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Original Article

Pharmaceutical Care Knowledge: A Survey of Hospital Pharmacist's Perception in Ekiti State, South Western Nigeria

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<u>ABSTRACT</u>

The objective of the study was to assess the hospital pharmacists' knowledge of pharmaceutical care as a step towards promoting the full implementation and practice of pharmaceutical care in Nigerian hospitals in other to achieve the core function as a patient-oriented hospital setting. The study was a prospective multi-centered study that involved three hospitals each from the three senatorial districts in the state (area sampling). In that instance, in Ekiti Central, the following hospitals were considered; Ekiti State University Teaching Hospital Ado (EKSUTH), State Specialist Hospital Jiero and General Hospital Aramoko. In Ekiti North, the hospitals used were; Federal Medical Centre Ido (FMC), State Specialist Hospital Ikole, General Hospital Oye. While in Ekiti South, General Hospital Emure, General Hospital Ijan and State Specialist Hospital Ikere were considered. Data were collected from forty-five (45) out of the seventy (70) pharmacists working in the various hospitals using a self administered pre-tested structured questionnaire. Pharmaceutical care knowledge items were aggregated fifteen (15) structured questions measured on a 30 point scale. A mean score of 25 was obtained, and the mean score was used to assess knowledge. Knowledge scores of 25-30 were considered positive knowledge, while 1-24 were considered negative knowledge, and zero (0) was considered neutral. Chi square test (X²) was used to determine the level of significance and a P-value of ≤ 0.05 was considered statistically significant. Majority (44.44%) of the respondents were within the age group of 30-39, in terms of gender, majority (66.67%) of the respondents were male. Majority (35.56%) of the respondents in terms of pharmacist position were pharmacist 1,71.11% which is the majority of the respondents have 1-10 years of experience in the pharmacy practice. The pharmaceutical care knowledge levels were 71.11%, 26.67% and 2.22% for positive, negative and neutral knowledge respectively. Knowledge based on hospital of practice, years of experience, position and source of information were found to be statistically significant.

In conclusion this study revealed that the interns have a low level of knowledge, while the older

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ones need to involve themselves in continuous education, nevertheless there was a high level of positive knowledge exhibited by the participant in the studied area.

Keywords: Pharmaceutical care, Knowledge, Participant, Pharmacists.

INTRODUCTION

Pharmacist's focus, until early 20th century, was primarily on controlling the availability and distribution of the drug products¹. Over the past four decades there has been a trend for pharmacy practice to move away from its original focus on dispensing, and medicine supply without much concern about the treatment outcomes of the patient towards a more inclusive focus on patient care. The role of a pharmacist over the years has evolved from that of a compounder and supplier of pharmaceutical products towards that of a provider of services and information and ultimately that of a provider of patient care. The new approach has been given the name pharmaceutical care.

In 2005, the Pharmacist Council of Nigeria (PCN) set up minimum standards for the assurance of pharmaceutical care in Nigeria². Pharmaceutical care is therefore an emerging concept in Nigeria. However, the concept has achieved great successes in the care of patients in developed countries like United in the States and Europe. Increasingly, the pharmacist's task is to ensure that a patient's drug therapy is appropriately indicated, the most effective available, the safest possible, and convenient for the patient. By taking direct responsibility individual for patient's medicine-related needs, pharmacists can make a unique contribution to the outcome of drug therapy and to their patients' quality of life. The most generally accepted definition of this new approach is:

"Pharmaceutical care is the responsible provision of drug therapy for the

purpose of achieving definite outcomes that improve a patient's quality of life³³.

The International Pharmaceutical Federation (FIP) in 1998 adopted this definition and added one significant amendment: "achieving definite outcomes that improve or maintain a patient's quality of life". This amendment is probably a more realistic goal, because it encompasses both acute and chronic progressive diseases such as HIV/AIDS, hypertension and diabetes where maintenance of quality of life would itself be a significant achievement.

To achieve this, a systematic approach to the delivery of pharmaceutical care is set out, involving the following four steps⁴:

- 1. Assess the patient's drug therapy needs and identify actual and potential drug therapy problems.
- 2. Develop a care plan to resolve and/or prevent the drug therapy problems
- 3. Implement the care plan
- 4. Evaluate and review the care plan

The care plan would aim to resolve the actual drug therapy problems and prevent potential drug therapy problems becoming a reality. A drug therapy problem is defined as: "An undesirable event, a patient experience that involves, or is suspected to involve drug therapy and that actually or potentially, interferes with a desired patient outcome"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. To achieve this goal, the following must be accomplished⁶:

- a. A professional/ therapeutic relationship must be established and maintained.
- b. Patient-specific medical/ medication information must be collected, organized, recorded, and maintained.
- c. Patient-specific medical/ medication information must be evaluated and a drug therapy plan developed mutually with the patient.
- d. The pharmacist assures that the patient has all supplies, information and knowledge necessary to carry out the drug therapy plan.
- e. The pharmacist reviews, monitors, and modifies the therapeutic plan as necessary and appropriate assuring positive outcomes, in concert with the patient and healthcare team.

The promotion and practice of quality pharmaceutical care is been endangered if some of the following elements are not put in place. Some of these elements are⁷:

- 1. Knowledge, skill, and function of personnel
- 2. Systems for data collection, documentation, and transfer of information
- 3. Efficient work flow processes
- 4. References, resources and equipment
- 5. Communication skills
- 6. Commitment to quality improvement and assessment.

A number of studies have been carried out extensively on the knowledge, altitude, perception and practice of pharmaceutical care in Nigeria and beyond. A study was conducted on hospital pharmacists' knowledge on pharmaceutical care in Maiduguri, North Eastern Nigeria⁸. Another study was carried out on the assessment of attitudes of pharmacy students towards pharmaceutical care which was conducted in Nsukka, Nigeria⁹. A similar

study was conducted by Oparah AC et.al in the University of Benin, investigating students attitude of the towards pharmaceutical care¹⁰. A study that assessed the attitude, perception and practice of pharmacists towards pharmaceutical care implementation in Ogun state, South Western Nigeria was conducted bv Suleiman and Onaneye¹¹. Oparah et al, in 2005 conducted a study to explore Nigerian pharmacists' attitudes towards the practice of pharmaceutical care¹². The challenges in the practice of pharmaceutical care in National Orthopaedic Hospital Enugu was undertaken by Chijioke C. Mmuo et al, in 2013 and revealed that Nigerian Pharmacists have good knowledge of pharmaceutical care but lack the actions to drive the full implementation of pharmaceutical care¹³. In all these studies carried out, the evaluation of hospital pharmacist knowledge on pharmaceutical care has not been extensively mentioned. Moreover, limited studies on pharmacists' knowledge of pharmaceutical care have hindered the full implementation of pharmaceutical care, hence the need for the present study. The authors took with great concern about Ekiti state, South- Western Nigeria, which to the best of our knowledge has not been evaluated in terms of pharmaceutical care among hospital pharmacists, perhaps this has militated to the implementation and practice of pharmaceutical care. However the objective of this study was to assess the hospital pharmacists' knowledge of pharmaceutical care as a step towards promoting the full implementation and practice of pharmaceutical care in Nigerian hospitals in other to achieve the core function as a patient-oriented hospital setting.

MATERIALS AND METHODS

Study area

The study was a prospective multicentered study that involved three hospitals each from the three senatorial districts in the state (area sampling). The senatorial districts are Ekiti Central, Ekiti North and Ekiti South. The hospitals used were randomly selected from among the Local Government Areas located in each senatorial district based on the number of pharmacists available in the centre. In that instance, in Ekiti Central, the following hospitals were considered; Ekiti State University Teaching Hospital Ado (EKSUTH), State Specialist Hospital Ijero and General Hospital Aramoko. In Ekiti North, the hospitals used were; Federal Medical Centre Ido (FMC), State Specialist Hospital Ikole, General Hospital Oye. While in Ekiti South, General Hospital Emure, General Hospital Ijan and Specialist Hospital Ikere were State considered. Ekiti State is one of the six states that make up the South West geopolitical zone of Nigeria. It has interstate boundaries with Ondo state to the south, Kwara state to the north, Kogi state to the east and Osun state to the west. Its capital is Ado-Ekiti. Ekiti state covers an area of 5,887.9 sq km. It lies at latitude 7°40' north and longitude $5^{\circ}5'$ east. It has a population of 2,398,957 (2006 census figures) with a population density of 375 people per sq km. The state accounts for 1.7% of Nigeria's total population.

Data collection process

Prior to the commencement of the study, verbal informed consent was obtained from the participants. A total of eighty six (86) pharmacists worked in hospitals according to National Association of Hospital and Administrative Pharmacist (NAHAP) record between January – March 2014 in Ekiti state. Forty five (45) participants consented out of the seventy

(70) pharmacists working with the hospitals considered in the study using a selfadministered pre-tested structured questionnaire. The questionnaire was structured into two sections: the first section designed to gather demographic was information such as age of respondent, qualification, years gender, and of experience. The second section was to ascertain knowledge of pharmaceutical care, and was however designed using a 2-point Likert response format consisting of Yes and No and also an open ended structured test.

Data Analysis

Statistical Package for Social Sciences (SPSS) version 16.0 for windows[®] was used for analysis. Descriptive statistics was used, for the 2-point Likert scale used, a mark of two (2) was awarded for Yes, one (1) for No, and zero (0) for no response. Knowledge items were aggregated fifteen (15) structured questions on pharmaceutical care. A mean score of 25 was obtained, and the mean score was used to assess knowledge. Knowledge scores of 25-30 were considered positive knowledge, while 1-24 were considered negative knowledge, and zero (0) was considered neutral. Chi square test (X^2) was used to determine the level of significance and a P-value of ≤ 0.05 was considered statistically significant.

RESULTS AND DISCUSSION

Out of 70 pharmacists working with the hospitals, 45 pharmacists consented and returned their filled questionnaires giving a response rate of 64.29%.

Demographics

From Table 1; majority (44.44%) of the respondents were within the age group of 30-39, this is in agreement with the findings of another studies^{1,8} and also contradicts the findings of another study¹³. In terms of gender, majority (66.67%) of the

respondents were male. This supports findings in studies conducted in Maiduguri, Enugu and Ogun state in Nigeria^{8,11,13}. This is contrary to the findings of other studies 1,10,14 . Table 1 also shows that the majority (35.56%) of the respondents in position terms of pharmacist were pharmacist 1, which is in concordance with the findings of another study⁸. 71.11% which is the majority of the respondents have 1-10 years of experience in the pharmacy practice, this findings is in agreement with the findings of other studies^{8,12}. Table 1 also indicates that majority (37.78%) of the participants are hospital pharmacists working with EKSUTH, this is closely followed with pharmacists working with FMC with a percentage participants of 33.33%.

Respondent's general knowledge on pharmaceutical care

Majority (71.11%) of the respondents have positive knowledge towards the concept and practice of pharmaceutical care which is highly expected. The expectation can be said to be absolute in that pharmacists are embodied with the responsibility of the provision of drug therapy to ensure definite outcome in terms of improvement and maintenance of patient quality of life. This is in agreement with another similar study carried out in Maiduguri, North-Eastern Nigeria where 83.87% of respondents have positive knowledge of pharmaceutical care⁸. In a study carried out in National Orthopaedic Hospital Enugu on the challenges in the practice of pharmaceutical care, all the respondents concur that they have heard about the concept of pharmaceutical care 13 .

Respondents' knowledge of pharmaceutical care based on hospital of practice

From the analysis conducted, 76.47% of the respondents working in EKSUTH have positive knowledge of pharmaceutical care,

while 100% of respondents in Aramoko and Ijan also have positive knowledge. Majority of the respondents (86.67% and 66.67%) in FMC and SSH Ikere respectively have positive knowledge. All the respondents (100.00%) practicing in SSH Ijero, Oye and Emure have negative knowledge, while in SSH Ikole half (50.00%) of the respondents both have positive and negative knowledge. The only neutral perception towards pharmaceutical knowledge (6.67%) was a respondent practicing in FMC.

The basis of this argument is statistically significant which is contrary to a similar study conducted in Maiduguri⁸. This can be attributed to the fact that most of the pharmacists that found themselves in the rural centers with minimal visitation of patients have been reluctant in improving or acquiring themselves with knowledge on pharmaceutical care.

Respondent's knowledge based on gender

From figure III, majority (70.00%) of respondents the male have positive knowledge towards the practice of pharmaceutical care while 26.67% and 3.33% have negative and neutral knowledge Majority (73.33%) of the respectively. female respondents have positive knowledge while 26.67% have a negative knowledge. Though, the association between gender and knowledge is not statistically significant.

Respondent's knowledge based on year(s) of professional experience

Most of the respondents fall within 1-10 years of professional experience, thence majority (71.88%) of them have positive knowledge of the concept of pharmaceutical care. Majority (77.78%) the respondent within 11-20 years of practice who participated also have positive knowledge of pharmaceutical care. The only participants with no response have a positive knowledge. The only neutral knowledge recorded was between the respondents with 1-10 years of experience.

The association was found to be statistically significant which agrees with a similar survey conducted in Maiduguri, North Eastern Nigeria⁸. The explanation of the association could be as result of "brain drain syndrome" often noticeable among the older hospital pharmacists who have perhaps resided into inventory managers rather than clinical pharmacists. Some have not taken their time to engage in any form of continuous education to get themselves abreast with the trend of modern practice relying solely on knowledge acquired years ago thereby, making them redundant. From the study it can be deduced that majority of the pharmacists with 11-20 years of experience have engaged in continuous pharmacy education programmes while a few of the newer pharmacists (1-10years) have been carried away with tides of time in the field of practice and have not re-established themselves properly into the profession.

Respondent's knowledge based on their position

Majority (33.33%) of the respondents with positive knowledge are pharmacist1 basically because higher proportion of the respondents are pharmacist 1 which is in agreement with similar study conducted in Maiduguri, north eastern Nigeria⁸. Majority (57.14%) of the intern pharmacists have a negative knowledge about pharmaceutical care. The ADPs that participated have negative knowledge, however by rank the chief pharmacists and DDP have positive knowledge of pharmaceutical care.

The association between rank and knowledge is statistically significant. This is contrary with the study conducted in Belgium¹⁵ in which the chief pharmacist has low knowledge of pharmaceutical care. More so, it is also contrary with the study conducted in Enugu¹³ in which intern pharmacists

basically have good knowledge on pharmaceutical care.

Respondents' knowledge based on source of information

Majority of the respondent with positive knowledge, source their information from Fellowship of West Africa Postgraduate College of Pharmacist (WAPCP) (100%), pharmacy schools (71.43%), while 100% who sourced information only from seminars/ workshop have negative knowledge. Half (50.00%) of the respondents who sourced information from continuing education programme for pharmacists have positive and negative knowledge respectively.

association The between the knowledge and the source of information is statistically significant. This findings is in concordance with a similar study⁸ in which majority (29.03%) of the respondent with positive knowledge sourced their information from the Fellowship WAPCP. It thus means that fellowship programme for pharmacists and pharmacy schools are good avenues to source for information on pharmaceutical care. Whereas, continuing education alone and media are not good avenues to source for information on pharmaceutical care. Therefore, the modern trend of pharmaceutical care has eluded most of the older pharmacists that graduated before the inclusion of pharmaceutical care in the pharmacy curriculum. With the advent of Fellowship programme for pharmacists and the inclusion of pharmaceutical care in pharmacy curriculum these have helped to bridge the gap between what is obtainable in the olden practice and the modern practice. Pharmacists are therefore encourage to endeavor to benefit from the synergy between Pharmacists fellowship programme and post graduate programmes in clinical pharmacy to constantly update and increase their knowledge base in pharmaceutical care. This approach will presumably go a long way in

equipping Nigerian hospital pharmacists with the requisite knowledge to be able to provide pharmaceutical care to patients against all odds.

CONCLUSION

The study concludes that the practice of pharmaceutical care is new in the study areas, in contrast to what pharmacists have been doing for years. Nevertheless, the respondents from the studied areas have positive knowledge of pharmaceutical care. The study also shows that majority of the Intern pharmacists in the studied areas have no good knowledge of the practice of pharmaceutical care. The survey also shows that print media and radio/ television are not a good source of information for the knowledge of pharmaceutical care.

RECOMMENDATION

The authors therefore recommend that intern pharmacists should be integrated to pharmacotherapy in relation to pharmaceutical care which is different from the knowledge base of pharmacy graduates. The older pharmacists in the profession should also endeavor to imbibe in them the continuous quest for knowledge in the profession to enable them remain relevant in the modern practice of pharmaceutical care. The studied areas should ensure that hospital based pharmacists are rotated from rural to urban centers to enable them also assume pharmacist¹⁵. roles of seven-star а Pharmacist's bodies in Nigeria should create awareness on the practice of more pharmaceutical care to other health care practitioners and to the entire populace on the with merits associated the practice. Pharmacists has professionals must serve as catalyst in attitudes, perception and practice of pharmaceutical care in the health institution. The pharmacists in the studied areas should also be ready to accepting

responsibility to adequately document, monitor and review the care given to a patient to promote the full implementation and reduction in the challenges in the practice of pharmaceutical care.

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CONFLICTS OF INTEREST

The authors declare no conflicts of interest.

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Variables	Values	Frequency	Percentage
Age group	<30	10	22.22
	30-39	20	44.44
	40-49	12	26.67
	50-59	3	6.67
Gender	Male	30	66.67
	Female	15	33.33
Pharmacist Position	Intern	7	15.56
	Corper	4	8.89
	Pharmacist 1	15	33.33
	Senior pharmacist	10	22.22
	Principal pharmacist	5	11.11
	Chief pharmacist	2	4.44
	ADP	1	2.22
	DDP	1	2.22
	No response	1	2.22
Year of	1-10	32	71.11
experience	11-20	9	20.00
	21-30	3	6.67
Name of Hospital	EKSUTH	17	37.78
	SSH Ijero	1	2.22
	GH Aramoko	1	2.22
	FMC	15	33.33
	SSH Ikole	4	8.89
	GH Oye	1	2.22
	GH Emure	2	4.44
	SSH Ikere	3	6.67
	GH Ijan	1	2.22

Table 1. Demographic data





Figure 1. Distribution of respondents' knowledge of pharmaceutical care



Figure 2. Distribution of respondents' knowledge based on hospital

X²=0.0395, df=8, P<0.05

EKSUTH=Ekiti State University Teaching Hospital SSH=State Specialist Hospital FMC=Federal Medical Centre



 $X^2 = 0.041, df = 1, P > 0.05$



Figure 4. Distribution of respondents' knowledge based on year(s) of experience

 $X^2 = 15.984$, df = 3, P < 0.05

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X²=0.0302, df=7, P<0.05

ADP = Assistant Director of Pharmacy DDP = Deputy Director of Pharmacy



$X^2 = 0.0476, df = 11, P < 0.05$

a= pharmacy school b= fellowship WAPCP c= journals/newspaper e= seminar/workshop f= continuing education

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