

Original Research Article

Health managers' knowledge of essential drugs and the availability of essential drugs in primary health care centres in Sokoto, Northwestern Nigeria.

ABSTRACT

Background: The major indicator to access to effective treatment is the constant availability of essential drugs in health facilities and the accessibility to essential drugs is part of the fulfillment of the right to the highest attainable standard of health, that is, the right to health. There is a compelling evidence of poor availability of essential drugs which possess a significant barrier to access to medicines.

Objective: To determine the knowledge of essential drugs by health managers and the availability of essential drugs in primary health care (PHC) centres in Sokoto state, North-Western Nigeria.

Methodology: The study population comprised of selected Primary Health Care Centres and their corresponding health managers across Sokoto state. The study is cross-sectional and descriptive.

Result: Sixty-six primary health care managers and their corresponding health facilities participated in the study. The mean age of the health managers was 43 years with 46 females and 20 males. This study found that the availability of essential drugs in the primary health care centres was generally on the average with 57.5% having adequate essential drugs, the knowledge of essential drugs among the primary health care facility managers was profoundly poor, as the knowledge has significant effect on the availability of essential drugs ($p < 0.001$).

Conclusion: There is significant effect of health managers' knowledge of essential drugs on the availability of essential drugs in the primary health care facilities.

BACKGROUND

It is said that the major indicator to access to effective treatment is the constant availability of essential drugs in primary health care centers (1) and the accessibility to essential drugs is part of the fulfillment of the right to the highest attainable standard of health, that is, the right to health (2). There is a compelling evidence of poor availability of essential drugs which possess a

significant barrier to access to medicines (1) and the availability of generic medicines is less than 60% across WHO regions in public health facilities. According to a report, there are inadequate numbers and training of health care workers on management of essential drugs (3) and the inefficient management of essential drugs represents a significant financial burden for the health system and untold hardship on the community members with resultant poor utilization of health services and increase in morbidities and mortalities (4).

Most of the leading causes of death and disability in the developing countries can be prevented, treated or better still alleviated with the use of cost-effective essential drugs (5). But unfortunately, hundreds of millions of people do not have access to essential drugs regularly. However, even most of those who have access are given the wrong treatment, receive too little drug for their illness, or do not use the drug correctly (6). Mortality figures in developing countries showed a huge burden of illness that can actually be substantially reduced if carefully selected, low cost essential drugs are available and appropriately utilized (7). Essential drugs have a significant impact on common causes of morbidity and mortality, including acute respiratory tract infection (ARI), measles, diarrheal diseases, malaria, sexually transmitted diseases (STDs), tuberculosis, maternal and perinatal mortality, peptic ulcer disease and cardiovascular and other chronic diseases (8).

It is in realization of the role availability of essential drugs plays in improving the health outcome of the people that it becomes imperative to carry out this research to ascertain the gap in knowledge of essential drugs by health managers and the availability of essential drugs in PHCs.

Aim: The aim of our study is to determine the knowledge of essential drugs by health managers and the availability of essential drugs in primary health care (PHC) centres in Sokoto state, North-Western Nigeria.

METHODOLOGY

The study was conducted among health managers over-seeing primary health care facilities in Sokoto State. A cross-sectional descriptive study method was used and 70 health managers working in PHCs across the state with their corresponding health facilities were recruited. A cluster random sampling technique was used to select eligible participants for this study. A semi-

structured self-administered questionnaire on the knowledge of essential drugs by the health facility managers and an observational check list for the availability of essential drugs in the PHCs were used. Data analysis was performed using the Statistical Package for Social Sciences [SPSS] for windows version 21.0. The choice of statistical test was guided by the normality of the data distribution. Normally distributed data were summarized using mean and standard deviations, while proportions and percentages were used to summarize categorical data. Essential drugs surveyed were derived from the fourteen (14) global medicines and sixteen (16) regional medicines as recommended by the World Health Organization/Health Action International (WHO/HAI) methodology. The methodology includes the specific dosage form and strength for each drug (9).

Ethical clearance was obtained from the Department of Community Health, Usmanu Danfodiyo University Sokoto. Further permission to carry out the study in the Local Government was sought from the authorities of Ministry of Health, Sokoto (SKHREC/009/015). The consent of the subject was also obtained and utmost confidentiality was ensured since no names was required from the respondents.

RESULTS

During the survey, seventy (70) were administered to the respondents, 66 (94%) questionnaires were filled, returned and analyzed after validation.

Socio-Demographic characteristics of the health managers

Table 1: Socio-demographic characteristics of health facility managers

Characteristics	Number (%)
Age group	
31-40	15 (22.7)
41-50	44 (66.7)
51-60	7 (10.6)
Mean 43.11 years	
Standard deviation 7.11	
Sex	
Male	20 (30.3)
Female	46 (69.7)
Marital status	
Married	66 (100.0)

Qualification	
Community Health Officer	39 (59.1)
Community Health Extension Worker	16 (24.2)
Senior Community Health Extension Worker	11 (16.7)
Rank	
In-charge	60 (90.9)
Acting in-charge	6 (9.1)
Years in service	
1-10	8 (12.1)
11-20	28 (42.4)
21-30	30 (45.5)
Mean years (19.52 ±6.44 years)	

Table 1 shows the socio-demographic profile of the health facilities managers at the study centers. A total of 66 health managers were enrolled into the study. The age of the respondents' ranges from 45-50 years (mean 43.11; SD = 7.11) and the female gender was the dominant (69.7%).

Availability of some selected essential drugs

Table 2: Availability of selected essential drugs in the primary health centers

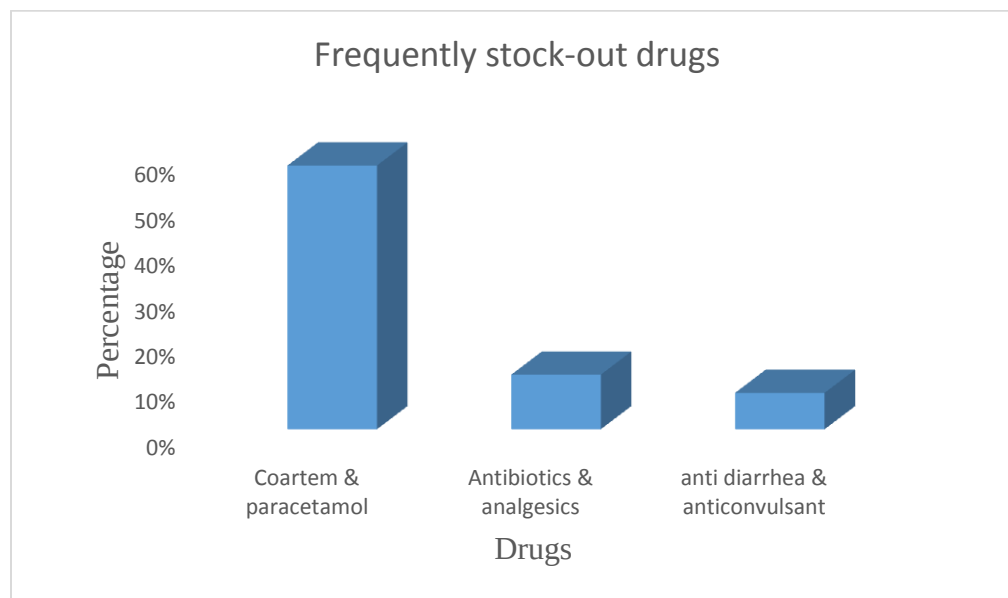
CLASS OF DRUGS	DRUGS	FREQUENCY (%)
Analgesics	Acetylsalicylic acid	27 (40.9)
	Paracetamol oral liquid	36 (54.5)
	Paracetamol oral tablets	58 (87.9)
Anti-convulsants	Diazepam tablets	7 (10.6)
	Paraldehyde injection	3 (4.5)
Anti-infective	Co-trimoxazole oral suspension	44 (66.7)
	Co-trimoxazole tablets	37 (56.1)
	Amoxicillin capsule (caplets)	53 (80.3)
	Amoxicillin oral suspension	34 (51.5)
	Metronidazole tablets	53 (80.3)
	Metronidazole oral suspension	36 (54.5)
Anti-malarial	Artemether Lumefantrine (ACT) tablet	60 (90.9)
	Artemether + Lumefantrine (ACT) oral suspension	0 (0.00)
	Pyrimethamine + Sulfadoxine oral suspension	0 (0.00)
	Pyrimethamine + Sulfadoxine tablets	47 (71.2)

	Quinine tablets	0 (0.00)
Antiseptics	Chlorhexidine/iodine/methylated spirit	47 (71.2)
Hematinic	Ferrous salts/folic acid oral liquid	3 (4.5)
	Ferrous salts/folic acid oral tablets	55 (83.3)
GIT	Oral rehydration salts (ORS)	56 (84.8)
	Zinc tablets	45 (68.2)
	Zinc oral liquid	0 (0.00)
Hormones & Synthetics substitutes	Condoms	48 (72.7)
	Oral contraceptives	44 (66.7)
Immunological	Anti-snake bite serum	0 (0.00)
	Measles vaccines	21 (31.8)
	Tetanus vaccines	29 (43.9)
Ophthalmological	Chloramphenicol eye drops/ointments	45 (68.2)
Oxytocic	Ergometrine injection	17 (25.8)
Psychotherapeutic drugs	Chlorpromazine tablets	0 (0.00)
Respiratory drug	Salbutamol inhaler	2 (3.0)

Gastrointestinal tract (GIT), Oral rehydration salts (ORS)

Table 2 showed the shelf availability of thirty-one (31) essential drugs in the 66-selected primary health care facilities. The mean percentage availability of essential drugs in all the primary health care facilities was 51.98%.

The analgesic, anti-infective, anti-malarial and hematinic with very high availability were paracetamol tablet (87.9%), amoxicillin capsule and metronidazole tablet (83%), artemether + Lumefantrine tablet (90.9) and ferrous salts/folic acid, respectively.

104 **The frequently stock-out drugs**105 **Figure 1: Frequently stock-out drugs**

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107 Figure 1 shows the frequently stock-out drugs in the primary health care centers. Only 10.6% of
108 the health facilities did not experience stock out at the time of this survey.

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Proportion of health facilities with adequate and inadequate essential drugs

Figure 2: Proportion of health facilities with adequate and inadequate essential drugs

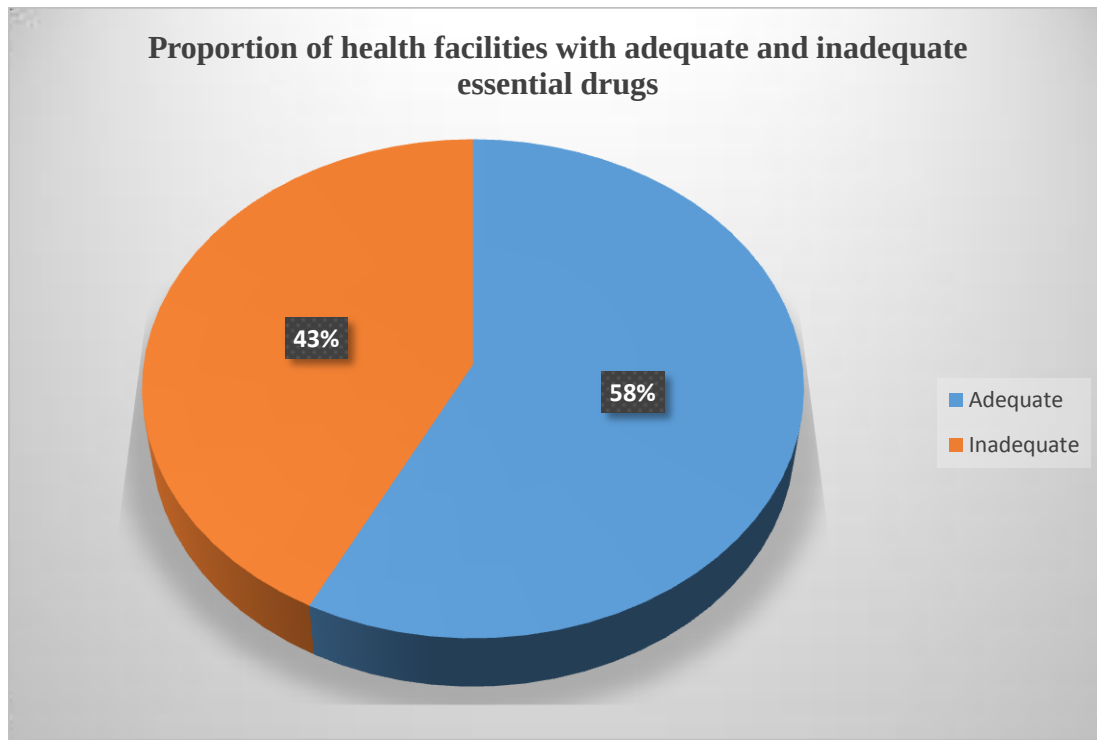


Figure 2 shows thirty-eight primary health facilities representing 58% had adequate essential drugs.

Health managers' knowledge of essential drugs**Table 3: Knowledge of essential drugs**

Variables	Correct N (%)	Incorrect N (%)
Meaning of essential drugs	11 (16.7)	55 (83.3)
Meaning of management of essential drugs	4 (6.1)	62 (93.9)
Criteria for the selection of essentials	32 (48.5)	34 (51.5)
Meaning of Push system of drug supply	16 (24.2)	50 (75.8)
Meaning of Pull system of drug supply	16 (24.2)	50 (75.8)
Meaning of request indicator	15 (22.7)	51 (77.3)
Meaning of First in First Out	33 (50.0)	33 (50.0)
Meaning of First to Expire First Out	30 (45.5)	36 (54.5)
Meaning of Inventory control system	12 (18.2)	54 (81.8)
Types of Inventory control system	19 (28.8)	47 (71.2)

Table 3 showed the respondents' knowledge of essential drugs. The mean knowledge score of health manager's knowledge of essential drugs is 36.44%.

Effect of Knowledge of Essential Drugs on the Availability of Essential Drugs in The Primary Health Care Centers

Table 4: Effect of Knowledge of Essential Drugs on the Availability of Essential Drugs

Variable	Level of availability of essential drugs		χ^2	Df	P - value
Knowledge of essential drugs & its Management	Adequate Frequency (%)	Inadequate Frequency (%)			
Good	24 (85.7)	4 (14.3)			
Poor	10 (26.3)	28 (73.7)	22.79	1	0.001

There is statistically significant association between knowledge of essential drugs and their availability, $p < 0.001$ (table 4).

DISCUSSION

A total of sixty-six (66) primary health care centres with their corresponding managers participated in this study. The health managers were essentially similar socio-demographically. Majority of the respondents were in the fourth decade of life with the largest proportion 66.7% in the 41-50 years' age group, followed by 22.7% in the 31-40 years' age group and only 5.6% in the 51-60 years' age group. 15 respondents with 4 males and 11 females, 44 respondents with 14 males and 30 females and 7 respondents with 2 males and 5 females in the age groups 30-40, 41-50 and 51-60 years respectively.

Most of the health managers fall within the age group of 41-50 years but all those in the age group 51 - 60 years had had good knowledge of essential drugs and adequate availability of essential drugs in their health facilities.

The health managers generally had poor depth of knowledge of essential drugs. The mean knowledge score for the knowledge of essential drugs by the health managers was 36.44%. About 42.4% of the health managers had good knowledge while the remaining 57.6% had poor knowledge of essential drugs.

Looking at the different components of knowledge of essential drugs, only about 16.7% knew the correct definition of essential drugs and 83.3% did not know the meaning. Interestingly, more

than 75% of the health managers did not know the Pull and Push system of drug supply to the health facilities and only 48.5% of the health managers knew the criteria for the selection of essential drugs. On the other hand, 50.0% of the health facility managers knew First in First Out (FIFO) and 45.5% knew First to Expire First Out (FEFO) concepts. Knowledge of inventory control system was known by 81.8% while the remaining 18.2% did not know inventory control system and 28.8% had knowledge about the types of the inventory control system while 71.2% did not know the types of inventory control systems.

Regarding steps in the management of essential drugs, majority of the health managers (71.2%) admitted to dispensing of drugs, 66.7% storage and distribution of drugs, 48.5% selection of drugs while 47.0% admitted to procurement of drugs as the steps in the management of essential drugs. But a divergent findings was obtained from a study in Brazil which found weaknesses in local selection procedures and in the use of the National essential medicines lists (10). Similarly, another study in Guyana and Brazil found weaknesses in the selection process of essential drugs (10,11) respectively.

About 58% of the primary health care centres had average availability of essential drugs while the remaining 42% had poor availability of essential drugs. The average availability of the basket of drugs was 51.98% in all the PHCs. This finding was a little bit higher than mean availability of 48.8% obtained in a study in Delhi (12), Malaysia 40% (13) and China 38.9% (14). But this finding was far below the mean availability of 91% in Ethiopia (15), 82.5% in Sudan (16) and 68% in Swaziland (17). The drugs with a very high availability includes Artemether + Lumefantrine (ACT) tablets (90.9%), paracetamol tablets (87.9%), oral rehydration salts (ORS) (84.8%), Amoxicillin capsule/caplet (80.3%), Metronidazole tablet (80.3%) and Ferrous salts/folic acids oral tablets (83.3%). This finding was slightly below what was obtained in a study conducted in Ethiopia where Artemether + Lumefantrine (ACT) both for adult and child were 100% available (15) but an improvement when compared with a study conducted in North Central Nigeria with poor availability of essential drugs where only paracetamol tablets and syrup were available in sufficient quantities in all the three PHCs surveyed in Tafa LGA (18), in Burkina Faso where zero availability for Artemether + Lumefantrine tablets (19) was found but availability of ORS was found to be 80% in Ethiopia (15) and 55.6% in Tanzania (20).

The knowledge of essential drugs by those responsible for the day to day running of the primary health care facilities is very crucial as this current study found that the knowledge of health facility managers have significant effects on the availability of essential drugs in the health facilities ($p<0.001$).

CONCLUSION

This study demonstrated that availability of essential drugs in the primary health care centres was generally on the average and the knowledge of essential drugs among the primary health care facility managers was grossly poor. The health managers' knowledge of essential drugs has significant effect on the availability of essential drugs in the primary health care centres.

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