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Pharmacists' Knowledge of Pharmaceutical Care Concept in Rivers and Bayelsa States of Southern Nigeria

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Abstract:

Pharmaceutical care education and knowledge must precede practice. In Nigeria, Pharmaceutical care education was officially introduced about a decade ago. It is therefore necessary to assess knowledge of the concept among Practicing Pharmacist from time to time. However, in a country with a vast landmass and a high population it is valuable to have the practice perspective from various regions. This is an original and maiden research in this geographical region of Nigeria with the objective of assessing the knowledge of Pharmacists on Pharmaceutical Care (PC) concepts and also to evaluate the impact of demographic factors.

A descriptive study was carried out with a questionnaire between the months of January and March, 2013 among 205 out of estimated 400 pharmacists practicing in Rivers and Bayelsa States of Nigeria. Data collected was subjected to descriptive statistical analysis using SPSS version 15.

The study revealed that 52% have good knowledge of the Pharmaceutical care concept whilst 30% have fair knowledge. There was a correlation between age and knowledge as well as practice group and knowledge. The younger pharmacists and pharmacists in retail community practice were more knowledgeable than others.

Pharmacists in Rivers and Bayelsa States of Southern Nigeria are largely knowledgeable of Pharmaceutical Care concept but there is room to improve their qualitative knowledge.

Keywords: Rivers and Bayelsa states, Southern Nigeria, pharmaceutical care concept

1. Introduction

Pharmaceutical Care is accepted globally as the 'GOLD STANDARD' for the practice of Pharmacy. Hepler and Strand proposed the first universally accepted definition of Pharmaceutical care as "The responsible provision of drug therapy needs for the purpose of achieving definite outcomes that improves a patient's quality of life" (Hepler and Strand, 1989). FIP (International Pharmaceutical Federation) modified it to state "Pharmaceutical care is the responsible provision of drug therapy needs for the purpose of achieving definite outcomes that improves or maintain a patient's quality of life" (Wiedenmeyer K, et al, 2006). This definition is important especially in certain situations when patients have chronic irreversible disease conditions.

The goals of Pharmaceutical care can only be achieved when pharmacists worldwide understand the concept, the philosophy and eventually put it into practice. The objective of this study is to assess the level of Knowledge of practicing pharmacists in Rivers and Bayelsa states of Southern Nigeria.

2. Materials and Methods

2.1. Setting

The study was a prospective multi-centered study that involved facilities that involved three tertiary health facilities (Federal Medical Center, Yenagoa; Niger Delta University Teaching Hospital; and University of Port Harcourt Teaching Hospital), and two schools of pharmacy (Niger Delta University, Amasoma and University of Port Harcourt). Pharmacists were targeted at various pharmaceutical society and technical meetings in both states.

3. Data Collection Process

A self administered questionnaire was used for data collection. The questionnaire was distributed to practicing pharmacists irrespective of their area of practice after oral consent was sought and obtained. The questionnaire was structured to retrieve demographic and knowledge based data.

4. Data Analysis

Completed questionnaires were retrieved and analyzed with the help of SPSS version 15.0. Descriptive statistics was computed. Response to questions was presented numerically and in percentages. Chi square test was used to determine the level of significance and a P-value of less than or equal to 0.05 was considered statistically significant.

5. Results

Out of two hundred and sixty questionnaires distributed two hundred and five were completed and retrieved giving a response rate of 78.8%.

6. Demographics

There were more male pharmacists 60.5% while female pharmacists were 39.5% female. Majority (88.7%) of respondents were less than 50 years of age. Majority (62.4%) is married and 49.6% had less than 10 years practicing experience. Majority 69.8% had been aware of Pharmaceutical Care concept for up to 10 years. Almost 70% of respondents hold the bachelor's degree and over seventy percent have not specialized in any particular field. The dominant practice groups are community pharmacists (43.9%) and hospital/administrative pharmacists (38.7%). Over eighty percent of respondents practice in the urban area. Details in Tables 1a,b.

Variables	Values	Frequency
Sex	M	124
	F	81
Marital Status	Single	73
	Married	128
	Widowed	3
	No Response	1
Age Group	< 30	56
	31-40	72
	41-50	54
	51-60	20
	61-70	1
	> 70	2
Years of Post-Licensing Experience	< 10	102
	11-20	48
	21-30	36
	31-40	6
	41-50	2
	No Response	11
Years Spent in Current Practice	< 5	85
	6-10	42
	11-15	20
	16-20	11
	21-25	9
	26-30	11
	31-35	5
	No Response	22
Years of Awareness of PC Concept	0-5	84
	6-10	59
	11-15	24
	> 15	5
	No response	33

Table 1a: Demographic Data; N=205

		Frequency	Percentage
PRACTICE GROUP	NAHAP – Ministry	15	7.3
	NAHAP – 3 ^o Care	56	27.3
	NAHAP – 2 ^o Care	7	3.4
	NAHAP – Anonymous	1	0.5
	NAPA – Teaching	22	10.7
	NAPA – Consultancy	1	0.5
	ACPN – Wholesale	15	7.3
	ACPN – Retail	71	34.6
	ACPN – Int. Trade	4	2
	NAIP – Marketing	2	1
	NAIP – Int. Trade	1	0.5
	No Response	10	4.9
Qualification	B. Pharm/B. Sc	141	68.8
	Pharm. D	21	10.2
	M.Sc. Pharm.	13	6.3
	M. Pharm.	4	2.0
	FPC Pharm.	8	3.9
	Ph.D	7	3.4
	MBA	6	2.9
	MPH	3	1.5
No Response	2	1	
Specialization (Specialty)	Public Health	8	3.9
	Pharm. Tech.	5	2.4
	Clinical Pharmacy	19	9.3
	Pharm. Chem.	2	1.0
	Pharm. Micro	1	0.5
	Pharmacology	4	2.0
	Pharmacognosy	3	1.5
	No Response	163	79.5
Practice Location	State Capital	167	81.5
	LGA Headquarters Others	12	5.9
	No Response	14	6.8
		12	5.9

Table 1b: Demographic Data;N=205

7. Knowledge of Pharmaceutical Care

About eighty-seven (86.8%) of respondents were aware of Pharmaceutical care concept .Out of these, 69.8% became aware within the last ten years. Based on responses to knowledge-related questions, the study revealed that 52% have good knowledge and 30% have fair knowledge. Gratifying to note that 75.1% of the respondents strongly agree that Pharmaceutical Care represents a major shift of focus from the product to the patient and that 69.3% also strongly agree that Pharmaceutical Care is the effort that Pharmacists make to ensure that patients get the best out of their medications. Overall, an average of 90.2% either agrees or strongly agrees with the key concepts of Pharmaceutical Care (Table 2).

Pharmaceutical Care functions rated significantly as Core Functions were Patient Counseling (78%), Enhancing Adherence to Medication (62.4%), and Encouraging Feedback/Follow-up (51.7%).However, not much emphasis is laid on Role Modeling/Mentoring (16.6%), Teaching and Research (20.5%) and Pharmacovigilance (25.4%) (Table 3).

Further, focusing on 2 core PC functions, analysis revealed that Age and Practice Group have significant level of association with knowledge of Pharmaceutical Care concept .The younger age groups and Pharmacists in retail and dispensing services have more knowledge of Pharmaceutical Care concept (Tables 4a, b)

The sources of update of knowledge most acknowledged were internet (72%), reference books (70%) while those least acknowledged were library (34%) and formal programs (33%)

Statement	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	No Response
PC is a patient oriented practice in which emphasis is shifted from drug products to the patients by pharmacist with a view to minimize drug therapy problems.	75.1	20.5	1	-	0.5	2.9
PC is the provision of drugs and drug information needs to patients and clinicians by Pharmacists with a view to improve clinical cure.	61.5	28.8	3.9	3.4	0.5	2
PC is the effort that Pharmacists make to ensure that patients gets the best out of their medications.	69.3	25.9	2.9	0.5	0.5	1
PC is the focusing on the drug therapy needs of individual patients by Pharmacists taking responsibility for outcome.	49.3	30.2	7.3	6.3	1.0	5.9
PC is the prevention identification and resolving of real/potential drug therapy problems.	55.6	28.8	4.9	2.9	1.2	6.3

Table 2: Percentage Level of Agreement to Knowledge Based Statements about Pharmaceutical Care; N=205

Pharmaceutical Care Function	Core	Important	Optional	No Response
Patient Counseling.	78	17.6	1.5	2.9
Comprehensive Documentation.	49.8	44.4	2	3.9
<i>Communicating more effectively with Health Care practitioners.</i>	<i>37.1</i>	<i>54.1</i>	<i>4.9</i>	<i>3.9</i>
Encouraging Feedback/Follow up.	51.7	41	2.4	4.9
Enhancing Adherence to medication/advice.	62.4	30.7	2.9	3.9
Making medicines affordable and available.	31.7	48.3	16.1	3.9
Improving post marketing surveillance/ pharmacovigilance.	25.4	54.6	14.1	5.9
Teaching and Research.	20.5	49.8	22.4	7.3
Regulating Pharmacy Practice.	28.3	42	22.5	7.3
Role Modeling/Mentoring.	16.6	40	28.3	15.1

Table 3: Percentage of Perceived Importance of Pharmaceutical Care Functions by Respondents; N=205

PC is the focusing on the drug therapy needs of individual patients
By pharmacists taking responsibility for outcome.

	Strongly agree	Agree	Undecided	Disagree	Strongly disagree	No response	Total	X ²	df	P-value
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)			
Sex: M	58 (46.8)	37 (29.8)	0 (8.1)	9 (7.3)	2 (1.6)	8 (6.5)	124(99.9)	2.56	5	0.766
F	43 (53.1)	25 (30.9)	5 (6.2)	4 (4.9)	0 (0)	4 (4.9)	81(99.9)			
Age:<30	28 (50.0)	20 (35.7)	5 (8.9)	1(1.8)	0 (0)	2 (3.6)	56 (100.0)	47.6	25	0.004*
31-40	30 (41.7)	26 (36.1)	6 (8.3)	7(9.7)	0 (0)	3 (4.2)	72 (100.0)			
41-5	33 (61.1)	12 (22.2)	1 (1.9)	2(3.7)	1(1.9)	5 (9.3)	54 (100.1)			
51-6	9 (45.0)	4 (20.0)	3(15.0)	3(15.5)	1(1.5)	0 (0)	20 (100.0)			
61-70	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1(100.0)	1 (100.0)			
>70	1 (50.0)	0 (0)	0(0)	0 (0)	0 (0)	1(50.0)	2 (100.0)			
Pr. Group										
NAHAP	46 (58.2)	21(26.6)	6 (7.6)	3 (3.8)	0 (0)	3(3.8)	79 (100.0)	25.6	25	0.429
NAPA	15 (65.2)	6 (26.1)	1(4.3)	0 (0)	1(4.3)	0 (0)	23 (100.0)			
ACPN	30 (34.1)	32(36.4)	8 (9.1)	9(10.2)	1(1.1)	8 (9.1)	88 (100.0)			
NAIP	3 (100.	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	3 (100.0)			
NAHAP										
Ministry	6 (40.0)	5 (33.3)	2 (13.3)	2 (13.3)	0 (0)	0 (0)	15 (100.0)	14.5	15	0.489
Tertiary	36(64.3)	14(25.0)	3 (5.4)	1 (1.8)	0 (0)	2 (3.6)	56 (100.0)			
Secondary	4 (57.1)	1(14.3)	1(14.3)	0 (0)	0 (0)	1(14.3)	7 (100.0)			
ACPN										
Wholesale	3 (20.0)	7(46.7)	3(20.0)	0 (0)	0 (0)	2 (13.3)	15(100.0)	24.5	15	0.056
Retail	27(38.0)	24(33.8)	5(7.0)	8 (11.3)	1(1.4)	6 (8.5)	71(100.0)			
Int. Trade	2(50.0)	1 (25)	0 (0)	1(25.0)	0 (0)	0 (0)	4 (100.0)			

Table 4a: Cross Tabulation of Demographic Data of Respondents versus Response to Attributes of knowledge; n=205; n (%)

Pr. Group=Practice Group, Int Trade=International Trade, X2=Chi-square, DF=degree of freedom, p-value* significant at <0.05. Respondents aged <30- 60 are in agreement with positive statement on knowledge significantly (p=0.004) than older respondents showing significant association between respondents' age and knowledge of Pharmaceutical Care (PC)

	Strongly, agree	Agree	Undecided	Disagree	Strongly disagree	No response	Total	X ²	df	P-value
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)			
Sex: M	66 (53.2)	35 (28.2)	8 (6.5)	5 (4)	3 (2.4)	7 (5.6)	124(99.9)	5.5	5	0.363
F	48 (59.3)	24 (29.6)	2 (2.5)	1(1.2)	0 (0)	6 (7.4)	81 (100.0)			
Age: <30	37 (66.1)	14 (25.0)	2 (3.6)	0 (0)	(0)	3 (5.4)	15(100.0)	108.5	25	0.000*
31-40	34 (47.2)	28 (38.9)	4 (5.6)	1(1.4)	1(1.4)	4 (5.6)	72 (100.0)			
41-50	33 (61.1)	13 (21.4)	0 (0)	2 (3.7)	1 (1.9)	5 (9.3)	54 (100.0)			
51-60	9 (45.0)	4 (20.0)	4 (20.0)	3 (15.0)	0 (0)	0 (0)	20(100.0)			
61-70	0 (0)	0 (0)	0 (0)	0 (0)	1(10)	0(0)	1 (100.0)			
>70	1 (50.0)	0 (0)	0 (0)	0 (0)	0 (0)	1(50.0)	2 (100.0)			
Pr. Group										
NAHAP	50 (63.3)	20 (25.3)	3 (3.8)	1 (1.3)	1 (1.3)	4 (5.1)	79 (100.0)	16.2	25	0.908
NAPA	16 (69.6)	5 (21.7)	0 (0)	1 (4.3)	0 (0)	1(4.3)	23 (100.0)			
ACPN	37 (42.0)	31(35.2)	7 (8.0)	4 (4.5)	2 (2.3)	7 (8.0)	88 (100.0)			
NAIP	2 (66.7)	1 (33.3)	0 (0)	0 (0)	0 (0)	0 (0)	3 (100.0)			
NAHAP										
Ministry	8 (53.3)	5 (33.3)	2 (13.3)	0 (0)	0 (0)	0 (0)	15 (100.0)	15.8	15	0.390
Tertiary	39(69.6)	12(29.4)	1 (1.8)	0 (0)	1(1.8)	3 (5.4)	56 (100.0)			
Secondary	3 (42.9)	2 (28.2)	0 (0)	1 (14.3)	0 (0)	1(14.3)	7 (100.0)			
ACPN										
Wholesale	5(33.3)	7(46.7)	1(6.7)	0 (0)	1(6.7)	1(6.7)	15(100.0)	26.1	15	0.037*
Retail	34(47.9)	20(28.2)	6 (8.5)	4 (5.6)	1(1.4)	6(8.5)	71(100.0)			
Int. Trade	0 (0)	4(100.0)	0 (0)	0 (0)	0 (0)	0 (0)	4 (100.0)			

Table 4b: PC is the prevention, identification and resolving of real/potential drug therapy problems

NAHAP=Nigerian Association of Hospital and Administrative Pharmacists, NAPA=Nigerian Association of Pharmacists in Academia,
ACPN=Association of Community Pharmacists of Nigeria , NAIP=Nigerian Association of Industrial Pharmacists. Respondents aged <30- 60 and Retailers agree with positive knowledge statement significantly ($p=0.000, p=0.037$) showing younger ages and retail members of ACPN have more knowledge about Pharmaceutical Care (PC)

8. Discussion

The trend of more male than female respondents is observed in other reports such as the surveys by Owusu-Daaku et al, (2010) in Ghana, Spinewire and Dhillon, (2002) in Belgium and Suleiman and Onaneye, (2011) in Nigeria. The high proportion of Pharmacists younger than 50 years of age is indicative of an active work force. A similar observation was made by Suleiman and Onaneye, 2011. The high proportion of young pharmacists most of whom are bachelor degree holders yet to specialize in any area is a good indication that intervention programs will yield positive results. The proportion of pharmacists practicing in urban area is four times those practicing in rural areas showing lack of access to qualitative pharmaceutical services by rural dwellers.

The significantly high proportion of respondents (90.2%) in agreement with the core concepts of Pharmaceutical Care, which is a direct measure of knowledge, is a very good omen for the practice of Pharmaceutical Care in these two states, if knowledge will be transmitted to practice.

The high proportion of the respondents that became aware of the concept in the last ten years. This period corresponds with the introduction of Pharmaceutical Care in the curriculum of Pharmacy schools. Also, this explains why younger pharmacists have more knowledge about Pharmaceutical Care concept. Community practice and hospital practice are the “windows” through which the public access pharmaco therapeutic services. Hence, the high proportion of Pharmacists in retail/dispensing services in the community and the tertiary health facilities is a favourable distribution for pharmaceutical care implementation. Moreover, this group of Pharmacists, work in institutions that are regulated by the Federal Government who is often the initiator and driver of most policy changes.

9. Conclusion

Pharmacists in Rivers and Bayelsa states of Southern Nigeria are largely knowledgeable of Pharmaceutical Care concept ;overall, more than 90% either agrees with the key concepts of Pharmaceutical Care. Respondents however laid greater emphasis on Patient Counselling and Enhancement of Adherence as core functions of Pharmaceutical Care .Younger Pharmacists and Pharmacists in retail/dispensing practice have more knowledge than others.

10. Recommendation

There is need to intervene to improve the level of qualitative knowledge of Pharmaceutical Care. This is necessary because qualitative knowledge which encompasses comprehension, understanding and skills is a pre-requisite to a good attitude and productive practice.

11. Conflict of Interest

The authors declare that there was no conflict of interest.

12. Acknowledgements

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