Journal of Biology, Agriculture and Healthcare
ISSN 2224-3208 (Paper) ISSN 2225-093X (Online)
Vol.3, No.7, 2013

Development and Validation of Questionnaire for the Assessment of Pharmaceutical Care by Community Pharmacists in a State in Nigeria.

Nneoma .N. Okpalanma[1*], Mathew .J. Okonta[2] , Emeka .E. Ilodigwe[3]
1. Departmant of Clinical Pharmacy& Pharmacy Management, Nnamdi Azikiwe,University, Awka, Nigeria
2. Department of Clinical Pharmacy& Pharmacy Management, University of Nigeria,Nsukka, Nigeria
3. Department of Pharmacology and Toxicology, Nnamdi Azikiwe University, Awka,Nigeria
* E-mail of the corresponding author: nneomaokoli@yahoo.co.uk

Abstract
Objective: This study is to develop and validate a questionnaire for the assessment of community pharmacists' efforts in the provision of pharmaceutical care. **Method**: A questionnaire based survey of community Pharmacists was conducted within Anambra State. The questionnaire was constructed in line with the Behavioral Pharmaceutical Care Scale (BPCS) and consisted of four sections/domains namely: demographic and other characteristics of the respondent, direct patient activity/current pharmacy practice at community pharmacy, referral, consultation and instrumental activities and exploring the awareness of pharmaceutical care. Face and content validity, construct validity, factorial validity, and reliability of questionnaire were evaluated. Reliability was established using internal consistencies with Cronbach's Alpha. Factor analysis used principal component analysis and varimax rotation with Kaiser normalization. Convergent correlation was determined using Pearson correlation. **Results**: A self administered 25-item questionnaire was developed. Questionnaire evaluated pharmaceutical care rendered by community pharmacists. Ten questionnaires were collected for pilot study while ninety completed questionnaire were retrieved for the validity test. Factor analysis resulted in four domains/factors: demographic and other characteristics of the respondents, direct patient care activities/current pharmacy practice at the community pharmacy, referral, consultation and instrumental activities and exploring the awareness of pharmaceutical care. Cronbach's Alpha for the whole questionnaire was 0.924, and 0.916, 0.840, 0.992 and 0.949 for the four factors, respectively. Four items used for convergent validity showed convergence between the related items. **Conclusion**: The questionnaire developed is a reliable and valid questionnaire for assessing pharmaceutical care rendered by community pharmacists in Nigeria. Further research is required to expand this instruments' robustness.
Keywords Community pharmacy, Pharmaceutical care, Pharmacists, Questionnaire

1.Introduction

Health care system worldwide witnessed gradual and remarkable growth in pharmacy practice over the past four decades (Geer *et al*, 2011). Pharmacy practice has become more sophisticated. Some roles have been changed and new roles introduced. There has been a shift from a product-focused professional practice of pharmacy to a more patient-focused one, that is, (pharmaceutical stage), one that emphasizes shared responsibility between the patient and pharmacist for optimal drug therapy outcomes (Ghada, 2008). Pharmacists are now employing innovative patient care strategies such as pharmaceutical care. The philosophy of pharmaceutical care has been accepted worldwide as the primary mission of pharmacy profession (Ghada, 2008). Pharmaceutical care demands that all practitioners take full responsibility of drug therapy needs of their patients not just to dispense medications (Helper &Strand, 1990). The traditional roles of Pharmacist which involve preparation, dispensing and selling of medications are no longer adequate for the pharmacy profession to succeed. Pharmaceutical care is a process in which a Pharmacist cooperates with a patient and other health professionals in designing, implementing, monitoring a therapeutic outcome for the patient(Hepler & Strand, 1990). For the goals of pharmaceutical care to be achieved, the traditional pharmacy practice has to be transformed, the perception and understanding of pharmaceutical care has to be changed as well as reorient practicing pharmacists (Ghada, 2008; Winslade,1994; Winslade *et al*, 1993; Duncan-Hewit, 1992). There is also need for a behavioral scale development to evaluate the pharmaceutical care that is being practiced. Therefore, Pharmacists' attitudes, understanding, perception of pharmaceutical care as well as the barriers that hinder the implementation of pharmaceutical care are important and should be evaluated.

Pharmaceutical care as a concept was first defined by Hepler and Strand (1990). The definition however has taken a wide variety of meaning to both researchers and pharmacy practitioners in different parts of the world. Pharmaceutical care was officially endorsed by the American Society of Hospital Pharmacy (ASHP) in 1993 as "the direct responsible provision of medication-related care for the purpose of achieving definite outcome that improves patient's quality of life (ASHP,1993). In Nigeria, pharmaceutical care is still a theoretical statement in

many settings (Erah &Nwazuoke, 2002). In fact, earlier reports indicated that not much of pharmaceutical care appears to be known in the entire West African Sub Region (Sarpong, 2004). A number of studies have been carried out on knowledge, attitude and practice of pharmaceutical care in Nigeria (Erah, 2003). Some of these studies have been carried out in several community pharmacies in Nigeria to determine the attitude and awareness of pharmaceutical care in community pharmacies. In a survey conducted in 2002, only 18.2% of 119 pharmacists practicing in Nigeria stated that they applied most of the 52 suggested practice standards obtained from round one discussion by Delphi panel of Pharmaceutical Care (Erah, 2003). In 2002, some elements of pharmaceutical care activities such as medication history taking, blood pressure measurement among others were reported to have been practiced by community pharmacists in Benin City (Erah and Nwazuoke, 2002). Low satisfaction of patients with pharmaceutical services without pharmaceutical care has been reported as well (Oparah *et al*, 2004)

Oparah & Eferakeya (2005) studied the attitudes of 1005 pharmacists in Nigeria towards pharmaceutical care and discovered that attitudes of Nigerian pharmacists towards pharmaceutical care are favorably high. It was discovered that Nigerian pharmacists' indicated willingness to implement pharmaceutical care but expressed major concerns about their knowledge, professional skills and pharmacy layout. In order for Pharmaceutical care to be implemented widely in community pharmacies, it's vital to overcome barriers and other factors that hinder pharmacist-patient interactions(Al-Arifi, 2007). These factors may have compromised the early implementation of pharmaceutical care in community pharmacies in Nigeria.

For community pharmacists in Nigeria practice of pharmaceutical care to be assured there should be a scale for measuring pharmacists' activities in their practice sites which should provide meaning to the term.

2. Method

2.1 Development of questionnaire

The framework of the Behavioral Pharmaceutical Care Scale (BPCS) by Odedina *et al* (1996) was used for development of the questionnaire. A 55- item questionnaire was initially designed with four proposed domains namely: demographic and other characteristics of the respondents, direct patient care activities/current pharmacy practice at the community pharmacy, referral, consultation and instrumental activities and exploring the awareness of pharmaceutical care. The questionnaire was checked for face, content and construct validity by experts in the field.

2.1.1 Inclusion criteria

Participants included in the study were Pharmacists Council of Nigeria (PCN) registered community pharmacists in Retail Pharmacy for the year 2011. These groups of pharmacists are always in close contact with the patients.

2.2 Pre pilot test

Survey instrument was face validated independently by two statisticians, two clinical pharmacists working at Nnamdi Azikiwe University Teaching Hospital, a tertiary hospital located in Nnewi in Anambra State and one lecturer from the department of clinical pharmacy and pharmacy management, Nnamdi Azikiwe University, Awka. The questionnaire was also subjected to content validation by two clinical pharmacists and a lecturer from the department of Clinical Pharmacy and Pharmacy Management, Nnamdi Azikiwe University, Awka. They assessed the content of each of the domain relevant to the concept of pharmaceutical care, the content of each item based on its relevance as well as comments on the length of the questionnaire.

2.3 Pilot test

The instrument feasibility was assessed in a pilot study carried out at ten community pharmacies located at Nnewi, Anambra State prior to general distribution. The generated data was evaluated by examining the properties of the data including its reliability. The pilot study generated data were not included in the final analysis.

2.4 Questionnaire distribution and data collection

The questionnaire was distributed to community pharmacists in Anambra State. The sampling strategy was based on the number of Pharmacists Council of Nigeria (PCN) registered community pharmacists in the state for the year 2011. The research question was how community pharmacists' activities can be measured to determine if pharmaceutical care is being practiced. There has been however limited information in relation to the implementation of pharmaceutical care in developing countries. Findings on studies of attitudes of Nigerian pharmacists towards pharmaceutical care showed that the attitude of Nigerian pharmacists towards pharmaceutical care is favorably high irrespective of the practice setting (Oparah &Eferakeya, 2005). Copies of the questionnaire were distributed to 110 registered community pharmacists in the state. Using an estimated population of 275 registered community pharmacists in Anambra State for the year 2011 and assuming level of significance of 5 at a 95% confidence level, a desired sample size of 163 was estimated (Ezejuele & Ogwo, 1987). Out of the 163 questionnaire sent out, 90 was completed appropriately and used for the study. About 50 of the questionnaires were discarded because they were not completed. Some of the community pharmacists also

refused to participate in the study and that affected the sample size. Questionnaire distribution and data collection was conducted between May and August 2011.

2.5 Instrument validity and reliability

The internal consistency of the instrument and each of the domains was calculated to obtain the reliability estimates using Cronbach's Alpha test. All the reliability estimates were >0.7 and were considered acceptable (Nunnally & Bernstein, 1994). Item analysis was performed. The corrected item-total correlation of each item was calculated. The condition for an item to be retained was a corrected item-total correlation value of 0.3 or higher. To establish the components or factors in the instrument, factor analysis was performed using principal component analysis, employing Variamax rotation with Kaizer normalization. The missing values in the factor analysis were handled using list wise deletion. A criterion of Eigen value ≤ 1.0 was used to determine the number of factors to be retained. For an item to be retained in a component, it must have a factor loading higher than 0.4 and no higher on another factor. The components were composed of the extraction communalities. Reliability of the entire instrument and each of the domains were assessed using Cronbach's alpha. To assess construct validity, two pairs of items were chosen from two domains. Items of each pair were observed to be related to and dependent on each other. Convergent validity of these items were computed to determine the validity of the instrument's construct.

3. Results

The initial developed questionnaire was made up of 55 items, grouped in four domains namely 'Demographic characteristics of the respondents', 'Direct patient care activities/current pharmacy practice at community pharmacy', 'Referral, consultation and instrumental activities and 'Exploring the awareness of pharmaceutical care'. Six items were deleted after face validation because they were judged as either inappropriate or unnecessary. This left the questionnaire with 49 items. During the pilot testing, 100% of the respondents approached filled the questionnaire though most of the respondents complained about the length of the questionnaire. Some also asked for further explanation regarding some of the questions. Some items were rephrased after the pilot test based on the comments and suggestions of the respondents. Out of the 90 respondent that participated in the main study, 72.2% were male while 27.8% were female. Respondent were aged 31-40years where 45.6%, while 3.3% of the respondent were greater than 60 years. Majority of the respondents have B.Pharm as their highest qualification (93.3%) while about 4.4% have M.Pharm as their highest qualification.

Computation of the corrected item-total correlation for each item resulted in deletion of four items which had correlation values of <0.3. Table 1 shows the computed item-total correlation of the questionnaire items. Items 14, 15, 24, 25, 28 and 35 had values of 0.286, 0.284, 0.184, 0.026, 0.263 and 0.250 respectively, so were not retained. This left the questionnaire with 25 items. Factor analysis with principal component and varimax was performed on the 25 remaining items. Three factors/ domains emerged representing each of the domains. The first domain with 5 items had information on the demographic characteristics of the respondents and as a result of this factor analysis was not carried out on the first domain. Items 1-11 had factor loading > 0.7 in the first factor, and thus composed of the first domain. The second domain had 8 items (17-24) while the third domain consisted of items 25-30. The first, second and third factors were labeled 'Direct patient care/Current Pharmacy Practice', 'Referral, Consultation and Instrumental Activities' and 'Exploring the awareness of Pharmaceutical Care' respectively after examining the items in each factor. Details of the factor analysis are shown in Table 2.

The reliability of the whole questionnaire was 0.924. The Cronbach values for items in the questionnaire are as follows: Items 13-28: 0.916, items 31-36: 0.840, items 38-41: 0.992 and items 44-48: 0.949.

Construct validity was carried out on some items on the questionnaire. Details of the construct validity are presented in Table 3. The two pairs of items used to determine the validity construct were items 9 and 10 from domain B and items 17 and 19 from domain C. Items from each from scale are related and expected to be dependent on each other, so should have convergence. Correlation values of 0.5 t0 1.0 would indicate convergence. Items 9 versus 10 had a correlation value of 0.915 while 17 and 19 had a value of 0.514. The final questionnaire was arranged based on the different domains as can be seen in Table 4.

4. Discussion

This study aimed to develop a valid and reliable questionnaire for assessing pharmaceutical care rendered by community pharmacists in Nigeria. This questionnaire is the first of its kind developed to be used in Nigerian community practice setting to the best of our knowledge. It was developed using the framework of the Behavioral Pharmaceutical Scale developed by Odedina *et al* (1996). Some of the items from this questionnaire were modified in a way that could fit the Nigerian practice setting

The results from the development process showed that the questionnaire is valid and reliable. Factor analysis specifically supported the factorial validity of this questionnaire. The barriers identified that hinder the

implementation of pharmaceutical care were similar to that previously identified by (Okonta *et al*, 2012; Van Mill et al, 2011; Dunlop & Shaw, 2002; Aburuz *et al*, 2012; Awad *et al*, 2006). The results of the construct validity showed that items in the questionnaire rightly assessed the items for which they were intended. The Cronbach's alpha value was high with respect to the reliability of the questionnaire (0.924). It is generally accepted that researchers should strive for Cronbach's value of 0.70 or higher as they indicate that items are sufficiently correlated to form a scale (Nunnally & Bernstein, 1994).

The questionnaire can be useful in other African countries because of the socio-demographic similarities between these countries. It can also be used to measure pharmacist behavior relative to provision of pharmaceutical care to help plan for the provision of pharmaceutical care. The developed instrument will form a reliable work tool for researchers to improve on pharmaceutical care practiced within community pharmacies. Lack of tool for measuring pharmacists' activities in performing pharmaceutical care has been identified as a primary obstruction to the widespread implementation of pharmaceutical care.

There are some limitations in this study that need to be mentioned. The self assessment nature of instrument may affect the results obtained. Some pharmacists may pretend to look good by ticking the right options. The questionnaire was lengthy and some of the pharmacists that participated in the study did not complete filling the questionnaire. Some of the pharmacists declined to participate in the study and this affected the sample size used in this study. Finally, this instrument is newly developed and so it's important to explore its validity by retesting it in different parts of the country.

5. Conclusion

This study developed a questionnaire, a first of its kind to be used in Nigerian community and hospital practice setting. The questionnaire can also be used in other African countries due to socio-economic similarities between these countries. The results from the development process indicate that the questionnaire is valid and reliable, and so might be a valuable instrument for assessing pharmaceutical care rendered by community pharmacists in Nigeria. Further research is needed to expand the robustness of the instrument.

Acknowledgments The authors wish to thank all the community pharmacists practicing in Anambra State especially those in retail for their assistance during the course of this work. We are also grateful to the academic staff of the Faculty of Pharmaceutical Sciences, Nnamdi Azikiwe University, Awka especially the department of clinical pharmacy and pharmacy management for their inputs at various stages of the work.

Conflict of interest: None

References

Aburuz S, Al Ghazawi M, Synder A. (2012). Pharmaceutical care in a community based practice setting in Jordan: Where are we now with our attitudes and perceived barrier. *International Journal of pharmacy practice*. 20:2, 71-79

Al-Arifi M.N, Al-Dhuwaili. A. A, Gubara .O.A, Al-Omar H.A *et al* (2007). Pharmacists Understanding and Attitudes towards Pharmaceutical Care in Saudi Arabia. *Saudi Pharmaceutical Journal*. 15:2, 147.

American Society of Hospital Pharmacists (1993). ASHP Statement on Pharmaceutical care. *Am J Hosp. Pharm*. 50: 1720-3.

Awad .A, Al-Ebrahim .S, Abahussian E. (2006). Pharmaceutical Care Services in Hospitals of Kuwait. J *Pharm Pharmaceut Sci* 9:2 10, 1149-157.

Duncan-Hewitt, W.C (1992). Formulation problem-solving as an alternative to traditional pharmaceutics. *Amer. J. Pharm. Education*. 56: 242-251

Dunlop J.A, Shaw J.P (2002). Pharmacists perspective on pharmaceutical care implementation in New Zealand. *Pharm world Sci*.24:6, 224-30

Erah P.O (2003). The changing roles of pharmacists in hospital and community pharmacy practice in Nigeria. *Tropical Journal of Pharmaceutical Research.2:2*, 195-196

Erah P.O, Nwazuoke J.C (2002). Identification of Standards for Pharmaceutical Care in Benin: *Tropical Journal of Pharmaceutical Research*. 1:2,55-56.

Ezejuele A.C, Ogwo E.O (1987). Basic Principles of Managing Research Project. Onitsha African Publishing

Geer M.I, Mir J.I, Koul P.A (2011). Optimizing Clinical Outcomes through Pharmaceutical Care. *Physicians Academy*. 5:9, 118.

Ghada Abdel R.M (2008). An Explorative study on Pharmaceutical Care practice from the perspective of Pharmacists in Malaysia. *Thesis submitted in fulfillment of the requirements for the degree of Masre of Science (Pharmacy)*. Pp 1-48.

Hepler C.D, Strand L.M (1990). Opportunities and responsibilities in pharmaceutical care. *Am J Hosp Pharm*.

47:3, 533-43.
Nunnally J.C, Bernstein I.H (1994). Psychometric theory (3rd ed.). New York:
Odedina F.T, Segal R (1996). Behavioral pharmaceutical care scale for measuring pharmacists' activities. *AM J Health-Syst* Pharm. 53: 855-65.
Okonta J.M, Okonta E.O, Ofoegbu T.C (2012). Barriers to implementation of pharmaceutical care by pharmacists in Nsukka and Enugu metropolis of Enugu State. *Journal of Basic and Clinical Pharmacy*. 003: 295-298
Oparah C.A, Eferakeya A.E (2005). Attitude of Nigerian Pharmacist towards Pharmaceutical Care. *Pharm world Sci*. 27:3, 208-14.
Opara C.A, Enato Efo, Akaria O.A (2004). Assessment of patient satisfaction with Pharmaceutical services in a Nigerian leading hospital. *Int J Pharm Pract*.12: 255-260.
Sarpong K (2004). Thrust of 21st Century Practice of Pharmacy in West Africa Sub-Region. *West Afri J of Pharm*.18:1, 3-10.
Van Mill J.W.F, deBoer W.O, Tromp F.J (2011).European barriers to the implementation of pharmaceutical care. *International Journal of Pharmacy Practice*. 9:3,163-168.
Winslade, N. (1994). Large group problem-based learning: A revision from traditional to pharmaceutical care-based therapeutics. *American Journal of Pharmaceutical Education*. 58:1, 64-73.
Winslade N, Laurel T, Sherry Shi, Lambert S, *et al* (1993). Monitoring community pharmacists study of using pharmacy claims data to assess performance. *AM J Hosp*. 50:1720-3.

Tables and Figures

Table 1: Item-total statistics

Items	Corrected item-total correlation
13. Asked patient to describe his or her medical condition	.812
14.Documented information about the patients medication information on written records or computerized notes	.286*
15. Documented the desired therapeutic objectives for the patients.	.284*
16. Asked patients what he or she wanted to achieve from the drug therapy.	.739
17. Asked patients question to ascertain actual drug-related problems.	.848
18. Discussed patients drug therapy with him or her.	.799
19. Verified that patients understood information I presented to him or her.	.511
20. Asked patient questions to access actual patterns of use of medication.	.863
21. Asked patient questions to find out about perceived effectiveness of drugs he or she was taking.	.769
22. Asked patient questions to ascertain whether therapeutic objectives were realized.	.738
23. Asked patient questions to find out if he or she might be experiencing drug-related problems.	.939
24.Documented drug therapy problems, potential and actual on written notes.	.184*
25.Documented desired therapeutic objectives for each of the drug related problems	.026*
26. Implemented a strategy to resolve (or prevent) drug related problems.	.969
27. Follow up patients to evaluate their progress towards the drug therapy objectives	.835
28. Document intervention made on patients in your prescription folder.	.263*

Table 1 continued

Items	Corrected Item-total Correlation
31. Discussed patients drug therapy problems with other in my practice.	.881
32. Made referrals to other pharmacists whenever it was in the best interest of the patient.	.964
33. Referred patients to specific physician when necessary.	.753
34. Communicated patients progress on their drug therapy to their physician or care providers.	.546
35. Provided physician (upon referral) written summary of patient's medication therapy and related problems.	.250*
36. How often do you counsel all patients coming to this pharmacy?	.459
38. Used a quiet location for patient counseling.	1.000
39. Double checked each prescription prepared by other personnel before giving medicines to patients.	1.000
40. Used appropriate information services (e.g. personal reference library, online searching service, subscription to drug information source) to provide drug information when necessary.	1.000
41. Have you heard about the concepts of pharmaceutical care?	1.000
44. How often do you try to provide pharmaceutical care to your patients?	.840
45. How often do you make psychological commitment and effort required to improve their medical outcomes.	.995
46. How often do you inquire of patient's satisfaction with your services in order evaluate your work.	.872
47. How often do you participate in higher educational programs to maintain and improve your competence?	.713
48. How often do you provide general medical information to patients?	.916

*Items were deleted because item-total correlation was <0.3

Table 2: Rotated factor loadings for the questionnaire items

Item	Domains		
	1	**2**	**3**
1. Asked patient to describe his or her medical condition	.955		
2. Asked patient's what he or she wanted to achieve from the drug therapy.	.921		
3. Asked patient's questions to ascertain actual drug-related problems.	.915		
4. Discussed patient's drug therapy with him or her.	.947		
5. Verified that patient's understood information I presented to him or her.	.838		
6. Asked patient's questions to access actual patterns to him or her.	.985		
7. Asked patient's questions to find out about perceived effectiveness of drugs he or she was taking.	.957		
8. Asked patient's questions to ascertain whether therapeutic objectives were realized.	.957		
9. Asked patient's questions to find out if he or she might be experiencing drug related problems.	.978		
10. Implemented a strategy to resolve or prevent problems.	.997		
11. Follow up patient's to evaluate their	.938		

progress towards drug therapy objectives.

12. Discussed patient's drug therapy problems with other pharmacists' in my practice group.	**1.000**
13. Made referrals to other pharmacists' whenever its in the best interest of the patient.	**1.000**
14. Referred patient's to specific physician when necessary	**1.000**
15. Communicated patient's progress on their drug therapy to their physician or care provider	**1.000**

Table 2 continued

Item	Domains		
	1	**2**	**3**
16. How often do you counsel all patient's coming to this pharmacy.		**1.000**	
17. Use a quiet location for patient counseling.		**1.000**	
18. Double checked prescription prepared by other personnel before giving medicines to patients.		**1.000**	
19. Used appropriate information services to provide drug information.		**1.000**	
20. Have you heard about the concept pharmaceutical care?			1.000
21. How often do you try to provide pharmaceutical care to your patients?			1.000
22. How often do you make psychological commitment and effort required to improve their medical outcomes.			1.000
23. How often do you inquire of patients satisfaction with your services in order to evaluate your work.			1.000
24. How often do you participate in higher educational programs to maintain improve your competency?			1.000
25. How often do you provide general medical information to provide.			1.000

Table 3: Non parametric (convergent) correlations

	Item 9	Item 10	Item 17	Item 19
Item 9	1.000	.915	.821	.912
Item 10:	.915	1.000	.921	.195
Item 32:	.821	.912	1.000	.514
Item 34:	.912	.195	.514	1.000

Table 4: Proportion of respondents that stated single reasons or barriers that may prevent community pharmacists from implementing Pharmaceutical care.

Reasons	Response	%
Lack of time	8	8.9
Lack of knowledge	0	0
Lack of training	6	6.7
Lack of communication skills	3	3.3
Lack of resources	5	5 6
Lack of staff	3	3.3
Total	25	27.8

Table 5: Proportion of respondents that stated combination of two responses or barriers that may prevent community pharmacists from implementing pharmaceutical care.

Responses	Responses	%
Lack of time and lack of knowledge	3	3.3
Lack of time and lack of training	3	3.3
Lack of time and lack of communication skills	0	0
Lack of time and lack of resources	5	5.6
Lack of knowledge and lack of training	5	5.6
Lack of knowledge and lack of communication skills	1	1.1
Lack of knowledge and lack of resources	1	1.1
Lack of knowledge and lack of staff	1	1.1
Lack of training and lack of communication skills	2	2.2
Lack of training and lack of resources	5	5.6
Lack of training and lack of staff	3	3.3
Lack of communication skills and lack of resources	1	1.1
Lack of resources and lack of staff	1	1.1
Total	31	34.4

Table 6: Proportion of respondents that stated combination of three reasons or barriers that may prevent community Pharmacists from implementing Pharmaceutical Care.

Reasons	Responses	%
Lack of time, lack of knowledge and lack of training	2	2.2
Lack of time, lack of knowledge and lack of staff	1	1.1
Lack of time, lack of training and lack of staff	1	1.1
Lack of time, lack of communication skills and lack of staff	1	1.1
Lack of time, lack of training and lack of resources	1	1.1
Lack of time, lack of communication skills and lack of resources	1	1.1
Lack of knowledge, lack of training and lack of communication skills	7	7.8
Lack of knowledge, lack of training and lack of staff	1	1.1
Lack of training, lack of communication skills and lack of resoures	0	0
Lack of time, lack of resources and lack of staff	3	3.3
Lack of training, lack of communication skills and lack of staff	1	1.1
Lack of training, lack of resources and lack of staff	1	1.1
Total	20	22.1

Table 7: Proportion of respondents that stated combination of four or more reasons or barriers that may prevent the implementation of Pharmaceutical Care.

Reasons	Responses	%
Lack of time, lack of knowledge, lack of communication skills and lack of staff	1	1.1
Lack of knowledge, lack of training, lack of communication skills and lack of staff	1	1.1
Lack of time, lack of training, lack of resources and lack of staff	1	1.1
Lack of training, lack of communication skills, lack of resources and lack of staff	1	1.1
Lack of time, lack of training , lack of communication skills, lack of resources and lack of staff	1	1.1
Lack of time, lack of knowledge, lack of training, lack of communication skills, lack of resources and lack of staff	9	10
None	0	0
Total	15	15.5

Appendix 1: The final draft of questionnaire for assessing pharmaceutical care by community pharmacists

A. Direct patient care/Current pharmacy practice

Please indicate how many of your last five patients with chronic conditions, who presented a refill prescription you provided the following activities by ticking the appropriate response.

s/n	The respondent	Very often	Often	Sometimes	Rarely	Never
1.	Asked patient questions to access actual patterns of use of medication.					
2.	Asked patient questions to find outabout perceived effectiveness of drugs he or she was taking.					
3.	Asked patient questions to ascertain whether therapeutic objectives were realized.					
4.	Asked patient questions to find out if he or she might be experiencing drug-related problems.					

Please indicate the activities provided to last five patients of yours you discovered were experiencing drug-related problems by ticking the appropriate response.

5.	Implemented a strategy to resolve (or prevent) drug related problems					
6.	Follow up patients to evaluate their progress towards the drug therapy objectives					

B. Referral, consultation and instrumental activities

Considering all patients you saw in the last two weeks, please indicate how you actually carried out the following activities.

s/n	The Respondent	Very Often	Often	Sometimes	Rarely	Never
7.	Discussed patients drug therapy problems with other pharmacists in my practice.					
8.	Made referrals to other pharmacists whenever it was in the best interest of the patient.					
9.	Referred patients to specific physician when necessary.					
10.	Communicated patients progress on their drug therapy to their physician or care providers.					
11.	How often do you counsel all patients coming to this pharmacy?					
12.	Used a quiet location for patient counseling.					
13.	Double checked each prescription prepared by other personnel before giving medicines to patients.					
14.	Used appropriate information services (e.g. personal reference library, online searching service, subscription to drug information source) to provide drug information when necessary.					

C. Exploring the awareness of pharmaceutical care.

s/n	The Respondent	Yes	No
15.	Have you heard about the concept of pharmaceutical care		

s/n	The Respondent	Always	Sometimes	Never
16.	How often do you try to provide pharmaceutical care to your patients?			
17.	How often do you make psychological commitment and effort required to improve their outcome			
18.	How often do you inquire of patient's satisfaction with your services in order to evaluate your work			
19.	How often do you participate in higher educational programs to maintain and improve your competence?			
20	How often do you provide general medical information to patients?			