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ASSESSMENT OF PHARMACY PRACTICE QUALITY USING AN INDICATOR BASED TOOL; A SURVEY OF COMMUNITY PHARMACIES IN ABUJA, NIGERIA

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ABSTRACT

Introduction: Community pharmacies offer a variety of services which differ widely in scope and content depending on legal and regulatory environment. There has been rapid evolution in pharmacy curriculum from product to patient oriented services. The global acceptance of pharmaceutical care philosophy led many countries to develop practice standards that improve quality of treatment and outcome based practice. In privately owned community pharmacies in poor resource settings like Nigeria, there have been concerns about quality of patient services. Good pharmacy practice standards are based on the principle of structure – process and outcomes. A number of indicators focusing on different aspects of pharmacy services are available, though none is universally accepted. So assessment tends to be based on suitability of tools in settings. Community pharmacies in Nigeria hold the potential of bridging the gap in access to quality medicines that is accessible and affordable. In addition they enable safe storage and dispensing of medicines, provide drug information, medication use advice and public health services as well as monitoring of treatment outcomes. **Methods**: A total of thirty three community pharmacies were evenly and randomly selected across ten districts of Abuja for the study. The various aspects of pharmacy services, dispensing, administration, drug storage, facilities and manpower were scored using pharmacy practice assessment tool. **Results/Discussion**: Majority of community pharmacies provided traditional dispensing (100%) and medication counseling (69.7%), many did not employ licensed pharmacy technicians (10.8%). Pharmacists were mostly young and inexperienced. The results of good pharmacy practice indicators showed that overall score for the five dimensions of quality was average. This suggests that quality of services was less than acceptable. The dispensing, storage, manpower and administrative processes needs improvement if they are to meet up with standards of good pharmacy practice. **Conclusion**: The quality of pharmacy services is below the standards that can be considered to be good pharmacy practice.

KEYWORDS: Community pharmacy, quality, pharmacy practice, assessment.

INTRODUCTION

Community pharmacies in Nigeria like in all parts of the world provide a range of healthcare services, though there are wide variations in content and scope arising from legislations, policies and regulatory environment. There are also inter country variations in the level of integration of public and privately owned healthcare facilities, it should however be noted that services in community pharmacies have been expanding in scope and content over the last few decades. The launch of pharmaceutical care philosophy[1] and its subsequent global acceptance had led many countries to develop programs and policies towards improving standards of pharmacy practice.

The pharmacist council of Nigeria, the government agency responsible for determining standards of training of pharmacists and also regulation of pharmacy practice provided guidelines on good pharmacy practice standards expected in all healthcare establishments in the country irrespective of ownership structure. Private community pharmacies are among the largest group of healthcare facilities that provide regulated medicines to the population, and are typically found in all neighborhoods' in urban and a few rural areas. They represent in many areas the only source of medication in the community, so delivery of quality services at this level will in no small measure be most beneficial to patients and public health.

The concept of quality has received diverse definitions and most of them used varying criteria for its assessment. For instance, quality was defined as "the extent to which the care provided within a given economic framework achieves the most favourable outcomes when balancing risks and benefits".[2] It was earlier noted that "quality of care consist of the application of medical science and technology in a way that maximizes benefits without correspondingly increasing risks" i.e. quality was considered within the context of favourable balance between risks and benefits.[3] Another definition of quality healthcare was said to "consist of proper performance (according to standards) of intervention that are known to be safe and affordable to the society in question and have the ability to produce an impact on mortality, morbidity, disability and malnutrition".[4] These definitions and many others focused on achieving beneficially desired outcomes for patients who utilize care services.

Over the last decade there have been efforts towards integrating pharmaceutical care philosophy into pharmacy practice in both private and public health facilities in the country. Many experts believe that this effort has only limited success particularly in privately owned healthcare facilities where lack of enabling structure and little regulatory enforcement allowed private sector health providers to concentrate on only product supply and dispensing. The critical role pharmacist play in healthcare delivery was recognized by World Health Organization[5] when in collaboration with International Pharmaceutical federation (FIP) developed guidelines for good pharmacy practice. In the year 2000 WHO launched the "seven star pharmacist" concept which clearly outlined seven responsibilities for the pharmacist in future health roles.[6] These initiatives along with many others recognized the role pharmacists in community settings can play to improve patient therapy outcomes.

In other to achieve the objectives of good pharmacy practice; assessment must recognize the critical roles played by structure – process – outcome paradigm. So quality criteria would typically emphasize these variables and the relationships between them.[7,8] It was also noted that structure and process measures, only indicate pharmacy systems capacity to deliver quality care, while outcome assessments measure actual performance.[9] It is often difficult to establish direct link between structure or processes and patient outcomes, because pharmacy service is only one of many components of care that affect healthcare outcomes. So quality may be assessed by the totality of all processes by which service is delivered, those structures and processes are not universally applicable in all practice settings.

A number of indicators are available for assessing quality of service delivery and examples of tools include quality of care,[10] measurement of medication use,[11] monitoring of national drug policies[12] and measurements of drug prices[13] etc. A number of indicators used in many studies specifically assess only aspects of pharmacy practice and not the whole spectrum of services.[14,15] There is currently no internationally accepted indicator(s) for assessing good pharmacy practice, so evaluation tend to be based on applicability of specific tool in a setting.[16] Community pharmacies are no longer expected to be providers of medications alone, but must also navigate through the structural and process factors to ensure that patients achieve best therapy outcomes. Assessment of good pharmacy practices in community pharmacies offer potential not only for regulatory reasons, but also for quality improvement purposes.

METHODS

Setting: Community pharmacies the Federal capital territory Abuja constitutes the largest network of sources of medicines for the population. They could be found in shopping malls, corner shops and all residential neighbourhoods of the city.

Study areas: This study was carried out in thirty three community Pharmacies in the Federal capital territory, Abuja. Three Pharmacies were selected in each of the ten districts of the city. The districts included Wuse, Maitama, Garki, Utako, Wuye, Asokoro, Nyanya, Karu, Kubwa and Kuje.

Study design: This was a cross sectional survey design using information obtained from community Pharmacies using a pharmacy practice assessment tool (Trap *et al*, 2010).

Inclusion criteria

- The community pharmacy and Pharmacist must be registered with the Pharmacist council of Nigeria.
- There must be a current practicing license.
- Informed consent.

Data collection: In each of the selected districts a public health facility was used a reference point and three community pharmacies were randomly selected within a one kilometer radius for the study. The superintendent pharmacist and/or the most senior administrative staff provided information on staff qualification, manpower, dispensing procedures while pharmacy layout, equipments, drug storage and general administration information were directly obtained by data collector. Good pharmacy practice assessment items were identified from administrative procedures and processes after which each item is scored accordingly.

Data analysis: This was done using the grading system of pharmacy practice assessment tool.

Informed consent: Administrative approval was obtained from the management of selected community pharmacies.

RESULTS

Majority of community pharmacies largely perform traditional dispensing and medication counseling services with only a few providing additional cognitive pharmacy services (Fig.1).

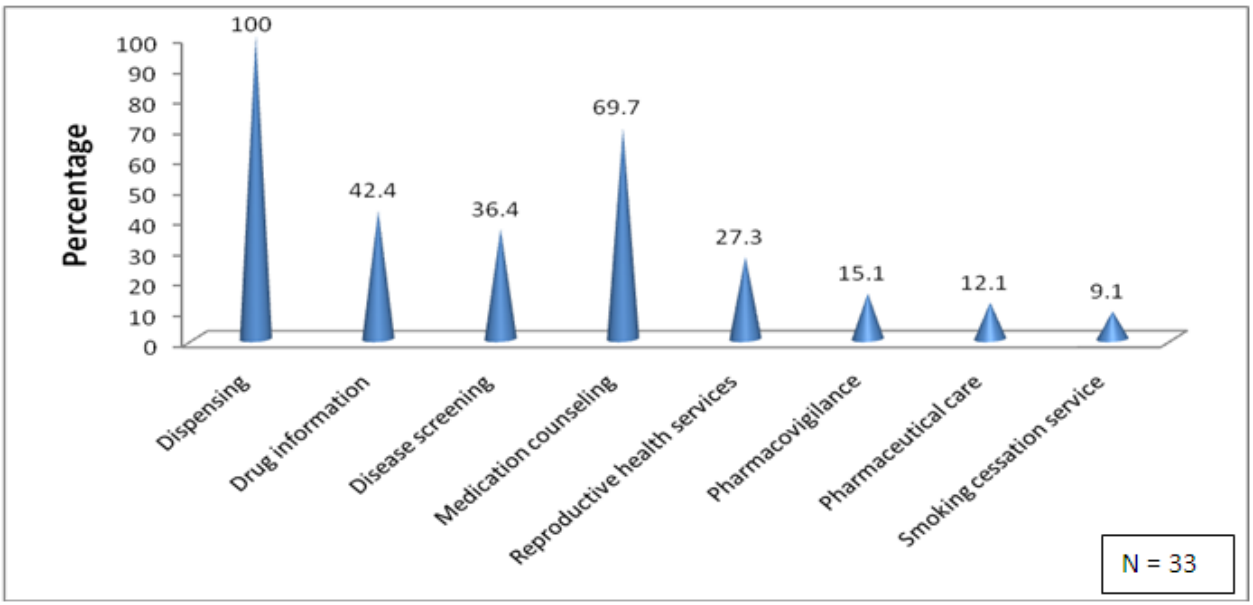

Fig. 1: Services provided in community pharmacies.

Most of support staff were nurses and community health workers (89.2%) with the remainder being the recommended pharmacy technicians (Fig. 2).

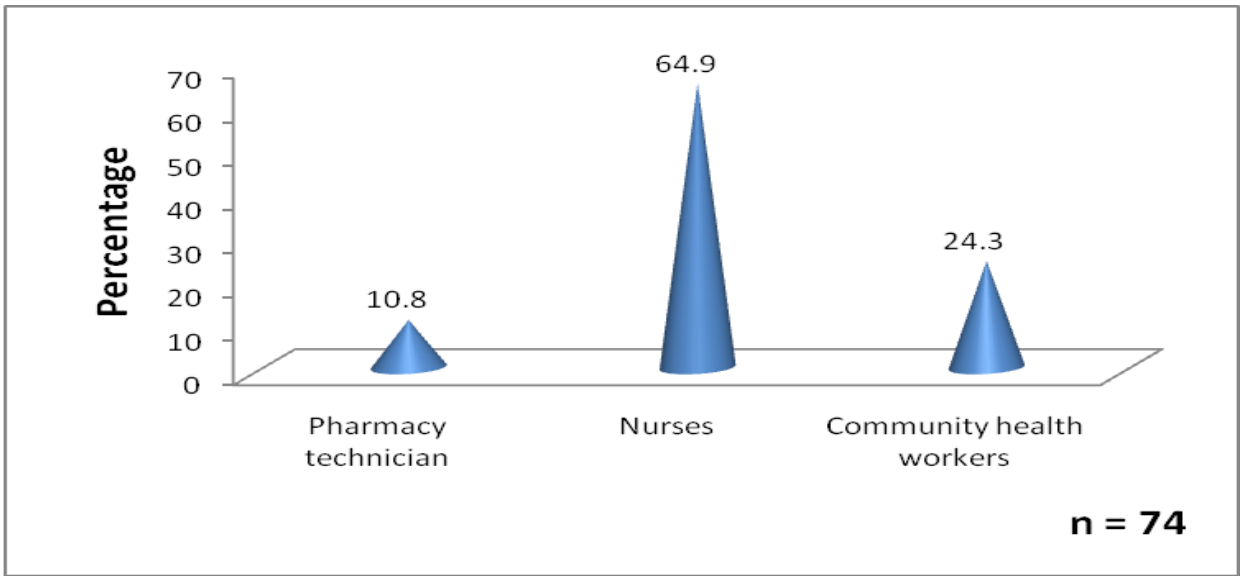

Fig. 2: Distribution of support staff.

More than two thirds of pharmacists have worked in community pharmacies for less than five years, indicating relatively young inexperienced professionals (Fig.3).

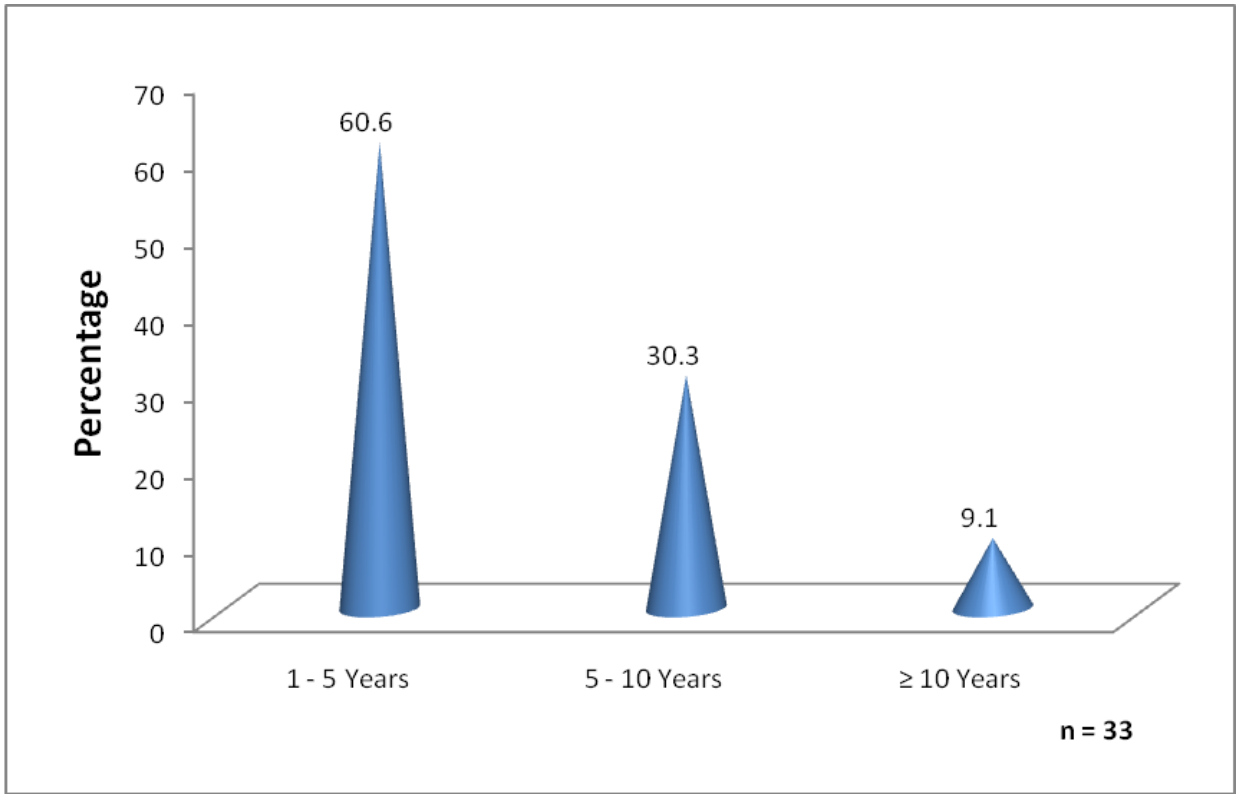

Fig. 3: Pharmacist years of experience.

The result showed that out of a maximum score of 5 for system dimension, the average score was 2.8 indicating an average performance (56%) which is low to be accepted as meeting standard of desirable quality.

Table 1: System.

	Score Max	Pharmacy (n = 33)
1. Is there a prescription record/computerized system available [Y = 0.1, N = 0]	0.5	0.5
2. Does the system provide for recording dates, patients, prescriber and drug names [Y = each score = 0.1, N = 0]	0.4	0
3. Are they records of old prescriptions [Y = 0.1, N = 0]	0.1	0
4. Percentage of correctly filled dispensary entries [> 75% = 1, < 75% = 0]	1	1
5. Is the pharmacy computerized [N = na, if yes answer item 6]	na	
6. Is the computerized system used for a)stock management b) FEFO, c) Labeling, d) patientInformation, e) recording prescriptions, f) patient medication profiles [Sum of Yes (1) to a – f divided by 6]	1	0.3
7. Does the pharmacy have a formalized stock management system based on stock cards orComputerized inventory system [Y = 0.5, N = 0]	0.5	0.5
8. Does the pharmacy use a stock management system for monitoring stock levels [Y = 0.5, N = 0]	0.5	0.5
9. Is a stock management system in place for calculating reorder levels [Y = 1, N = 0]	1	0
Subtotal score	**5**	**2.8**

This dimension relates to conditions of drug storage, environmental hygiene and quality maintenance. The score was 2.3 out possible 7 representing 32.8%, which is very low. This means that drugs are not being stored in optimal environmental conditions that preserves their quality or to guarantee their potency.

Table 2: Storage.

	Score Max	Pharmacy (n = 33)
1. Are there or have there be sign of pests [Y = 1, N = 0]	1	0
2. Is the dispensing area a) very clean and tidy, b) acceptably clean and tidy is the storage area c) very clean and tidy, d) acceptably clean and tidy [sum of a – d: a,c: 0.5, bd: 0.3, N = 0]	1	0.3
3. Is there a) toilet, b) are toilet facilities acceptable, hygienic and functional c) toilet paper, d) hand washing facilities, e) soap [sum of Y(1) to a – e divided by 5]	1	0.6
4. a) Are medicines protected from direct sunlight, b) Is the temperature monitored, c) is temperature regulated, d) is there any cold storage, e) are medicines stored in refrigerator, f)are medicines stored in the centre of refrigerator, g) is temperature recorded, h) is the roof appropriate with no leakage, i) is the storage area sufficient and adequate [sum of a – I (1) divided by 9 – na]	1	0.7
5. a) Are medicines stored on shelves, b) Are medicines stored systematically, c) Are the shelves labeled, d) does the storage cupboard have a lock, e) does the storage room have a lock [sum of Y (1) to a – e divided by 5]	1	0.4
6. a) Are open bottles labeled, b) are there lids of open containers, c) no storage on the floor, d) record for expired drugs, e) expired drugs stored separately, f) procedure for disposing expired medicines [Sum of Y (1) to a – f divided by 6]	1	0.3
7. Adherence to FEFO [Y = 1, N = 0]	1	0
Subtotal score	7	2.3

The pharmacist was not always on duty throughout the hours of operations and layout of the pharmacy does not allow for privacy during interactions. The score of 3.95 out of possible 6 [65.8%] is just above average.

Table 3: Service.

	Score Max	Pharmacy (n = 33)
1. Average number of prescriptions filled per day [Average number of prescriptions filled per day – no score]	na	
2. Total number of opening hours per week [0.25 if open for > 4hours per weekday, 0.5 if open for > 8 hours Per weekday, 0.25 if open on Saturday, 0.25 if open on Sunday]	1	0.5
3. Qualifications and work hours of pharmacy staff [0.7 for full time pharmacist, 0.2 for part time pharmacist, 0.3 for Trained assistants such as pharmacy technicians or nurses: if neither = 0]	1	0.7
4. How much working hours does the pharmacist spend in the pharmacy On average on a daily basis [Y(> 80% of opening hours) = 1, N (<80% of opening hours) = 0]	1	1
5. Patient accessibility to a)Privacy, b) seating, c) scale, d) drinking water, e) hand washing, f) soap, g) toilet, h) toilet paper [sum of Y(1) to a – h divided by 8]	1	0.25
6. Availability of testing for a) cholesterol, b) blood pressure, c) pregnancy, d) glucose level, e) asthma flow meter, f) prescription glasses [Sum of Y (1) to a –f divided by 6]	1	0.5
7. Health promotion and public health activities engaged in during the past year a) smoking, b) obesity, c) HIV/AIDS/TB, d) family planning, e) diabetes, f) school education, g) others [if > 2 = 1, if 1 = 0.5, if 0 = 0]	1	1
Subtotal Score	6	3.95

There was general underperformance on all aspects of ethical dispensing, proper labeling of medicines, cross checking of prescription and keeping of records were not generally carried out. The score of 3.85 [48.1%] out of possible 8 indicate that challenges in this aspect of good pharmacy practice

Table 4: Dispensing.

	Score Max	Pharmacy (n = 33)
1. Availability of information sources a) drug catalogues b) national formulary, c) EDL, d) internet access, e) handbook [sum of Y(1) to a – e divided by 5]	1	0.4
2. Total number of items in stock (different brands, strength and formulations) A)< 100, b) 100 – 200, c) 201 – 500, d) 501 – 1000, e) > 1000 [a = 0, b)= 0.25, c)= 0.5, d)= 0.75, e) =1]	1	0.75
3. Total number of brands of generic Cotrimoxazole tablets available (tablets or capsules) [number of available products > 4 = 1, 3 = 0.5, 2 = 0.25, 1 = 0]	1	1
4. Average dispensing time for six patients [< 30s = 0, 30 – 60s = 0.5, > 60s = 1]	1	1
5. Packaging materials used a) new bottles, b) dispensing envelopes, c) old bottles only used after washing, d) containers from manufacturers, e) patients do not bring own containers/bottles, f) only appropriate containers [sum of Y(1) to a – f divided by 6]	1	0.3
6. Dispensing equipments a) a spatula, b) non-filled empty labels, c) tablet counting tray, d) tablet not counted with bare hands, e) graduated Measuring flask [sum of Y(1) to a – f divided by 5]	1	0.4
7. Counter checked before dispensing [Y = 1, N = 0]	1	0
8. a) record or file for recording contacts with prescribers, b) last entry < 3 months [sum of Y(1) to a – b divided 2]	1	0
Subtotal score	**8**	**3.85**

The score for this dimension also showed average performance [56.2%], indicating that community pharmacies are failing to ensure zero error medication use process.

Overall score of 17.4 out of possible 34 [51.2%] represent average performance on adherence to good pharmacy practice standards.

Table 5: Rational drug use.

	Score Max	Pharmacy (n = 33)
Information sources a) patient leaflets, b) computer printout, c) access to computers, d) medicine handbooks [sum of Y (1)) to a – d divided by 4]	1	0.5
Of 10 patient interviews a) no discrepancy between prescribed and dispensed and knowledge about patients knowledge about, b) dose, c) frequency, d) duration, e) treatment cause, f) if other information provided. [sum of all 10 observations of Y(1) to a – f divided by total number of (1+0)*100: > 90% = 1, 89 – 75% = 0.75, 74 – 50% = 0.5, 49 – 30% = 0.25 < 30% = 0]	1	0.5
Out of 10 medicine labeling, percentage of medicines correctly labeled 1 0.5 a) name, b) strength, c) quantity, d) date, e) dose, f) patient name, g) facility name [Sum of Y(1) for a – g divided by the total number of (1+0)*100: > 90% 89 – 75% = 0.75, 74 – 50% = 0.5, 49 – 30% = 0.25, < 30% = 0]	1	0.5
a) Average number of medicines prescribed per encounter, b) generic prescribing, [a) <2: 0.5, > 2: 0, b) < 85% = 0.5, < 85% = 0]	1	0
Of 20 prescriptions percentage of appropriate dosage form [sum of 1/sum of (1+0)*100. 100% = 1, < 100% = 0]	1	0
Was the pharmacist involved in dispensing medicines initiated by pharmacist [Y = 1, N = 0]	1	1
Would the pharmacy sell antibiotic tablets/ capsules without a prescription [Y = 1, N = 0]	1	1
a)Is generic substitution practiced, b) Is it explained [a) Y = 0.8, N = 0, b) Y = 0.2, N = 0]	1	1
Subtotal score	**8**	**4.5**

Grand total score [Sum of scores for sections [A + B + C + D + E] 34 17.4

DISCUSSION

A quality pharmacy service whether it's at public and privately owned pharmacy is critical to the achievement of better treatment outcomes for patients. In many developing countries where public health services are not available or accessible to millions of people, community pharmacies represent the most vital source of drug supply. Evidence abound in literature that millions visit community pharmacies daily for medications, healthcare advice and drug information.[17,18] The emerging new roles for pharmacists are more patient focused, so application of good pharmacy principles will be critical to quality of pharmacy services. The principles of good pharmacy practice are generally in alignment with pharmaceutical care philosophy.[19] There have been reports of positive influence of community pharmacy

services on healthcare promotion,[20] safe use of medications [21] and reduced cost of medical care.[22]

The results showed that application of good pharmacy principles across the five domains considered were low to average. The score for dispensing and storage of drugs is particularly low which invites questions about quality of professional control of pharmacy services, this result is consistent with earlier studies.[14,23,24] Most community pharmacies do have poor systems, near absence of record keeping activities and little or no functional computerized stock management in place. The paper based stock control system found in most community pharmacies is not suitable for modern day good pharmacy practice. Furthermore paper based records makes drug and information retrieval cumbersome, it is inefficient and difficult to update. The score of 2.8 for system dimension is higher than 0.72 reported.[25] Similar trend was also observed for other dimensions of good pharmacy practice.

In most community pharmacies, the presence of pharmacists is rarely round the clock, so most of the pharmacist only services are generally not provided. This is makes it difficult for community pharmacies to provide individualized services as well as integrate modern pharmacy services with traditional dispensing and drug supply functions. It was also observed that dispensing practices did not reflect good pharmacy practice standards, challenges exist in areas of drug information, packaging and labeling of drugs, validating prescriptions for accuracy and keeping dispensing records. This is similar to earlier reports[26] where these challenges were noted and that non-pharmacists perform functions for which they lack competence.

Of particular concern is poor storage of medicines, unhygienic environment, poor detection, control and removal of expired deteriorated and unwholesome products. The implication is that the likelihood of expired and deteriorated medicines being dispensed is high particularly where much of the dispensing was largely carried out by support staff. Rational drug use principles were either not implemented or application was inefficient. This may be due to absence of pharmacist throughout operating hours, a reason that was noted by other studies.[27]

There value of community pharmacy services to the wellbeing of patients is in no doubt, however the services must meet up with basic standard of quality that ensures drugs are rationally dispensed.[28] The low score across all dimensions indicate that even in traditional dispensing and proper drug storage, community pharmacies here appear ill prepared to deliver quality services. The administrative structure, experienced manpower, requisite experience and work systems did not support the application of good pharmacy principles. There is need undertake re-engineering of community pharmacies so as to enable them meet up with requirements of good pharmacy practice and ultimately improve quality of service delivery.

CONCLUSION

Community pharmacies occupy an important place in the healthcare delivery system of Nigeria. The poor application of good pharmacy principles noted across all the dimensions of quality is a clear indication that a lot needs to be done to make their services meet up with the modern day standards of pharmacy practice. There is a need to better enforce regulations which mayl hopefully encourage the implementation of good pharmacy principles in community pharmacy

CONFLICT OF INTEREST - None.

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