Original Research Article

Challenges in Providing Immunization Services amongst Community Pharmacists in South-South, Nigeria. A cross-sectional study

Abstract

Background: The primary aim of Community Pharmacists' participation in immunization is to contribute towards mitigating deaths associated with vaccine preventable diseases as well as expanding access to immunisation services. However, with the increasing Nigerian population, the global targets of reducing child mortality can significantly be achieved by periodically reviewing health systems performance to identify and address existing gaps.

Objective: The general objective of the study is to identify the challenges encountered by Community Pharmacists in providing immunisation services in Calabar Metropolis of Cross River State.

Method: A descriptive cross sectional study design was adopted for the study. Data were collected using a pre-tested semi-structured questionnaire from 68 community pharmacists which were selected using the purposive sampling technique. Data generated were synthesised and analysed using SPSS (version 20.0) and results were presented in frequency tables and charts. Fisher Exact test was used to test for association between variables at 0.05 alpha level.

Results: Results showed that most community pharmacies have the resources to participate in immunization, only a few however had immunization administration record sheets 7(11.3%) and immunization record cards for patients 4 (6.5%). The finding also showed that lack of training 55 (88.7%); low awareness by the public of immunization services provided by the community pharmacist 44 (70.9%) and storage of vaccines 39 (62.9%) were the prominent perceived challenges to providing immunization in the community pharmacy. The association between lack of time (p =1.000, Fisher's Exact test) and provision of immunization services was statistically not significant.

Conclusion: Addressing identified challenges is pivotal to increasing and expanding accessibility and utilisation of immunisation services especially amongst the populace in resource limited settings.

Keywords: *Immunization, Community Pharmacist, Community Pharmacy, Vaccine, Challenges.*

Introduction

Pharmacy-based immunization in Africa started in Tunisia in 1973.The government of Tunisia authorized Community Pharmacists to administer injections which included vaccines (Federation of International Pharmacists (FIP) [1]. In South Africa, specified training for pharmacists who wish to provide immunization services was made available since 1991. Following the training, they were granted permit to provide some set of new activities that included immunization services [1-2]. A global survey carried out by Federation of International Pharmacists (FIP) in 2016 shows that Community Pharmacists in Nigeria, South Africa, Senegal, Congo and Ethiopia are involved in advocacy for immunization. However, to be able to administer vaccines in South Africa, Congo and Senegal, the Community Pharmacist has to undergo mandatory immunization training. In the case of Senegal, the pharmacists and other healthcare practitioners utilize the community pharmacy to administer vaccines to the public. While in Congo, vaccine administration was carried out only by other healthcare practitioners such as nurses.

The global survey by FIP compared pharmacist immunization activities within the WHO regions. The survey shows that globally in 11.1% of the countries, pharmacists are involved in advocacy for immunization, 4.4% of the countries allow vaccination in community pharmacies and 2.2% of the countries allow pharmacists to administer vaccines [1]. In the Eastern Mediterranean countries, 6.7% were involved in advocacy for immunization, 4.4% allow vaccination in pharmacies and pharmacists were not allowed to immunize. In Europe, 28% are involved in immunization advocacy, 17.8% allow immunization in pharmacies and 11.1% allow pharmacists to immunize [1]. In the Americas, 13.3% are involved in immunization advocacy, 11.1 % allow vaccination in pharmacies and in 8.9% of the countries allow pharmacists to immunize. Finally, in the Western Pacific countries, 11.1% are involved in immunization advocacy, 6.7% allow immunization in pharmacies and 6.7% allow pharmacists to immunize [1].

The primary aim of community pharmacist participation in immunization is to contribute towards mitigating deaths associated with vaccine preventable diseases as well as expanding access to immunisation services. The community pharmacist operates in a neighbourhood setting that makes them accessible, convenient and do not require appointments to attend to patients [3]. Equally, the community pharmacist is a first contact health care provider because most patients consult them first before seeking further medical help from other health service providers in formal health institutions [4] and they enjoy a fair patronage from pregnant and nursing mothers with under-5 year children that are mostly the target of immunization services [5]. The community pharmacist being a first contact health care provider provides an opportunity to help identify children that have not started immunization and assist in linking them to immunization services. Similarly, in the U S especially among underserved population, CPs use medication history to know whether patients require immunization, they administer the vaccine or link the patient to immunization service in formal institutions [6]. Hence, CPs has the potential to reduce missed opportunity for immunization.

In some countries such as United States of America, Canada and Portugal, the community pharmacists are trusted and allowed to provide some immunization to the public [3]. The opinion of most patients based on their experiences of utilizing CPs for immunization services was positive. Majority of the populace who utilized CPs for immunization services were very satisfied. Similar studies in Saudi Arabia, Canada and the US showed high level of satisfaction by patients with immunization services they received from the community pharmacist [7-10].

Despite the relevance of CPs in improving and expanding access to immunisation services as documented in previous studies, notable challenges have been identified with pharmacy-based immunization. For instance, studies in the US reported that time and space constraint as well as training requirements are the major challenges that discourage the pharmacists from providing immunization services [11]. Additional challenges are the restriction imposed by law, for example in the US some states have specific age of patients allowed to be immunized by the pharmacist, the type of vaccines to be administered, and in other states physician's prescription is required [12]. However in Nigeria, there are no such restrictions, but very few evidence have shown that the populace are highly aware of the traditional duties of CPs such as dispensing, sales and supply of drugs but awareness about public health services such as immunization was reportedly low [13-14]. Hence, to improve performance of CPs in meeting the expectation of clients, there is need to identify challenges associated with pharmacy-based immunisation as well as recommend strategies to address the identified gaps.

The general objective of the study was to identify the challenges encountered by Community Pharmacists in providing immunisation services in Calabar Metropolis of Cross River State.

Methodology

The study was carried out in Calabar Metropolis. It's the capital of Cross River State with a population of over 2.8million persons. Out of this figure, Calabar Metropolis consist of about 439,768 people and 74,580 households [15] . Based on the annual population growth rate of 2.8, the projected population is about 587,530 currently. The metropolis also comprise 2 LGAs with 22wards (i.e. 10 wards for Calabar Municipality and 12 wards for Calabar South). The metropolis is bounded by Calabar River to the west, Akpabuyo Local Government Area to the east, Odukpani Local Government Area to the North and Atlantic Ocean to the South [16-17]. The public health facilities in Calabar are the University of Calabar Teaching Hospital (UCTH), General Hospital and about 50 primary health centres which provide immunization services [18]. It has been documented that there are 96 registered Community Pharmacies (CPs) distributed within the metropolis [19].

The design adopted for this study is a descriptive cross-section study design. The population of the study comprised all the licensed community pharmacists that registered the 68 community pharmacies empowered legally to carry out pharmaceutical services in 2017 within Calabar metropolis. The sample used for the study was the 68 community pharmacists that registered the 68 community pharmacies in the study area. Purposive sampling technique was used to sample the 68 respondents for the study. Availability of study participants, registration of community pharmacies and enthusiasm to participate in the study were top eligibility criteria for selection of study participants. Data were generated using a pre-tested semi-structured questionnaire which was self-administered to the respondents after establishing its reliability and validity. The questionnaire was subjected to face validation and Cronbach's Alpha test with the aid of Statistical Package for Social Sciences (SPSS) software (version 20.0) was used to test for reliability. A reliability index of 0.73 was obtained indicating that the Cronbach's Alpha test value falls within the acceptable range which makes the research instrument suitable for use [20]. The data elicited from the respondents were entered, synthesized and analysed using SPSS (version 20.0) and subjected to descriptive statistics. Results were presented in frequency tables and charts. Fisher Exact test was used to test for association between variables at 0.05 alpha level. Informed consent was duly sought and obtained from the study participants verbally. Participants who showed enthusiasm to participate in the study were selected and interviewed. Anonymity and confidentiality of information generated from the respondents as well as academic integrity were maintained throughout the period of survey.

Results

Socio-demographic characteristics of respondents

Of the 68 copies of questionnaire distributed, 62 were completed and returned giving a response rate of 91% .The result in Table 1 showed that 43 (69.4%) respondents were males while 19 (30.6%) were females. Most respondents 49 (79.0%) were less than 40 years of age, 34 (54.8%) were single, 36 (58.1%) have been in practice for between 1-5 years and 53 (85.5%) had B.Pharm as the highest qualification.

Availability of resources for immunization services

As shown in Table 2a, most of the community pharmacies for the study were supervised by at least two pharmacists 29 (62.9%).Community pharmacies that have three or four community pharmacists were 21(33.9%) while only 2 (3.2%) of the community pharmacies have five or more community pharmacists. Some of the community pharmacies 28 (45 %) have between four to six assistants working for them, while 19 (30.6 %) of community pharmacies have one to three assistants and 15 (24.2%) have seven and more assistants. All the community pharmacies have refrigerators 62 (100%), while majority have consulting rooms 61 (98.4%), generators 61 (98.4%) and computers 55 (88.7%) but only some of them have ice packs 38 (61.3%). On the other hand, only few of the community

pharmacies have immunization administration record sheet 7 (11.3%), immunization record card 4(6.5%), immunization schedule 11 (17.7%) and thermometers to measure vaccine temperature 22 (35.5%). (Table 2b)

Perceived challenges of providing immunization services

Challenges to provision of immunization as indicated by the respondents were mostly; lack of training on immunization 55 (88.7%), low awareness by the public of immunization services provided by the community pharmacist 44 (70.9%) and storage of vaccines 39 (62.9) (Figure 1).

Table.1: Socio demographic characteristics of the respondents (n = 62)

Variables	Frequency	Percentage (%)
Sex		
Male	43	69.4
Female	19	30.6
Total	62	100
Age		
< 30	25	40.3
30-39	24	41.9
40-49	6	9.7
50 and older	5	8.1
Total	62	100
Marital status		
Single	34	54.8
Married	28	45.2
Divorced	0	0.0
Widowed	0	0.0
Total	62	100
Years of practice		
1-5 years	36	58.1
6-10 years	20	32.3
11-15 years	2	3.2
16-20 years	1	1.6
21 years and above	3	4.8
Total	62	100
Highest Qualification		
B. Pharm	53	85.5
M. Pharm	4	6.5
Pharm D	2	3.2

Fellowship (WAPGCP)	0	0.0
MBA	1	1.6
MPH	1	1.6
PhD	1	1.6
Total	62	100

Agbo et al [21]

Table 2a: Resources available for provision of immunization services in community pharmacies (n = 62)

Variables	Frequency	Percentage (%)
Number of pharmacists in a community pharmacy		
1-2 Pharmacists	39	62.9
3-4 Pharmacists	21	33.9
5 and above	2	3.2
Total	62	100
Number of assistants in a Community Pharmacy		
1-3 assistants	19	30.6
4-6 assistants	28	45.2
7 and above assistants	15	24.2
Total	62	100
Refrigerator for Storing Vaccines		
Yes	62	100
No	0	0.0
Total	62	100
Immunization Administration Record Sheet		
Yes	7	11.3
No	55	88.7
Total	62	100
Immunization Record Cards For Patients		
Yes	4	6.5
No	58	93.5
Total	62	100

Copy of Nigeria Immunization Schedule		
Yes	11	17.7
No	51	82.3
Total	62	100

Table 2b: Resources available for provision of immunization services in community pharmacies (n = 62)

Variables	Frequency	Percents (%)
Thermometer to Check Vaccines Temperature		
Yes	22	35.5
No	40	64.5
Total	62	100
Consulting Room		
Yes	61	98.4
No	1	1.6
Total	62	100
Generator		
Yes	61	98.4
No	1	1.6
Total	62	100
Computers		
Yes	55	88.7
No		11.3
Total	62	100
Ice Packs		
Yes	38	61.3
No	24	38.7
Total	62	100

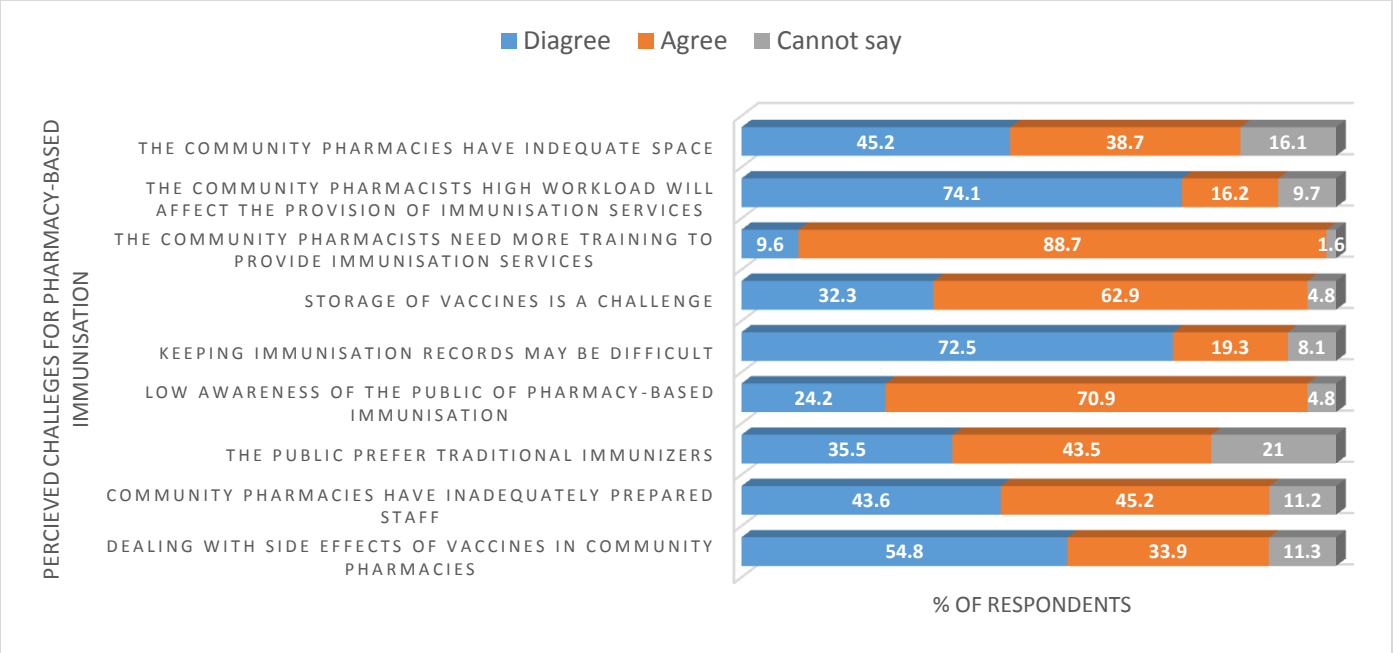

FIG 1. Perceived challenges to provision of immunization services

Test of association between lack of time for immunization activities in CPs and participation of community pharmacists in immunization services.

For lack of time, p-value according to Fisher's exact test = 1.000. The association between lack of time and provision of immunization services was not statistically significant (p: **1.000 > 0.05**). Therefore, the researcher rejected the null hypothesis (Table 3).

Table 3: Association between time constraint (challenge) and provision of immunization

	Provides Immunization services	Do not provide immunization services	P-value (Fisher's exact test)
Time Constraint:			
Agree	10 (100 %)	0	
Unsure	6 (100 %)	0	1.000
Disagree	44 (96 %)	2 (4 %)	

Discussion of findings

This study provided an insight on the resources available for CP to provide immunisation services and the challenges they encounter while providing such services. Although most community pharmacists in this study were interested in providing more immunization services, they would however require adequate resources and supporting structures to provide such services effectively. This assessment found out that all the community pharmacies have at least a pharmacist and some assistants that provides pharmaceutical services to the populace. They also reported that they have the capacity to store and maintain the potency of vaccines due to the fact that 98.4% of community pharmacies have generators while 61.3% have ice packs. This finding is comparable to a similar study in Lagos where 94% and 57.9% have generators and ice packs [22]. While most community pharmacies (88.7%) have computers used primarily to maintain drug stock records, only few have Immunization Administration Record Sheets (11.3%) and Immunization Record Cards for patients (6.5%). These results showed that community pharmacies poorly document immunization activities. Hence, their contributions to immunization delivery are difficult to ascertain. However, almost all CPs have consulting room (98.4%).Its availability could be propel by the fact that it is one of the requirements of PCN before registration of any premises to guarantee privacy and confidentiality of information elicited from patients while providing pharmaceutical care.

Respondents also indicated some challenges they perceive might hinder their effective participation in immunization activities. The major challenges observed in this study were – lack

of training, public awareness on pharmacy-based immunisation and storage of vaccines. However, from available literature, these barriers vary from country to country, except training requirement that seem to be a common obstacle. In this study 88.7% of respondents perceived that they require more training to provide immunization services effectively. This result compares to a study conducted in Canada where 92% of pharmacists believe that they require more training [23]. In the same study, 90% of pharmacists find lack of time as a barrier to community pharmacy immunization compared to the 16.2 % of community pharmacist in this study that perceived time constraint as a challenge [23]. A similar study in the US showed that time and space constraint as well as training requirements are the major challenges that discourages pharmacists from providing immunization services [11]. While in the US, space was one of the barriers as indicated above, results from current study reported that only 38.7% of respondents agreed that adequate space was a challenge. This finding is in agreement with a study conducted in Lagos, which showed that most community pharmacies (88.4%) have adequate space to provide immunization [24]. These variations are probably due to differences in practice characteristics. Community pharmacies in advance countries such as the US and Canada fill large volumes of prescriptions from various sources. In the US they fill more than four billion prescription annually combined with other pharmaceutical activities compared to Nigeria where community pharmacies fill only few prescriptions because most hospitals and clinics that are sources of prescription equally dispenses the medications [25].

The current study also reported that low awareness by the public on pharmacy-based immunisation was another major challenge as perceived by 70.9 % of the respondents. This result agrees with the result of a study in Yenogoa, Bayelsa State, Nigeria, where only 3% of the public were aware CPs provide immunization services [14]. Similarly, a study conducted in UK confirmed that the public have low awareness about immunization services provided by the community pharmacists [13]. The low awareness could be because provision of immunization service is not among normal roles associated with pharmacists. While literatures from other climes never found storage as a major barrier. Results from this study showed that about 62.9% of respondents perceived storage of vaccine to be a challenge. This finding reflects the poor state of public power supply in Nigeria.

Conclusion and recommendations

Pharmacy-based immunisation has been identified as a strategy to expand and improve access to immunisation services especially in resource-constraint settings. However, achieving global targets of reducing child mortality will require periodic review of health systems performance to identify and address existing gaps. The current study showed high resource availability for provision of immunisation services and pinpointed that lack of training, low awareness by the public of immunization services provided by the community pharmacist and storage of vaccines

were the challenges encountered during the provision of immunisation services. From the findings, it is therefore recommended that the Pharmacists Council of Nigeria in collaboration with relevant health authorities should organise training on the intricacies of immunisations for CPs to improve their skills and techniques in service delivery, sensitize the public of pharmacy-based immunisation and ensure that community pharmacies are situated in areas with constant power supply or have access to a sustainable alternative power supply to retain the potency of the vaccines.

CONSENT

As per international standard or university standard, respondents' written consent was collected and preserved by the authors.

ETHICAL APPROVAL

As per international standard or university standard, written approval was collected from Cross River State Ethics Research Committee and preserved by the authors.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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