful information to patients about their disease conditions [5] and this empowers the patients and offers them opportunities to make an informed choice in respect to available treatment options.

While doctors are elaborately trained to make diagnosis, nurses, community health extension workers and other paramedics generally do not receive such training. However, community health extension workers and nurses are the most likely clinician to attend to patients at the primary health care level. Although community health extension workers are not trained to make diagnosis, they are trained to make classifications of diseases using their standing orders. Such classification, a substitute to diagnosis enables a clinician to select appropriate treatments and prevent polypharmacy. Polypharmacy is one of the consequences of treatment without the

establishment of a diagnosis or classification of the disease.

Primary health care is considered the backbone of the health system, and its strength is negatively associated with mortality [7]. The goal of universal health coverage can only largely be achieved through primary health care [8]. The strength of primary health care, however is dependent on its structural infrastructure, financial access, the sustainable supply chain for drugs, vaccines, and other consumables, and the skill and performance of health workers [7]. Although infrastructure, finance, and supply chain are important factors for the delivery of quality health care services, the importance of skilled human resources for health in the delivery of quality health care services cannot be over-emphasised.

Methods

Study Area

The study was conducted in Ikere local government area of Ekiti state. Ikere is situated in Ekiti south senatorial district of the state; it is a one town local government and about 15.8 km from Ado-Ekiti, the state capital. It is the second largest town in the state and differently referred to by different people as urban, semi-urban or rural. It has extrapolated a population of 148,558 based on 2006 population census. There are 18 primary health care facilities, 1 state specialist hospital and few private hospitals and clinics. It hosts many public and private primary and secondary schools and one state university. The Yorubas are the predominant inhabitants in Ikere local government. Other inhabitants are the Igbiras, Hausa, Igbo and Igedes. Farming is the main occupation of the district and sawmills is the common small-scale industry in the area. Civil service and different forms of vocational jobs are other forms of occupation.

Study Design

It is a retrospective cross-sectional study that examines if clinicians are making diagnosis or

classifications of disease before commencing treatment using out-patient's cards from primary health care centres.

Study Sites and Sample

The study sites were eight primary health care centres in the Ikere local government. Stratified and random sampling methods were used to select participating health centres. The health centres were stratified into comprehensive and basic health centres.

Data Collection

Data was collected by the researcher and an assistant from two comprehensive health centres and six basic health centres between August and October 2021. Relevant

information was extracted from out-patients cards used in the first two quarters of 2021.

Ethical Consideration

Approval for the use of the data was given by the medical officer of Health.

Results

A total of 513 out-patient (OPD) cards were examined in the eight participating health facilities. 206 (40.2%) of the cards were from the two comprehensive health centres, while 307 (59.8%) cards were from the six basic health centres. 286 (55.8%) of the patients were females, while 223 (43.5) were male, with 4 (0.8%) missing.

Table 1. Distribution of Patients by Sex

Sex	Frequency	Percent	Valid Percent	Cumulative Percent
Female	286	55.8	56.2	56.2
Male	223	43.5	43.8	100.0
Total	509	99.2	100.0	-
Missing	4	.8	-	-
Total	513	100.0	-	-

The age distribution of the patients ranges between 1 month and 105 years. The majority of the patients, 157 (30.6%), attended during the period falls between the ages of 18 and 47 years old, while those between ages 48 and 60

years were the least with the frequency of 27 (5.3%). Ages 0-5 years were 153 (29.8%), 6-17 years, 98(19.1%), and ages 60 years and above, 78 (15.2%).

Table 2. Age Distribution of Patients

Age	Frequency	Percent	Valid Percent	Cumulative Percent
0-5	153	29.8	29.8	29.8
6-17	98	19.1	19.1	48.9
18-47	157	30.6	30.6	79.5
48-60	27	5.3	5.3	84.8
>60	78	15.2	15.2	100.0
Total	513	100.0	100.0	-

The age by sex distribution of the patients shows that 75 (14.6%) and 76 (14.8%) of 0-5 years were female and males, respectively, while 44 (8.6%) and 53 (10.3%) of 6-17 years were females and males respectively. For the

age groups 18-47, 48-60, and above 60, females and males were 101 (19.7%) and 56 (10.9%), 18 (3.5%), and 9 (1.8%) and 48 (9.4%) and 29 (5.7%) for females and males respectively.

Table 3. Age by Sex Distribution of Patients

Age	sex of patient		Total
	Female	Male	
0-5	75	76	151
6-17	44	53	97
18-47	101	56	157
48-60	18	9	27
>60	48	29	77
Total	286	223	509

Out of the 513 patients reviewed, an attempt at making diagnosis were made in 206(40.2%) while no diagnosis were made in 307 (59.6%). 40 different diagnoses were made with malaria alone 113 (54%) were the most diagnosed. Other diagnoses included wound 17 (8.1%), road traffic accident 10 (4.8%), malaria in combination with typhoid 8 (3.8%), malaria with peptic ulcer and malaria with infection at 2 (1%) each, dysentery, and typhoid 4 (1.9%) each. Others were high blood pressure 3(1.4%), hypertension, infection, diarrheal, cough, fever, peptic ulcer, and rashes were 2 (1%) each. Some other diagnoses like breast engorgement, pelvic inflammatory diseases, scabby, oral thrush, trichomonas vaginitis, hyperemesis gravidarum, gastroenteritis, febrile convulsion, fracture, dermatitis, dental caries, heat rash, allergy, abdominal pain, and septic wound were 1 (0.5%) each.

These diagnoses were made from 68 complaints (symptoms) in singleton-on in combinations. Fever was the most common complaint occurring in 115 cases alone or in combinations. Abdominal pain, wound, vomiting, headache, stooling, body pain, and cough also occurred several times alone or in combination. Others include catarrh, not able to

urinate, restlessness, chest pain, weakness, amnesia, loss of appetite, insomnia, sore throat, bloody stool, boil, back pain, breathlessness, bruises, breast pain, malaise, convulsion, rashes, itching, dizziness, dental ache, vaginal discharge with or without itching, ear pain and discharge, eye discharge and pain, irregular menses, repeated miscarriage, unconsciousness, joint pain, jaundice, road traffic accident, swelling breast, fingers, hand and lymph nodes and whitlow.

Physical examination was conducted only on 84 (16.4%) patients while it was not on 439 (83.6%) patients. All the facilities had thermometers, weighing scales, and sphygmomanometer. The temperature was measured in 103 (20.1%) cases but not in 410 (79.9%) cases. 19 (3.7%) of the patients were weighed while 493 (96.1%) were not with one (0.2%) missing value. The age by weight and temperature shows that only 6 (0.4%) cases of 0-5 years had their weight and temperature measured. In 95 (62.1%) cases of 0-5 age group, both temperature and weight were not measured, in 3 (0.2%) cases, weight was measured but the temperature was not, while in 49 (3.2%), temperature was measured, but the weight was not.

Table 4. Distribution of Patients by Age, Weight, and Temperature Measurement

Temperature			Weight			Total
				No	Yes	
No	age of patient	0-5	0	95	3	98
		6-17	0	70	2	72
		18-47	1	141	1	143
		48-60	0	25	0	25

		>60	0	68	4	72
	Sub Total		1	399	10	410
Yes	age of patient	0-5	-	49	6	55
		6-17	-	26	0	26
		18-47	-	11	3	14
		48-60	-	2	0	2
		>60	-	6	0	6
	Sub total		-	94	9	103
	Total		1	493	19	513

Although six of the participating health facilities offer basic laboratory services, laboratory tests were conducted in 144 (28.1%) cases but not in 269 (71.9%) cases. 38 out of 113 (33/6%) cases of malaria were confirmed through laboratory tests, while all 4 (100%) cases of typhoid were confirmed with a laboratory test. In 5 (62.5%) out of 8 cases of malaria and typhoid, 1 (100%) of hyperemesis gravidarum, 1(100%) of hand pain, 1 (33.3%) of high blood pressure, 1 (100%) of febrile convulsion, 1 (25%) of dysentery, 1 (100%) of dental caries laboratory tests were conducted. Laboratory tests were also conducted in 89 (30%) out of 307 cases where diagnoses were not made.

505 (98.4%) cases received drugs in various numbers for treatment, while only 8 (1.6%) cases received no drug. The number of drugs per case ranges from 0 to 11, with an average of 5 drugs per prescription and only 5 (1%) patients referrals.

Discussion

Although in the study on the utilization of PHC services among rural dwellers in Oyo state, more males utilized PHC facilities than females [9]; in this study, more females (55.8%) utilized the facilities more than the males (43.5%) but the ratio of females to males of 1.3: 1 was low. Females are much more likely to utilize primary healthcare facilities than females. Apart from utilizing the PHC for themselves, they are the likely caregivers that bring children to the centres. This view is supported by a study conducted in Calabar, Nigeria with females (90.6%) to males (9.4%)

utilization ratio of 9.6:1 [10]. Further analysis of this study shows that more females utilized the facilities than males in the age groups above 17 years but lower in age groups below 17. If the assumption is that a woman is more likely to accompany children to the health centre; the ratio of females to males would be higher.

Diagnosis provides overall guidance in the management of patients. It provides vital information required for the selection of appropriate treatment for patients [5]. Accurate diagnosis reduces the length of hospital stay, reduces cost of drugs, and reduces absence from school and place of work [5]. Even in public health, its importance cannot be overemphasized. Prompt diagnosis of diseases of public health importance is crucial to its surveillance and curtailment [11]. Despite the importance attached to diagnosis in patient management by clinicians, only 206 (40.2%) of cases were diagnosed in this study.

At the primary healthcare level, community health extension workers (CHEWs) are the most likely health workers that attend to patients as first contact. CHEWs are the majority of healthcare providers at primary healthcare facilities [12, 13]. Although CHEWs are not trained to make the diagnosis, they are trained to use a standing order to make a classification of diseases which is equivalent of diagnosis. The majority of cases were not diagnosed/classified might be an indication that the CHEWs are not making appropriate use of standing in the management of patients. Not making diagnosis/classification of diseases before treatment is given indicates poor provider ability and has negative consequences

on the quality of care. It leads to the indiscriminate prescription of drugs as symptoms rather than diseases are treated, resulting in polypharmacy and an increase in the cost of care. The number of drugs per prescription ranges between 0 and 13, with only 5 referrals. Kress observed that diagnosis ability at the PHC level is low and has negative effects on the quality of care [7]. The safety of patients in diagnosis uncertainty and management of polypharmacy is an observed challenge in primary healthcare settings [14]. Polypharmacy leads to increase in drug expenditure in the hospital, a shortage of drugs, and dire consequences for the patients [15]. It also has a negative effect on mortality and morbidity ratios of the country and unnecessary increases in the cost of health care services [16, 17].

Although this study is not about accuracy of diagnosis, if the CHEWs were not making use of standing order in arriving at the diagnoses made in this study, the probability of making wrong diagnosis would be high. It was observed that diagnosis accuracy was low in PHC in Nigeria [7]. Physical examination of patients and laboratory tests in combination with good history taking are critical for accurate diagnosis. Poor physical examination of patients is opined to be associated with wrong or missed diagnosis and its resultant patients' management [18]. In addition, physical examination is more than a tool for making the diagnosis as it also provides reassurance for the patients and satisfaction for the clinicians [19]. In this study, only 84 (16.4%) were physically examined, while only 19 (3.7%) and 103 (20.1%) were weighed and had their temperature measured, respectively. This is despite the availability of functional weighing scales and thermometers in all the facilities. Nigeria has one of the highest under-5 mortality in the world [12]. For children under the age of 5, only 6 (0.4%) were weighed and had their temperature measured while for 95 (62.1%) both temperature and weight were not

measured, which portend great danger to child survival. Fever is a common reason why patients present in health facility; it is the most frequent symptom of malaria, occurred most in this study and is one of the four major symptoms under the integrated management of childhood illnesses, a strategy to reduce under-five morbidity and mortality. Malaria is endemic in Nigeria and the leading cause of death [20].

Measuring temperature is one of the three ways to detect fever, and that this was not done in most patients indicates that many patients with this sign might have been missed. In addition, weight measurement, aside from being an important indicator of child development and nutrition status, is also used to determine the quantity of drugs for children. Undernutrition a form of malnutrition, is estimated to contribute to more than a third of all child mortality [21]. Weight measurement is critical for accurate drug dosing in children [22].

Not measuring the temperature and weight for children can be part of the reasons for the poor health indices of under-5 in Nigeria. Laboratory tests were infrequently used in the process of making the diagnosis. Only 144 (28.1%) patients went through laboratory tests before diagnoses were made. Although studies have shown that request for laboratory investigations were excessive, leading to inefficient laboratory services utilization [23, 24], request for laboratory investigation seems to be low in this study. Even for malaria, the most commonly diagnosed disease, only 38 (33.6%) were confirmed through laboratory tests. This is despite the fact that the National policy on malaria stipulates that diagnosis of malaria should be made only with laboratory confirmation.

Laboratory confirmation will remove over diagnosis and unnecessary wastage of anti-malaria drugs [25]. Laboratory tests enhance the accuracy of diagnosis as evidenced in a study conducted in a PHC setting in Kenya

where diagnosis and even treatment were changed in 45% of tested patients [26]. That malaria, a disease that is not only endemic but also a leading cause of death in Nigeria [20], was not properly diagnosed using recommended laboratory tests in the majority of cases is an indication of poor utilization of laboratory services.

The fundamental principle of excellent patient care revolves around patient safety, and it is central to continuous quality healthcare management [27]. The referral is an important form of treatment as different health facilities at different levels have different capacities. In addition, the number of drugs per prescription for outpatient cases is an indication of the rational use of drugs and, ultimately, quality of care. Koce and Olagundoye observed that the majority of patients self-referred to a higher level of care for different reasons [28, 29]. Abdulraheem also opined that the referral system is poor at the primary healthcare level [30].

Only 5 (1%) patients were referred in the study and the average number of drugs per prescription was 5. While the average of 5 drugs per prescription was a pointer to irrational use of drugs, an indication of low quality of care, that only 1% of patients were referred indicated the same is debatable. It was good that cases of repeated miscarriages and chest pain with no specific diagnoses were referred. However, how the case of fracture was managed at the level of primary health should be a concern.

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Conclusion

Establishing the definitive diagnosis is crucial in the management of the patient as it provides information that guides healthcare providers in the selection of appropriate treatment for the benefit of the patients. Despite obvious benefits of diagnosis/classifications, which includes but are not limited to reduction in hospital stay, cost of treatment, absence from school and place of work, and its usefulness in surveillance and prompt curtailment of diseases of public health importance, diagnosis of disease before treatment was low in this research. The observed low level of diagnosis might not be unconnected with the low utilization of standing orders by the community health extension workers while attending to patient as first contact. In addition, physical examination and use of laboratory services were also low with the high number of drugs per prescription, which is a pointer to the irrational use of drugs. It is, therefore, necessary for the community health extension workers to adhere to the use of their standing orders while attending to a patient at the primary health care level to improve the quality of care at this level.

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Conflict of Interest

The Authors declare no conflict of interest.

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