

Pharmaceutical Care Practice among Hospital Pharmacists in a State in Nigeria

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(Received 12 July 2022; Revised 30 July 2022; Accepted 16 August 2022; Available online 24 August 2022)

Abstract - Pharmaceutical care is a patient centered, outcome-oriented practice, requiring collaboration between the pharmacist, other care givers and the patient. In Nigeria, pharmacy practice is still majorly product based. Implementation of pharmaceutical care in hospitals in Nigeria since its introduction several years ago has remained erratic. This study evaluated practice of pharmaceutical care among hospital pharmacists in Delta State. This was a prospective study using a structured, pretested and self-administered questionnaire to 55 hospital and administrative pharmacists that gathered in Asaba in July 2018 for the quarterly meeting of their Association. The four-part Questionnaire evaluated demographics of respondents, pharmaceutical care practices carried out, reasons for not implementing pharmaceutical care and suggestions on how pharmaceutical care can be implemented in their various hospitals. Data obtained were analyzed using SPSS Version 22. Descriptive and chi square statistics were obtained. A P value of less than 0.05 was considered statistically significant. 55 questionnaires were distributed, 50 were returned, giving a response rate of 90.9%. Majority (40.0%) were aged 20-29 years; there were more males (52.0%) than females. Majority (56.0%) were married, about one quarter (24.0%) were in practice for 1-5 years. More than half (58.0%) were sole holders of Bachelor of Pharmacy degree. Majority (66.0%) were practicing at the Federal Medical Centre, Asaba. Pharmaceutical care practices carried out included monitoring patient response to therapy (58.0%), identification of errors in patient prescriptions (88.0%), interventions to correct detected errors (86.0%), documentation of pharmaceutical care activities (72.0%), medication review with physicians (54.0%), participation in pharmacists ward rounds (16.0%). However, only 4.0% of respondents counselled patients during interventions to rectify drug therapy problems. Among factors responsible for non-implementation of pharmaceutical care were lack of collaboration (20.0%) lack of space (6.0%), non-acceptance by physicians and nurses and lack of personnel were 10.0% each. Association between location of practice and monitoring improvement in patient response was statistically significant ($\chi^2 = 23.112$, $P = 0.003$). Practice of pharmaceutical care among pharmacists that converged for the quarterly meeting was average. There is need for pharmacists to improve in the area of monitoring patient's response to pharmacotherapy as well as sharpen their counselling skills so that they can render effective drug information services to patients and other healthcare providers.

Keywords: Hospital Pharmacists, Pharmaceutical Care, Practice

I. INTRODUCTION

Pharmaceutical care is the responsible provision of drug therapy for the purpose of achieving definite outcomes which

improve or maintain a patient's quality of life [1] [2][3][4]. It is a collaborative process that aims to prevent or identify and solve medicinal product and health related problems [5]. The outcomes include cure of a disease, elimination or reduction of a patient's symptoms, arresting or slowing of a disease process; or preventing a disease [5]. Pharmaceutical care involves the process through which a pharmacist cooperates with a patient and other professionals in designing, implementing, and monitoring a therapeutic plan that will produce specific therapeutic outcomes for the patient. This in turn involves three major functions: identifying potential and actual drug-related problems, resolving actual drug-related problems and preventing drug-related problems. Pharmacists primarily identify, prevent, and resolve the potential or actual problems through their skills and expertise.

The basic pharmaceutical care functions include development and use of patient medication profile, obtaining medication history by interviewing and documentation, patient counseling, monitoring drug therapy for safety, efficacy, and desired clinical outcome, detection and reporting of drug allergies and adverse drug interactions [6]. Other functions include participation in public health activities, identification, and resolution of drug therapy problems, interpretation of patients drug related needs, patient education, questioning, clarification, verification, validation of all drug-related orders, medication therapy management and medication reconciliation [6].

Pharmaceutical care is a patient centred, outcome oriented pharmacy practice whose goal is to optimize the patient's health related quality of life and achieve positive outcomes within realistic economic expenditures [7]. Earlier reports indicate that not much of the care appears to be known in the entire West African Sub Region [8][9]. Elsewhere in the world, it has become a dominant aspiration of pharmacy practice in the past one and a half decade [10]. Countries like the United States and Canada that have fully implemented pharmaceutical care due to enabling environment have recorded great successes. A study reported a reduction in emergency visits by asthmatic patients from 92 to 65 over six months period in a pharmacist coordinated asthmatic management study [11]. Pharmaceutical care practices all over the world are quite diverse because of the different languages and legal, political and healthcare systems in the nations involved [12]. In China for instance, pharmaceutical

care as a practice philosophy was introduced in the mid-1990s, and the implementation in Chinese hospital pharmacies continues to become widespread [12].

Continuity of care will be illusive without proper documentation of patients' information. Documentation enhances patients follow up and monitoring as they move from one level and state of care to another. Evidence calls for enhanced strategies through policy interventions and continuing education to facilitate pharmaceutical care documentation for wholesome implementation for improved quality of life [13]. A primary setback to the practice of pharmaceutical care in our environment is lack of articulated standards for pharmacists to conform to in their daily practice [6].

Some pharmaceutical care studies have established the challenges to pharmaceutical care service implementation in hospital pharmacies in developing countries, including Nigeria [15][16]. Institutional constraints, pharmacists' attitude, lack of role models and government policies are the major limitations to pharmaceutical care practice in Nigeria [5] [16][17]. Most studies have shown that pharmaceutical care is still in its theoretical stage in Nigeria [13][15][16][17][18][19][20][21][22][23][24].

A Nigerian study carried out in Ogun State revealed that the attitude of pharmacists towards implementation of pharmaceutical care is good, but the ability to implement it is weak [3]. Another Nigerian study carried out in Asaba to determine Knowledge, Attitude and Practice of Pharmacists towards pharmaceutical care [23] concluded that knowledge was poor, attitude was positive, but practice was poor. Another study carried out in Asaba to determine attitude and practice of Pharmaceutical Care among Community Pharmacists in Delta State [24] reported positive attitude but poor practice.

Yet another Nigerian study carried out in Kaduna State to assess knowledge, attitude and practice of community pharmacists towards pharmaceutical care [22] revealed knowledge deficit, positive attitude but low practice [22]. An Iranian study [25] that evaluated Community Pharmacists Knowledge, Attitude and Practice towards Good Pharmacy Practice (the principles of pharmaceutical care are embedded in the concept of Good Pharmacy Practice), revealed low knowledge and practice, but good attitude [25]. A study in Saudi Arabia [26] revealed good practice of pharmaceutical care among community pharmacists [26].

II. METHODOLOGY

A. Study Design

A prospective study involving the use of structured self-administered questionnaires was carried out on 50 hospital and administrative pharmacists that gathered in Asaba for their quarterly Association Meeting, in order to evaluate their practice of pharmaceutical care.

B. Setting

The study was carried out in Asaba, capital of Delta State. Delta State has a population of 4,112,445, made up of 2,069,309 [27] males and females 2,043,136 [27]. The state was created on 27th August 1991 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 Geo-Political Zone of Nigeria, with Warri as the biggest commercial city. The state has 25 local government areas, about 58 secondary healthcare institutions, over 100 primary health care centres and a teaching hospital owned by the state government at Oghara, in Ethiope Local Government area of the state and a federal medical centre based in Asaba [28] a tertiary institution owned by the federal government.

C. Study Population

The study population comprised 50 hospital and administrative pharmacists that came from all over Delta State to attend the quarterly meeting of the Association of Hospital and Administrative Pharmacists of Nigeria (AHAPN) at the state Drug Revolving Fund building in Asaba in July 2018.

D. Sampling Method

Well structured, self-administered questionnaires were randomly distributed to 55 hospital and administrative practice pharmacists that gathered for their general meeting. Consent to undertake the study was sought and obtained from the leadership of the Delta State Drug Revolving Fund in Asaba. Also, informed consent was sought and obtained from respondents before they received the questionnaires. A pretest was carried out randomly among 5 pharmacists based in Asaba, after which minor errors in typing were corrected before the questionnaires were administered to the respondents.

E. Data Collection and Analysis

A total number of 50 questionnaires were self-administered to pharmacists. The questionnaire was made anonymous, and structured into four parts, the first was on the demographics of the participants, the second part was on pharmaceutical care practices carried out, the third was on reasons for not implementing pharmaceutical care and the last on suggestions on how pharmaceutical care can be implemented. 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 22). Results were presented as frequency and percentage of variables. Chi Square statistics was used to test for level of significance of practice. A P-value of less than 0.05 was considered to be statistically significant.

III. RESULTS

55 questionnaires were distributed, 50 were returned, giving a response rate of 90.9%. About half of the respondents (40.4%) were aged 20-29 years; there were more males (52.0%) than females. Majority (56.0%) were married, about a quarter (24.0%) had been in practice for 1-5 years. More than half (58.0%) were sole holders of Bachelor of Pharmacy (B. Pharm) degree without any post graduate qualification. Majority (66.0%) were practicing at the Federal Medical Centre, Asaba, 16% were practicing at the Hospitals Management Board (HMB), few (6.0%) were practicing at private clinics while very few (4.0%) were practicing at the Delta State University Teaching Hospital (DELSUTH), Oghara. All other demographics are as contained in Table I.

TABLE I DEMOGRAPHICS OF RESPONDENTS, N=50

Variable	Frequency	Percent (%)
Age (years)		
<19	1	2.0
20-29	20	40.0
30-39	15	30.0
40-49	11	22.0
50-59	3	6.0
Sex		
Males	26	52.0
Females	24	48.0
Marital Status		
Single	20	40.0
Married	28	56.0
Widowed	1	2.0
No response	1	2.0
Educational Status		
B.Pharm	29	58.0
PharmD	13	26.0
Masters	3	6.0
FPCPharm	5	10.0
Length of Practice (Years)		
<1	11	22.0
1-5	12	24.0
6-10	11	22.0
11-15	5	10.0
>15	11	22.0
Place of Practice		
Federal Medical Centre, Asaba (FMC, Asaba)	33	66.0
Hospitals Management Board (HMB)	8	16.0
Delta State University Teaching Hospital (DELSUTH), Oghara	2	4.0
Private clinics	3	6.0
No response	4	8.0

Nearly all respondents (98.0%) had heard of pharmaceutical care before this study, more than half (58.0%) were involved

in monitoring patient response to drug therapy. About half (46.0%) used direct patient interview to monitor patients' response to therapy as shown in Table II.

TABLE II METHODS USED IN PATIENT MONITORING, N=50

Method	Frequency	Percent (%)
Direct patient interview	23	46.0
Screening for high blood pressure	4	8.0
Reported tests carried out on patients	9	18.0
Physical observation	1	2.0
Studying patient case notes	2	4.0
Combination of direct patient interview plus reported tests carried out	2	4.0
No response	9	18.0

Majority (72.0%) were involved in documentation of pharmaceutical care activities as shown in Table III, nearly all (88.0%) were involved in identification of errors in patient prescriptions.

TABLE III NUMBER OF RESPONDENTS THAT CARRIED OUT DOCUMENTATION OF PHARMACEUTICAL CARE OPERATIONS, N= 50

Carry out Documentation	Frequency	Percentage (%)
Yes	36	72.0
No	6	12.0
No response	8	16.0

About half (54.0%) of respondents carried out medication review with physicians, very few (4.0%) counselled patients that had drug therapy problems. Other types of intervention are listed in Table IV.

TABLE IV FORMS OF INTERVENTION CARRIED OUT BY RESPONDENTS, N=50

Method	Frequency	Percentage (%)
Carry out medication review with physicians	27	54.0
Change prescription	1	2.0
Dispense correctly	2	4.0
Counsel patients	2	4.0
Medication review with physicians and counsel patients	7	14.0
Others	6	12.0
No response	5	10.0

Majority (86.0%) carried out interventions to correct detected errors. Predominant error types were dosage too high and drug interactions (14.0%) each. All other types of error are listed in Table V.

TABLE V TYPES OF ERRORS IDENTIFIED, N=50

Drug Therapy Problem	Frequency	Percent (%)
Dosage too high	7	14.0
Drug interactions	7	14.0
Inappropriate compliance	2	4.0
Needs additional therapy	2	4.0
Polypharmacy	1	2.0
Adverse drug reactions	1	2.0
Combination of errors	6	12.0
All of the above	15	30.0
No response	9	18.0

Few respondents (16.0%) were involved in pharmacists ward round and joint physician/pharmacists ward round (14.0%) as shown in Table VI.

TABLE VI SHOWING NUMBER OF RESPONDENTS INVOLVED IN WARD ROUNDS, N=50

Participation in Ward Rounds	Frequency	Percentage (%)
Participation in pharmacists only ward round		
Yes	8	16.0
No	37	74.0
No response	5	10.0
Participation in joint physician/pharmacists' ward rounds		
Yes	7	14.0
No	36	72.0
No response	7	14.0

Reasons for not practicing pharmaceutical care ranged from lack of collaboration (20.0%), lack of personnel (10.0%), non-acceptance by physicians and nurses (10.0%). All other reasons are listed in Table VII.

TABLE VII REASONS FOR NOT PRACTICING PHARMACEUTICAL CARE (PC), N=50

Reason	Frequency	Percentage (%)
Fear of change	2	4.0
Lack of PC skills	1	2.0
Lack of collaboration	10	20.0
Lack of space	3	6.0
Non acceptance by physicians and nurses	5	10
Lack of role models	1	2.0
Lack of personnel	5	10
Others	2	4.0

Suggestions on how pharmaceutical care can be implemented ranged from acquiring additional training in pharmaceutical care (14.0%), pharmacists should be involved in ward rounds (8.0%), maintenance of privacy for patient counseling

(8.0%), improve communication skills (2.0%) and enhanced remuneration (2.0%). Others were government backing for the Doctor of pharmacy programme (6.0%), employment of more pharmacists (2.0%), pharmacists should specialize in different areas (2.0%) and pharmacists should be granted access to patient's clinical data (2.0%). Majority of respondents (52.0%) agreed that all the reasons listed above will lead to improvement in pharmaceutical care practice.

Analysis of marital status versus forms of intervention carried out by respondents was statistically significant at $\chi^2 = 36.184$, $P = 0.021$, with married respondents carrying out most interventions (56.0%), followed by singles (40.0%) and widows (2.0%). Analysis of educational status versus types of errors detected was statistically significant at $\chi^2 = 55.869$, $P = 0.006$, with B. Pharm holders identifying the most errors (58.0%), followed by Pharm. D. holders (26.0%), FPCPharm (10.0%) and masters (6.0%). Analysis of location of practice versus involvement in pharmacists ward rounds was statistically significant at $\chi^2 = 28.973$, $P = 0.000$, with FMC respondents carrying out the most rounds (16.0%), followed by private clinic pharmacists (4.0%) while Hospitals Management Board (HMB) pharmacists and DELSUTH were 2.0% each. Other statistically significant relationships were analysis of location of practice versus those that monitored improvement in patient response, $\chi^2 = 23.112$, $P = 0.003$, with FMC (66.0%), followed by HMB (14.0%), private clinics (6.0%), DELSUTH (4.0%). Location of practice versus identification of errors was significant at $\chi^2 = 28.736$, $P = 0.004$, with FMC identifying most errors (62.0%), followed by HMB (14.0%), private clinics (6.0%) and DELSUTH (4.0%). Also, location of practice versus interventions to correct errors was significant at $\chi^2 = 15.708$, $P = 0.003$, with FMC (62.0%), (HMB) (12.0%), private clinics (6.0%), DELSUTH (4.0%).

IV. DISCUSSION

In this study, there were more males than females, and more married respondents than singles and widows. The respondents had knowledge about pharmaceutical care. Pharmaceutical care activities carried out among the pharmacists in this study included monitoring of patients' response to therapy, identification of errors in patient prescriptions, carrying out interventions to correct detected errors and documentation of pharmaceutical care activities. Others were engagement in pharmacists ward rounds, participation in joint physician and pharmacist ward rounds and engagement in patient counseling activities. These observations are in consonance with several studies [3] [23]. However, unlike the high rate of documentation recorded in this study (72.0%), the study in Ogun State revealed low rate of documentation of activities [3]. It also differs from the Benin study [29] which recorded poor documentation of activities. Patient counseling activities during interventions to correct detected errors recorded in this study was low (4.0%). This finding agrees with the result of Study [6] carried out to determine the extent of patients counseling in community pharmacies which revealed that 25% of

pharmacists never talked with their patients while 47% of all patients never received any oral drug information from pharmacy staff [6].

The average practice of pharmaceutical care in this study is an improvement over an earlier study carried out in Asaba [23] to determine knowledge, attitude and practice of pharmaceutical care among pharmacists which recorded poor practice. The level of participation in ward rounds recorded in this study both for pharmacists' only rounds (16.0%) and joint ward rounds with physicians (14.0%) was low. This compares with the study in Ogun State [3] which recorded low participation (1.9%) for joint ward rounds with other healthcare team members.

The practice of pharmaceutical care recorded in this study was average. This could be explained by the fact that majority of respondents in this study (58.0%) were holders of Bachelor of Pharmacy degree only, they may not have been exposed adequately to knowledge about pharmaceutical care. Few respondents in the study centre had additional qualifications such as the Doctor of Pharmacy degree (26.0%) and fellowship of the West African Post Graduate College of Pharmacists (10.0%), where they could have been sufficiently taught pharmaceutical care. This result however differs from the Kaduna study [22] which recorded low practice of pharmaceutical care, just like the Ogun State Study [3].

The average practice observed in this study differs from the Iranian study [25] which recorded poor practice, it also differs from the Saudi Arabian study [26] that recorded good practice. The differences can be explained by the observation that the Iranian study was carried out earlier in 2013, when knowledge and practice of pharmaceutical care was still scanty, unlike the Saudi study which took place in 2022, when pharmaceutical care knowledge and practice has improved greatly globally.

Reasons for not practicing pharmaceutical care recorded in this study included fear of change, lack of pharmaceutical care skills, lack of collaboration, lack of space, non-acceptance by physicians and nurses, lack of role models and lack of personnel. These reasons are in agreement with those from other studies from Nigeria and elsewhere in the world [3] [6] [12] [22][25][26].

Suggestions on how to improve implementation of pharmaceutical care included acquiring additional training in pharmaceutical care, involvement in ward rounds, maintenance of privacy for patient counseling, improvement in communication skills and enhanced remuneration. Others were government backing for the Doctor of Pharmacy degree programme, employment of more pharmacists, specialization in different areas of practice and access to patient's clinical data. These compare with recommendations from similar studies [3][12]. For instance, the Ogun State study [3] suggested that improved training at all levels, monitoring of therapy and enhanced relationship with other health

professionals and patients are ways of improving practice of pharmaceutical care.

V. RECOMMENDATIONS

1. There is need for greater participation in ward rounds by pharmacists in the study centre. They will need to improve on their communication skills which will come in handy during such rounds.
2. The number of pharmacists that engaged in patient counseling during interventions to correct detected drug therapy problems was too low (4.0%) They will need to sharpen their counseling skills to be able to render effective drug information service to patients.
3. There is need for more pharmacists to partake in the PharmD. programme since the number of PharmD holders in this study was few (26.0%). This will afford them the opportunity to learn more about Pharmaceutical Care and this will definitely impact on their practice in the long run. Similarly, more pharmacists are encouraged to participate in the fellowship programme of the West African Post Graduate College of Pharmacists (WAPCP) where they will have the opportunity to learn more about pharmaceutical care.

VI. LIMITATIONS OF STUDY

One limitation with this study was the fact that questionnaires were administered to respondents outside of their practice environment; there is no way to independently confirm the accuracy of reports of pharmaceutical care activities like ward rounds, made by respondents in this study. Secondly, the study was carried out in the state capital where the Federal Medical Centre is located, and where the majority of pharmacists that took part in this study were domiciled. The outcome may differ slightly if the study were to be carried out in Oghara (for instance), where DELSUTH is located, since only few pharmacists from there came for the general meeting.

VII. CONCLUSION

Practice of pharmaceutical care in the study area was average. There is need for pharmacists to improve in the area of monitoring patient's response to pharmacotherapy as well as sharpen their counselling skills so that they can render effective drug information service to patients and other healthcare providers.

ACKNOWLEDGEMENT

The authors are grateful to the Project Manager, Delta State Drug Revolving Fund (DRF) Headquarters, Asaba, Pharm. (Mrs.) Ifeoma Ndobu FPCPharm, for the permission to undertake the study in the DRF Conference Hall. We appreciate in a special way, the leadership of Association of Hospital and Administrative Pharmacists of Nigeria (AHAPN) Delta State Branch for the approval to administer the questionnaires on their members. We thank all the

pharmacists that agreed to participate in the study. We also appreciate Prof. Valentine Odili, of the Department of Clinical Pharmacy and Pharmacy Practice, Faculty of Pharmacy, University of Benin, Benin City, for agreeing to proofread the article. Finally, the authors are immensely grateful to God Almighty for making this publication a reality.

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