Pharmaceutical care practices among registered community pharmacists in a state in southeast Nigeria: a frontier dynamics assessment

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Pharmaceutical care practices among registered community pharmacists in a state in southeast Nigeria: a frontier dynamics assessment

Abstract

Anambra State with over 5million people has prevalence of chronic diseases and drug related problems in a report from a survey by the Department of Epidemiology and Disease Control, of the State Ministry of Health in 2015. It underscored the pharmaceutical care practices assessment among community pharmacists since they are usually first point of call by patients. This study assessed pharmaceutical care practices among community pharmacists in a State in southeast Nigeria. We assessed pharmaceutical care practice among registered community pharmacists. The study was a cross sectional survey of pharmaceutical care activities of community pharmacists resident and practicing in the state. Data were analyzed for descriptive and inferential statistics. A P-value of <0.05 was considered statistically significant. The study determined the documentation practices of community pharmacist and know if they carryout referral, consultation, counseling and instrumental services. It identified the conditions or cases commonly encountered and managed their knowledge of pharmaceutical care, the influence of gender, age on the respondents', additional qualifications and the influence of years of experience on the respondents' score on the domains. Of the 87 community pharmacists who participated in the study 53.0(60.9%) were females. The mean years of community practice experience was10.71±6.9years. Only 45.89±20.57 community pharmacists' document patient care and pharmacy practice activities, 45.82 document patients' medication, and history taking, while 46.03±20.90 document pharmaceutical care process. The diseases commonly encountered were malaria 459.9±366.4, typhoid fever 437.0±75.20, hypertension 300.37±281, and diabetes mellitus 298.21additional qualification had significant impact on respondents awareness of pharmaceutical care, p=0.05. Respondents' age has no significant impact on the scores on pharmaceutical care domains. The result suggests that majority of the community pharmacists do not document their pharmaceutical care activities, which is essential in audit trail and a core component of pharmaceutical care. Malaria, typhoid fever, hypertension, and diabetes mellitus accounted for the highest disease burden in the area. They are aware of pharmaceutical care but lacked good knowledge of the technical aspects of the concept. The practices were not affected by respondents' gender, age, number of years of experience and additional qualifications.

Keywords: patient care, healthcare, pharmacy practice, pharmaceutical care, community pharmacy, community, pharmacist, Nigeria

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Introduction

Healthcare delivery system worldwide has witnessed gradual and remarkable growth in pharmacy practice over the past decades.[1] Pharmacy practice has become more sophisticated. Some roles have been changed and new roles introduced. There has been a shift from a product-oriented professional practice of pharmacy to a more patient focused one, that is, pharmaceutical care; one that emphasizes shared responsibility between the patient and pharmacist for optimal drug therapy outcomes.[2] Pharmacists now employ innovative patient care strategies such as pharmaceutical care to manage and control chronic diseases, infectious and non-infectious diseases, medication and therapy related problems, drug abuses, drug misuse, drug addiction, antimicrobial resistance.[3] The philosophy of pharmaceutical care has been accepted worldwide as one of the primary missions of pharmacy profession.[2] Pharmaceutical care demands that all practitioners take full responsibility of drug therapy needs of their patients not just to dispense or sell medication only.[4] The traditional roles of pharmacist which involve preparation, dispensing and selling of medication have been extended to include pharmaceutical care in which a pharmacist co-operates with a patient and other healthcare professionals in designing, implementing, monitoring patient therapeutic outcome as well as managing and controlling many disease conditions and drug related problems common in the society.[4] Community and hospital pharmacists have a greater role to play in this direction.

Anambra State with its growing population density has witnessed high prevalence of chronic diseases such as hypertension (17% of its population) diabetes mellitus (15% of its population) asthma (10% of its population) Congestive heart failure, hepatic disease, renal disease, arthritis disease, 12%, 11%, 10%, 16% of its population respectively in a study documented by Department of Epidemiology and Disease Control, Ministry of Health Anambra State, 2015.[5]

In the report, the cases of malaria, typhoid fever, pneumonia, amoebiasis, diarrhea, fungal infection, urinary tract infections and helminthiasis, sexual transmitted infections and their associated antimicrobial resistance are on the rise on the daily basis. Medication/ drug related problems like drug abuse and misuse, drug addiction and drug induced- liver diseases, renal diseases, lung diseases, skin disorders etc. have raised to an alarming rate in the past three years. Mortality rate associated with these problems are growing as well on

daily basis. This health, medication/drug related problems could be attributed to social, 6 cultural, economic, environmental, personal, medical, pharmaceutical causes etc., and as such require a multi-disciplinary approach in their control and management. There is the urgent need to assess the state of pharmaceutical care practices among registered community pharmacists in the state, knowing the role that pharmaceutical care plays in disease control and management. Although a related study had been carried out across the state.[6] However, they did not documentation pharmaceutical care activities as a primary/core activity and as an evidence that it is done; secondly, the common cases or diseases prevalent in the state that can be managed and controlled through pharmaceutical care. More so, pharmaceutical care practice is evolving in the state and there is always need to assess its state with time. This study assessed the state of pharmaceutical care practices among registered community pharmacists in the state to generate evidence based data for interventions and upgrade of services.

Methods

Study area

The study was carried out in Anambra state. The state is situated in the south eastern part of Nigeria. It has an area of 4, 844 km^2 (1, 870 square miles). There are 21 local government areas in the state with a population of 4, 055, 048 people (2006 census). The state is divided into three senatorial zones namely the south, the north and the central senatorial zone. The capital and seat of government is Awka. Onitsha and Nnewi are the biggest commercial and industrial cities respectively. Major languages are Igbo and English. Occupation of the people includes farming, trading, transportation and civil service.

Inclusion criteria

Respondents included in the study were only registered community pharmacists in the state for the year 2015.

Exclusion criteria

Those without full pharmacist license were excluded from the survey.

Study design

The study was a cross- sectional descriptive survey.

Sampling technique and Sample size determination

One major town was randomly selected from each of the three senatorial districts in the State. In each of the towns of the senatorial districts, all the registered community pharmacists who gave their informed consent and met the inclusion criteria were used to increase reliability.

Study period

The study lasted from January to September 2017.

Data collection instrument

A structured and validated questionnaire which was self-administered was used to collect data from the respondents.

Development of questionnaire

The frame work of the Behavioral Pharmaceutical Care Scale (BPCS) by Odedina et al.[7] was used for developing the questionnaire. A 55-item questionnaire was designed with five proposed domains namely: demographics and other characteristics of the respondents, direct patient care activities/current pharmacy practices at the community pharmacies, referral, consultation and instrumental activities, conditions and cases of diseases or disorders encountered; and exploring the awareness of pharmaceutical care. The questionnaires were checked for face content and construct validity by clinical statisticians.

Instrument validity and reliability

The internal consistency of the instrument and each of the domains was calculated to obtain the reliability estimates of 0.924 for the whole questionnaire and 0.916, 0.840, 0.992, 0.949 and 0.945 for the five domains respectively using Cronbach's Alpha Test. Item analysis was also performed. Factor or component analysis was performed using principal component analysis, employing varimax rotation with Kaizer normalization. Reliability of the entire instrument and each of the domains were assessed using Cronabach's Alpha Test. To assess construct validity, two pairs of items were chosen from two domains, items of each pair was observed to be related to and dependent on each other. Convergent correlation of these items determined using Pearson correlation was computed to determine the validity of the instrument construct.

Questionnaire administration and collection

A structured and validated questionnaire with a consent form was self-administered to the respondents in their pharmacies who filled and submitted back to the researcher for analysis same.

The data was analyzed using SPSS version 20.0 computer software. Quantitative variables were summarized using descriptive statistics. Categorical data were expressed in percentages, while continuous data were expressed in mean and standard deviation. Chi square test, T test, ANOVA and Pearson's correlation, were used to test hypotheses (i.e. association between categorical variables with $p<0.05$ as statistically significant).

Ethical consideration

Ethical approval was obtained from Nnamdi Azikiwe University Teaching Hospital Research and Ethics Committee before commencement of the study. Respondents were not asked for any form of identification such as name, address and phone number. Information was obtained in state of anonymity and they were informed of the confidentiality of their responses.

Results Tables 1–11

Table 1 Demographic characteristic of the responden

Variables	N	%
Gender		
Male	34	39.1
Variables	**N**	**%**
Female	53	60.9
Age		
20-30years	8	9.2
31-40years	48	55.2
41-60years	29	33.3
>60years	2	2.2
Other Qualifications		
Pharm D	7	41.2
M. Pharm	3	17.6
MSC	5	29.4
WACP	2	11.8
Member of ACPN		
Yes	84	96.6
No	3	3.4

Table 2 Descriptive statistics of respondents' score on documentation of pharmaceutical care activities

	N	Min	Max	M	SD
Direct patient care/current pharmacy practice	87	0	100	45.89	20.57
Medication/patient history taking	87	0	100	45.82	20.79
Pharmaceutical care processes	87	0	100	46.03	20.9

Table 3 Descriptive statistics of respondents' score on referral, consultation, counseling and other instrumental services

	N	**Min**	**Max**	**M**	**SD**
	87	20	100	58.82	15.98
Referral, consultation, counseling, patient education and instrumental activities					
Referral	87	0	100	42.96	21.18
Consultation	87	0	100	63.51	25.02
Patient education/counseling	87	25	100	68.39	21.55
Instrumental activities	86	25	100	72.09	16.95

Table 4 Conditions or cases commonly encountered and managed in the past one year

	N	**Min**	**Max**	**M**	**SD**
Malaria	41	6	2000	459.9	366.422
Typhoid fever	42	28	5000	436.98	752.015
Hypertension	43	10	1200	300.37	281.444
Diabetes mellitus	43	3	1000	298.21	261.239
UTIs	42	7	2000	257.55	375.896
Diarrhea	39	1	600	241.54	202.566
Arthritis	41	16	2000	240.12	430.585
Helminthiasis	42	6	1000	238.83	231.971
Amoebiasis	42	8	1000	231.07	238.639
Anaemia	43	2	3000	227.58	461.783
Candidiasis	43	9	700	205.93	178.479
Peptic ulcer disease	41	6	2000	205.63	322.582
STDs	42	2	1000	205.05	245.99
Pneumonia	42	2	500	192.17	156.367
Asthma	43	3	600	148.88	151.551
Heart Disease	36	2	1000	61.78	167.351
COPD	29	3	1000	61.59	184.833
Affective disorder	41	2	200	43.95	37.533
Infective meningitis	26	2	200	27.96	54.579
Renal Disease	28	1	120	22.5	30.083
Liver Disease	28	3	100	20.36	24.064

Table 5 Descriptive statistics of respondent's score on the awareness of pharmaceutical care

	N	**Min**	**Max**	**M**	**SD**
Exploring the awareness of pharmaceutical care	86	50	100	66.98	20.53

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Table 6 Influence of gender on the respondents' score on the domains

	Gender					
	Male		**Female**			
	M	**SD**	**M**	**SD**	**t(83)**	**P**
Direct patient care/current pharmacy practice	45.59	19.11	45.38	21.55	0.46	0.96
Medication history	45.67	19.99	45.26	21.49	0.09	0.93
Pharmaceutical care processes	45.44	19	45.59	21.95	-0.03	0.98
Referral, consultation, counseling, patient Education and instrumental activities						
57.43	15.78	59.22	16.04	-0.51	0.61	
Referral	40.63	18.61	43.75	22.74	-0.67	0.51
Consultation	66.18	25.1	61.27	25.28	0.88	0.38
Patient education/counseling	70.59	21.29	66.42	21.72	0.87	0.39
Instrumental activities	71.97	18.38	71.9	15.9	0.02	0.98
Exploring the awareness of pharmaceutical care	70	21.07	65.29	20.43	1.02	0.31

Table 7 Influence of age on the respondents' score on the domains

	20-30 Years		**31-40 Years**		**41 and above years**			
	M	**SD**	**M**	**SD**	**M**	**SD**	**F(2, 83)**	**P**
Direct patient Care/Current Pharmacy Practice	44.42	15.21	43.94	22.31	49.29	19.29	0.63	0.53
Medication History	42.71	15.78	43.75	22.08	49.81	20.11	0.87	0.42
Pharmaceutical care processes	47.5	15.58	44.27	23.13	48.33	18.91	0.36	0.7
Referral, consultation, counseling, patient Education and instrumental activities	63.44	12.24	57.24	16.71	60.17	16.04	0.66	0.52
Referral	41.41	16.68	42.06	22.91	44.58	20.15	0.15	0.86
Consultation	82.81	19.98	60.16	24.42	63.75	25.92	2.91	0.06
Patient education/counseling	85.94	18.22	66.67	20.36	66.67	23.06	3	0.06
Instrumental activities	70.83	21.36	71.99	15.87	73.06	18	0.07	0.94
Exploring the awareness of pharmaceutical care	75	17.73	64.26	20.19	69.67	21.57	1.28	0.28

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Table 8 Influence of additional qualifications on the respondents' score on the domains

	Pharm D		M.Pharm		MSc		WACP			
	M	SD	M	SD	M	SD	M	SD	F(3, 13)	p
Direct patient care/current pharmacy practice	60.2	23.05	60.71	15.57	78.21	19.08	75.89	1.26	1.04	0.41
Medication/patient history taking	58.33	25.96	61.11	12.73	77.22	18.36	76.39	1.96	1	0.42
Pharmaceutical care processes	63.57	18.88	60	21.79	80	20.92	75	0	1.01	0.42
Referral, consultation, counselling, patient Education and instrumental activities	66.07	25.61	62.5	15.21	82	11.51	62.5	3.54	0.97	0.44
Referral	63.39	26.38	52.08	21.95	78.75	19.57	53.13	30.94	0.99	0.43
Consultation	80.36	23.78	62.5	33.07	65	27.1	56.25	44.19	0.59	0.63
Patient education/ counseling	83.93	24.7	79.17	7.22	67.5	28.78	56.25	44.19	0.77	0.53
Instrumental activities	70.83	14.67	72.22	19.25	93.33	10.87	75	0	2.79	0.09
Exploring the awareness of pharmaceutical care	78.33	14.72	96.67	5.77	98	4.47	90	14.14	3.54	0.05

Pharm D= Doctor of Pharmacy, M. Pharm= Masters of Pharmacy, MSc= Masters of Science, WAPCP= Fellowship of the West African Postgraduate College of Pharmacists.

Table 9 Influence of years of experience on the respondents' score on the domains in the questionnaire (Pearson's Correlation)

	N	r	P
Direct patient care/current pharmacy practice	84	0.16	0.14
Medication/patient history taking	84	0.2	0.07
Pharmaceutical care processes	84	0.09	0.43
Referral, consultation, counseling, patient Education and instrumental activities	84	0.02	0.85
Referral	84	0.01	0.94
Consultation	84	0.05	0.65
Patient education/counseling	84	0.02	0.86
Instrumental activities	84	-0.01	0.96
Exploring the awareness of pharmaceutical care	84	0.11	0.32

Table 10 Direct patient care activities/current pharmacy practice at community pharmacy

	Very often	Often	Sometimes	Rarely	Never
	n(%)	n(%)	n(%)	n(%)	n(%)
Documented patients' information	6(6.9)	18(20.7)	29(33.3)	33(37.9)	1(1.1)
Documented patients' primary reason for visit	5(5.7)	18(20.7)	32(36.8)	30(34.5)	2(2.3)
Documented the history of present illness	5(5.7)	14(16.1)	36(41.4)	30(34.5)	2(2.3)
Documented history of past illness	3(3.4)	11(12.6)	37(42.5)	34(39.1)	2(2.3)

Table continued

	Very often	Often	Sometimes	Rarely	Never
	n(%)	n(%)	n(%)	n(%)	n(%)
Documented patients' family history	3(3.4)	11(12.6)	32(36.8)	40(46.0)	1(1.1)
Documented patients' social history	3(3.4)	13(14.9)	33(37.9)	35(40.2)	3(3.4)
Documented patients' medication history	3(3.4)	20(23.0)	28(32.2)	34(39.1)	2(2.3)
Documented patients' physical examination results	5(5.7)	16(18.4)	31(35.6)	34(39.1)	1(1.1)
Documented patients' laboratory test	4(4.7)	14(16.3)	32(37.2)	33(38.4)	3(3.5)
Documented patients' treatment plan	7(8.0)	15(17.2)	31(35.6)	33(37.9)	1(1.1)
Documented outcome of patients' treatment plan	4(4.7)	14(16.3)	34(39.5)	33(38.4)	1(1.2)
Documented patients' follow-up evaluation	3(3.5)	15(17.6)	32(37.6)	33(38.8)	2(2.4)
Documented patients' drug therapy problems	2(2.3)	16(18.4)	35(40.2)	32(36.8)	2(2.3)
Documented strategy to resolve DTP	3(3.4)	19(21.8)	32(36.8)	32(36.8)	1(1.1)

Table 11 Community pharmacists referral, and consultation activities

Variables	Very Often	Often	Sometimes	Rarely	Never
	n(%)	n(%)	n(%)	n(%)	n(%)
Documented discussion about DTP with other pharmacists	5(5.7)	9(10.2)	31(35.6)	39(44.8)	3(3.4)
Documented referrals made to other pharmacists	5(5.7)	9(10.2)	29(33.3)	40(46.0)	4(4.6)
Documented referrals to physicians	5(5.7)	13(14.9)	30(34.5)	37(42.5)	2(2.3)
Documented communication with physicians/ other providers	4(4.7)	11(12.8)	31(36.0)	39(45.3)	1(1.2)
Counselled and educated all patients	23(28.0)	19(23.2)	27(32.9)	12(14.6)	1(1.2)
Used consulting/counselling room	24(28.9)	25(30.1)	31(37.3)	3(3.6)	24(28.)
Double checked each prescription	30(34.9)	40(46.5)	13(15.1)	3(3.5)	30(34.)
Used appropriate information service	31(36.0)	36(41.9)	16(18.6)	3(3.5)	31(36.)
Maintained patient's case file	16(18.8)	13(15.3)	42(49.4)	12(14.1)	2(2.4)
Maintained patient's information confidential	35(41.2)	39(45.9)	10(11.8)	1(1.2)	35(41.)
Have you heard about the concept of pharmaceutical care	86(100)	-	-	-	-
Do you have consultation/Counselling room	86(100)	-	-	-	-

Table 12 The pharmaceutical care awareness

	Always	Sometimes
	n(%)	n(%)
How often do you provide pharmaceutical care?	37(43.0)	49(57.0)
How often do you make psychological effort to improve outcome?	29(33.7)	57(66.3)
How often do you inquire of patient's satisfaction?	27(31.4)	59(68.6)
How often do you participate in competence development?	25(29.1)	61(70.9)
How often do you provide general medical information?	28(32.6)	58(67.4)

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Discussion

The results showed that majority of retail pharmacists rarely document their direct patient care activities comprising of medication/ patient history taking and pharmaceutical care process (consisting of assessment, pharmaceutical care plan and follow up).[8] The result is similar to a study conducted on pharmaceutical care documentation among hospital pharmacists in tertiary hospitals in the state.[9] The result is also consistent with research work carried out in Benin City.[10,11] This outcome is consistent with a similar study conducted among retail pharmacists in the state.[6] Least mean score on referral services could be attributed to lack of referral structures in the state for community pharmacists and unnecessary rivalry among healthcare professionals in the state.[12] A similar study in India indicated that pharmacists had limited knowledge of pharmaceutical care and its essential concepts[13] and in Kaduna northcentral Nigeria.[14] This underscores the evolving duties of pharmacists[15] and the importance of continuing education.[16–18] Desired outcomes are achievable through monitoring, evaluation, planning and continual training.[19,20]

The results showed that out of the diseases prevalent in the state, majority of retail pharmacists attended mostly to malaria followed by typhoid fever, hypertension diabetes mellitus, diarrhea, arthritis, helminthiasis, amoebiasis, anaemia, canadidasis peptic ulcer disease while renal diseases and liver diseases are least attended to within the year reviewed. This was a reflection of the disease burdens prevalent among the people. Malaria has the highest burden and is endemic here like in other parts of sub-Saharan Africa.[21–24] The diseases are predominantly associated with poor hygenic conditions, ageing and life style modifications[25–27] and resource limited environment.[28] Since most of the respondents rarely document, the result may not be a true picture of what they claimed to have done. The results showed that majority of the respondents are aware of pharmaceutical care. It is consistent with a similar study conducted earlier in the state,[6] and other parts of Africa like Khartoum.[29,30] Respondents' gender does not affect these activities. Pharmaceutical care consultations are evolving across countries from products dispensing to varying levels of consultations.[31–35]

Older pharmacists with requisite knowledge, skills and competences in this area affect these activities significantly.[12] However, results obtained here was different. Majority of the older pharmacists do not practice pharmaceutical care due to lack of remuneration and time contrary to what is obtainable in Unites States and Europe.[36–39] However, in places where reimbursement has been a challenge, following a systematic process has been the way out.[40] For others it could be due to lack of exposure to knowledge and skills required to practice it early enough. The younger pharmacists with early exposure to pharmaceutical care concept might not have enough well equipped older pharmacists practicing it to train them. The challenges varied from countries based on the level of development, education and funding.[41–44]

Conclusion

In conclusion, we gathered that majority of retail pharmacists in the state rarely document their pharmaceutical care activities; sometimes carry out referral, consultation, counseling/patient education and other instrumental activities although majority are aware of pharmaceutical care within the year reviewed. The study showed that pharmaceutical care activities in the state is not affected significantly by gender, age, years of experience and additional qualifications of the respondents.

Author contributions

NOI and OBO designed the study, NOI collected the data, NOI, OBO, UIHE, and MBC analyzed and interpreted the data and wrote the manuscript. OBO proof read and corrected the entire manuscript.

Conflicts of interest

The authors have none to declare. The two authors are aware of the submission.

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