African Journal of Pharmaceutical Research & Development

Vol. 10 No.1; pp. 022-031 (2018)

KNOWLEDGE, ATTITUDE AND PRACTICE OF PHARMACEUTICAL CARE AMONG PHARMACISTS IN A STATE IN NIGERIA

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ABSTRACT

Pharmaceutical care is a patient centered, outcome oriented practice, requiring collaboration between pharmacists and other care givers. In Nigeria, pharmacy practice is still majorly product based. Although several studies have been carried out on knowledge, attitude and practice of pharmaceutical care in Nigeria, there are no published studies from Delta State as at the time of this study to the best of our knowledge. This study evaluated the knowledge, attitude and practice of pharmaceutical care among pharmacists in Delta State. This was a prospective study using a structured, pretested and self-administered questionnaire to 120 pharmacists that gathered in Abraka, in August, 2012. The four part Questionnaire evaluated demographics of respondents, knowledge, attitude and practice of pharmaceutical care. Data obtained were analyzed using SPSS Version 17. Descriptive and chi square statistics were obtained. A P value of less than 0.05 was considered statistically significant. Of 120 questionnaires administered, 110 were returned giving a response rate of 91.7%. Nearly half (41.8%) were aged 31-40 years, more than half (59.1%) were males; half (50.0%) had Bachelor of Pharmacy as sole degree. Majority (84.5%) were married, about half (55.5%) were practicing in hospitals; a third (37.3%) had been practicing for 1-10 years. Knowledge was poor 49.1%, attitude was weak (57.3%), with male respondents having a more positive attitude than females (χ^2 = 12.882, *P = 0.002, p < 0.05). Practice was poor (50.8%). Knowledge, attitude and practice of pharmaceutical care in this study were poor; attitude was more positive in males than females. Factors militating against practice ranged from fear of change, lack of standards and space. Educational intervention such as the Mandatory Continuing Professional Development and attitudinal change are recommended to improve the knowledge and practice of pharmaceutical care.

KEYWORDS: *Knowledge, attitude, practice, pharmaceutical care, pharmacists*

INTRODUCTION

Healthcare systems worldwide witnessed gradual and remarkable growth in pharmacy practice over the past four decades [1], while some of the traditional roles of pharmacists have changed, new ones have been introduced, resulting in a shift from a product focused professional practice to a more patient focused one, that is, one that emphasizes shared responsibility between the patient and the pharmacist for optimal drug therapy outcomes. [2] Therapy with prescribed medicines is a Collaborative process involving the patient, the physician, the pharmacist and other health care providers. [3] Following the adoption of pharmaceutical care philosophy as the primary mission of the pharmacy profession, pharmacists are now employing avant-garde patient care strategies such as pharmaceutical care.

The philosophy of Pharmaceutical Care focuses on the responsibility of pharmacists to meet all of the patient's drug related needs, and assist the patients in achieving their goal through collaboration with other health professionals. [4] Pharmaceutical care is defined as "the responsible provision of pharmacotherapy for the purpose of achieving

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definite outcomes that improve or maintain a patient's quality of life. [3] It is a patient- centered, outcomes oriented pharmacy practice that requires the pharmacist to work in concert with the patient and the patient's healthcare providers to promote health, to prevent disease, and to assess, monitor, initiate and modify medication use to assure that drug therapy regimens are safe and effective. [5] The goal of Pharmaceutical Care is to optimize the patient's health-related quality of life, and achieve positive clinical outcomes, within realistic economic expenditures. [6]

Pharmaceutical care has been introduced and adopted in many countries like the USA and Canada, and studies have shown improved patient-outcomes. [7-21] Pharmaceutical care concept is still evolving in Nigeria where pharmacy practice is majorly product based especially in hospitals, as the practice settings in most establishments have not been adapted for patient counseling. In a survey involving 1500 pharmacists [22] nearly all the pharmacists (96%) believed pharmaceutical care would enhance patient's appreciation of the pharmacist, and 84% reported their intention to practice pharmaceutical care even if there is no additional income. The attitude rating varied among pharmacists from different practice areas and only pharmacists' professional experience appeared to have a significant influence on attitude scores with scores varying with the level of professional experience. In 2013, a study [23] of the attitude of hospital pharmacists towards pharmaceutical care reported that hospital pharmacists in Nigeria showed a negative attitude towards pharmaceutical care, while a survey of 120 pharmacists in Ogun State [24] reported that most of the participants were aware of the pharmaceutical care concept and the need to incorporate it into their practice but none of them had ever fully implemented it. The Pharmacists Council of Nigeria has made some efforts in sensitizing pharmacists on the concept of pharmaceutical care through their mandatory continuing education but more still needs to be done in other to bring pharmacy practice in Nigeria at par with other developed nations. [25]

While there are numerous studies on knowledge, attitude and practice of pharmaceutical care in Nigeria and elsewhere in the world [26-43], there is a paucity of data from Delta State, Nigeria. The objective of this study therefore, was to assess the knowledge, attitude and practice of pharmaceutical care among pharmacists in Delta State.

MATERIALS AND METHODS

Study design

A prospective study involving the use of structured, self-administered questionnaires was carried out on 120 practicing pharmacists that gathered in Abraka, Delta State, Nigeria, to evaluate their knowledge, attitude and practice of pharmaceutical care.

Setting

The study was done in Abraka, home to the main campus of the Delta State University.

Delta state has a population made up of 2,069,309 males and females 2, 043,136. [44] Delta State was created on 27th August, 1991, with Asaba as the capital and is one of the oil producing states of the country. Other mineral deposits in the state include lime, kaolin, laterite and clay. The state is situated in the South South Geo-Political Zone of Nigeria, with Warri as the biggest commercial city. Abraka town is centrally located in Delta State, and has been host to several educational institutions since the colonial period. [45]

Study population

The study population comprised 120 pharmacists that came from all over Delta State to attend a scheduled meeting of the Pharmaceutical Society of Nigeria in Abraka.

Sampling method

Well structured, self-administered questionnaires were randomly distributed to 120 pharmacists that gathered for their general meeting. Consent to undertake the study was sought and obtained from the leadership of the Pharmaceutical Society of Nigeria (PSN). Also, informed consent was sought and obtained from respondents before they received the questionnaires. A pretest was carried out randomly among 15 pharmacists in Asaba, after which minor errors in typing and outlay were corrected, before the corrected questionnaires were administered to the general body.

Data collection and analysis

A total number of 120 questionnaires were self-administered to pharmacists. The questionnaire was made anonymous, and structured into four parts, the first seven questions were on the demographics of the participants, 5 questions were designed to test participants' knowledge of pharmaceutical care, 9 were to determine their attitude and 7 were to evaluate their practice of pharmaceutical care. One question was to determine reasons for not implementing pharmaceutical care in their practice, while the last question was on recommendations on how to

implement pharmaceutical care practice in the state. The questionnaires contained open and closed questions. The essence of the open questions was for the respondents to volunteer additional information in the desired areas. The questionnaires were collated, and data fed into the computer and analyzed using Statistical Package for Social Sciences (SPSS Version 17). Results were presented as frequency and percentage of variables. Chi Square statistics was used to test for level of significance of knowledge, attitude and practice. P-value of less than 0.05 was considered to be statistically significant.

Scoring Scale

The respondents' knowledge was scored as follows:

Correct definition of pharmaceutical care: Yes (5) marks, No (0) mark. Components of pharmaceutical care: All of the above: (20 marks), any of the options only (5 marks), none of the above (0 mark). Scoring scale: 0-50%, (Poor), 51-69 (Average), 70-100 (Good).

Scoring scale for practice of pharmaceutical care was: 0-50%, (Poor), 51-69% (Average), 70-100% (Good). Scoring scale for attitude of respondents to pharmaceutical care was: 0-50% (Negative), 51-69% (Weak), 70-100% (Positive).

RESULTS

Out of 120 questionnaires distributed, 110 were completed and retrieved, giving a response rate of 91.7%. Majority of the respondents (41.8%) were aged 31-40 years; 21-30 years were (15.5%), 41-50 years (25.5%), and 51-60 years constituted 12.7%. Those aged 60 years and above were 4.5%. The mean age of the study participants was 40.4 ± 10.5 years. There were more males (59.1%) than females (40.9%). Majorities (84.5%) were married, singles were (13.6%), divorcees and widows were (0.9%) respectively. Exactly half (50.0%) had Bachelor of Pharmacy as sole degree, Masters holders were 10.0%, Doctor of Pharmacy (25.5%), fellows of the West African Post Graduate College of Pharmacists (FPCPharm) (11.8%) and PhD (2.7%). More than half (55.5%) were working in hospitals, Community practice was (34.5%) Academia (5.5%), Ministry of Health (3.6%) and Industrial (0.9%). Majority (37.3%) had been in practice for 1-10 years, 11-20 years were (26.4%), and 21-30 years (18.2%). (Table 1)

Table 2 shows sources of knowledge of pharmaceutical care; most (46.4%) admitted that they were taught pharmaceutical care in pharmacy schools, 25.5% learnt about it while at the Doctor of Pharmacy programme, 14.5% read about pharmaceutical care from journals, 3.6% from the internet, 4.5% from conferences and seminars and 5.5% from other sources. When asked to rate their knowledge of pharmaceutical care, majority (33.6%) rated their knowledge as very good, on a 5 point Likert scale of Excellent, Very good, Good, Average and Poor. However, answers to knowledge questions revealed a gross knowledge deficit, with an average score of 49.1%. Nearly all respondents had heard of pharmaceutical care before (99.1%). More than half (61.8%) missed the right definition of pharmaceutical care, 36.4% got the right definition while 1.8% were not sure of the right definition. Other knowledge questions asked were: Which of the following is not a component of the philosophy of pharmaceutical care?

A. Social need
B. Patient centered care
C. Caring
D. Pharmacists responsibility
E. None of the above.
F. All of the above.

Only 44.6% of respondents knew all the components of the philosophy of Pharmaceutical care (Table 3).

There was an overall knowledge score of 49.1%. There was no statistically significant association between knowledge and demographics of demographics of respondents. When asked if they thought pharmaceutical care (PC) should be incorporated into pharmacy practice, more than half (55.5%) agreed, half of respondents (50.0%) willingly accepted to practice pharmaceutical care (PC). About a third (30.0%) subscribed to journals on PC, nearly half (44.6%) were interested in the incorporation of PC into their practice. About a third (37.3%) agreed that they attended professional conferences and seminars. More than one quarter (26.4%) agreed that PC was discussed at such meetings. More than one third (40.9%) agreed they were interested in knowing more about PC, while more than half (58.2%) were not sure. Overall, majority (57.3%) had weak attitude, less than half (41.8%) had positive attitude while few (0.9%) had negative attitude (Table 4). There was a strong positive association between sex and attitude at $\chi^2 = 12.882$, *P = 0.002, with males having a more positive attitude (55.4%) than females (22.2%) (Table 6). With regards to practice of Pharmaceutical care (PC), more than half (56.4%) said they were implementing PC in their practice then, about half (50.9%) monitored

improvement in patients' response to therapy, majority (60.9%) agreed that they often detected errors in patient prescriptions, more than half (57.3%) were involved in patient medication management, nearly half (44.6%) were involved in reviewing patient medications with physicians, about half (47.3%) documented their pharmaceutical care activities, few 15.4% agreed that they went on ward rounds with physicians while a quarter (28.2%) were involved in pharmacists ward rounds. Overall, level of practice of pharmaceutical care was poor (50.8%). (Table 5)

When asked reasons for not implementing pharmaceutical care, 22.2 % said pharmacists attitude was a barrier, 11.1 % said lack of standards was a barrier, majority (33.3%) said lack of space. Few (16.7 %) felt none of these reasons constituted a barrier, while another 16.7% said all these reasons hindered them from practicing pharmaceutical care (Table 7). When asked whether removing barriers to pharmaceutical care will make them practice pharmaceutical care, more than half (54.6%) said yes. Recommendations on how to improve practice of pharmaceutical care included pharmacists to try and acquire additional training in pharmaceutical care possibly by acquiring the Doctor of Pharmacy Degree (16.4%), pharmaceutical care to be taught in all schools of pharmacy (14.6%), documentation of pharmaceutical care activities (10.9%) and government backing for Doctor of Pharmacy programme and fellowship programme of the West African Post Graduate College of Pharmacists by way of approval and enhanced remuneration (31.8%).

Table 1: Demographics of Respondents; N=110

Variables	Values	Frequency	Percentage (%)
Sex	Male	65	59.1
	Female	45	40.9
Age (years)			
	21-30	17	15.5
	31-40	46	41.8
	41-50	28	25.5
	51-60	14	12.7
	> 60	5	4.5
Length of Practice (years)	<1	15	13.6
	1-10	41	37.3
	11-20	29	26.4
	21-30	20	18.2
	31-40	5	4.5
Marital status	Single	15	13.6
	Married	93	84.5
	Divorced	1	0.9
	Widowed	1	0.9
Area of practice	Academia	6	5.5
	Community	38	34.5
	Hospital	61	55.5
	Industrial	1	0.9
	Ministry of Health	4	3.6
Educational status	B. Pharm	55	50.0
	Masters	11	10.0
	Pharm. D.	28	25.5
	FPCPharm	13	11.8
	PhD	3	2.7

Table 2: Sources of Knowledge of Pharmaceutical Care

Source	Frequency	Percentage
B. Pharm School	51	46.4
Pharm. D. School	28	25.5
Journals	16	14.5
Internet	4	3.6
Conferences/Seminars	5	4.5
Others	6	5.5
Total	**110**	**100**

Table 3: Respondents knowledge of pharmaceutical care (N=110)

Variable	Frequency	Percentage (%)
Have you heard of pharmaceutical care before now?		
Yes	109	99.1
No	1	0.9
Sources of knowledge of pharmaceutical care		
School of Pharmacy	51	46.4
Pharm. D. School	28	25.5
Journals	16	14.5
Internet	4	3.6
Conferences/Seminars	5	4.5
Others	6	5.5
Definition of pharmaceutical care		
Agree	40	36.4
Disagree	68	61.8
Not sure	2	1.8
Which of the following are components of the philosophy of PC?		
Social need	8	7.3
Patient centered care	5	4.5
Caring	6	5.5
Pharmacist's responsibility	11	10.0
None of the above	31	28.2
All of the above	49	44.6
Total	**54**	**49.1**

Table 4: Attitude of respondents to Pharmaceutical Care

Variable	Agree (%)	Not sure (%)	Disagree (%)
Do you think pharmaceutical care should be incorporated into pharmacy practice?	61(55.5)	45(40.9)	4(3.6)
Would you willingly accept PC in your practice?	55(50.0)	52(47.3)	3(2.7)
Do you subscribe to journals on PC?	33(30.0)	72(65.5)	5(4.8)
Interested in the incorporation of PC into your practice?	49(44.6)	57(51.8)	4(3.6)
Do you attend professional conferences and seminars?	41(37.3)	67(60.9)	2(1.8)
Is PC discussed at such meetings?	29(26.4)	79(71.8)	2(1.8)
Are you interested in knowing more about pharmaceutical care?	45(40.9)	64(58.2)	1(0.9)
Total	**46(41.8%)**	**63(57.3%)**	**(0.9%)**

Table 5: Practice of Pharmaceutical Care by Respondents N=110

Variable	Yes (%)	No (%)
Are you currently implementing PC in your practice?	62 (56.4)	48 (43.6)
Do you monitor improvement in patients' response to therapy?	56 (50.9)	54 (49.1)
Do you often detect errors in patient prescriptions?	67 (60.9)	43(39.1)
Are you involved in patient medication management?	63 (57.3)	47(42.7)
Do you review patient medications with physicians?	49 (44.6)	61(55.5)
Do you document your pharmaceutical care activities?	52 (47.3)	58(52.7)
Do you go on ward rounds with physicians?	15 (15.4)	85(77.3)
Are you involved in pharmacists ward rounds?	31 (28.2)	79(71.8
Total	**50.8%**	**49.2%**

Table 6: Association between Sex and Attitude of Respondents; N=110

Sex	Attitude of Respondents			Total (%)
	Negative (%)	Weak (%)	Positive (%)	
Male	0(0)	29(44.6)	36(55.4)	65(59.1)
Female	1(2.2)	34(75.6)	10(22.2)	45(100.0)
Total	**1(9)**	**63(57.3)**	**46(41.8)**	**110(100.0)**

$\chi^2 = 12.882$, * P = 0.002, P < 0.05

Table 7: Reasons for not implementing Pharmaceutical Care by Respondents (N= 110)

Reasons implementing pharmaceutical care	Frequency	Percentage (%)
Fear of change	4	3.6
Lack of standards	2	1.8
Lack of space	6	5.5
None of the above	3	2.7
All of the above	3	2.7
No response	92	81.6
Total	**110**	**100.0**

DISCUSSION

The results of this study showed poor knowledge, weak attitude and poor practice of pharmaceutical care at the study area. Similar results have been reported in previous studies done in other parts of the world. [1, 6, 15, 23, 24] In this study, there were more males than females, which is also in line with other studies. [6, 24, 29, 49] Majority of respondents were aged 31-40 years which is also in line with results from other studies. [6, 49] Most of the respondents were practicing for 1-10 years, and majority were hospital based. These results are in agreement with several studies. [6, 49] There was poor knowledge deficit in this study (49.1%) which is in agreement with those of several studies. [6, 15, 22, 34, 50, 51] For instance, the Kaduna Study [6] carried out to assess the Knowledge, Attitude and Practice of Community Pharmacists towards Pharmaceutical Care, concluded poor knowledge and practice base but positive attitude. This result is also in line with the Survey of Attitude, Perception and Practice of Pharmacists in Ogun State, South-Western Nigeria [24] where the researchers found out that attitude of pharmacists towards implementation of Pharmaceutical care was good, but practice was weak. The poor knowledge recorded in this study was similar to the Maiduguri Study [32] which recorded knowledge deficit of pharmaceutical Care by pharmacists, but different from the Lagos Study [47] which recorded good knowledge of pharmaceutical care.

The poor knowledge base in this study could be explained by the fact that as at the time of this study (2012) knowledge of pharmaceutical care was still scanty; besides, half of the respondents (50%) were

holders of Bachelor of Pharmacy Degree only, without additional post graduate qualification, and it is possible that pharmaceutical care may not have been fully taught in the Bachelor of Pharmacy curriculum. Attitude of respondents in this study was poor. This result differs from the Benin Study [22] which reported a strong positive attitude to pharmaceutical care by pharmacists, irrespective of practice setting. It was however similar to the 2013 Study [23] which concluded that hospital pharmacists in Nigeria had a negative attitude to pharmaceutical care. It also differed from the Lagos Study [47] which revealed good knowledge of pharmaceutical care and positive attitude among hospital pharmacists in Lagos State. The poor attitude recorded in this study may have stemmed from the fact that a good number of respondents may have been discouraged by the barriers to practice of pharmaceutical care, which may have informed their lackadaisical attitude. This could have been due to the fact that as at the time of the study (2012), most pharmacy outlets and hospital pharmacies did not have the ingredients for practice of pharmaceutical care in place, such as confidential counseling chambers, pharmaceutical care skills, pharmacists were not involved in ward rounds, and few pharmacists were involved in post graduate training.

Practice of pharmaceutical care in this study was poor. This is also in line with several studies. [1, 6, 15, 34, 46, 51] For instance, a study on Pharmaceutical Care and Community Practice in Nigeria [46] concluded that pharmaceutical care practice was still alien to most community pharmacies in Nigeria, and that gaps existed in matching the theory with practice of pharmaceutical care in community pharmacies in Nigeria. This result also tallies with the Philippines Study [34] which showed a slow progress of pharmaceutical care practice in that country. Factors militating against implementation of pharmaceutical care in this study ranged from pharmacists attitude, lack of standards and lack of space. This observation is similar to the Kaduna study [6] which identified lack of confidence in pharmacists themselves as one of the barriers to implementation of pharmaceutical care. This finding is somewhat different from the Philippines Study [34], which identified lack of support by physicians, lack of information technology support for data collection and documentation, as major barriers to pharmaceutical care practice.

CONCLUSION

This study revealed that knowledge, attitude and practice of pharmaceutical care among pharmacists in Delta State were poor as at the time of this study (2012). Male pharmacists had a more positive attitude to pharmaceutical care than females. Factors militating against practice ranged from pharmacists attitude, lack of standards and lack of space. Educational intervention such as attending the Mandatory Continuing Professional Development programme (organized by the Pharmacists Council of Nigeria) and attitudinal change are recommended to improve the knowledge and practice of pharmaceutical care. Pharmacists are also encouraged to enroll in the Doctor of Pharmacy Degree programme and the fellowship programme of the West African Post Graduate College of Pharmacists where their knowledge of pharmaceutical care will be boosted. Additionally, they will acquire necessary competencies and skills to render pharmaceutical care to their clients.

LIMITATIONS OF STUDY

This study was carried out with the use of questionnaires only. It was not possible to observe the respondents directly to ascertain their level of practice of pharmaceutical care, since they were not interviewed in their places of work. Hence the accuracy of answers to questions on level of implementation of pharmaceutical care in their practices could not be independently verified.

ACKNOWLEDGEMENT

The authors are grateful to the Dean of Faculty of Pharmacy, Delta State University Abraka, for permission to carry out this research work. We are also grateful to the leadership of the Pharmaceutical Society of Nigeria, Delta State Branch, for their cooperation with distribution of questionnaires. We equally appreciate the role of Dr. Val Odili *PhD*, of the Department of Clinical Pharmacy and Therapeutics, Faculty of Pharmacy, University of Benin, Benin City, for agreeing to proof read the article.

CONFLICT OF INTERESTS

The authors declare no conflict of interest.

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