



Original Research Article Pharmacotherapy/Pharmaceutical Care

Patients' perceptions of medication counseling and education provided by pharmacists

Uchenna I. H Eze¹, Monsurat O. Fasanya², Olufunke C. Babalola³, Ebele Onwucholuba⁴, Adebola I. Ajayi⁵,
Adaeze G. Eze⁶

¹Department of Clinical Pharmacy and Bio-Pharmacy, Faculty of Pharmacy, Olabisi Onabanjo University, Sagamu,

²Department of Pharmacy, Ifako Ijaye General Hospital, Ifako Ijaiye, Lagos State,

³Department of Pharmaceutics and Pharmaceutical Technology, Faculty of Pharmacy, Olabisi Onabanjo University, Sagamu,

⁴Department of Clinical Pharmacy, Faculty of Pharmacy, University of Lagos, Lagos, Nigeria,

⁵Department of Clinical Pharmacy and Biopharmacy, Strathclyde Institute of Pharmacy and Biomedical Sciences, University of Strathclyde, Glasgow, United Kingdom,

⁶Department of Pharmacy, Olabisi Onabanjo University, Sagamu, Nigeria.

*Corresponding author:

Uchenna I. H. Eze, PharmD PhD
Department of Clinical
Pharmacy and Biopharmacy,
Olabisi Onabanjo University,
Sagamu, Nigeria.

ifyeze3000@gmail.com

Received : 23 October 2022

Accepted : 01 June 2023

Published : 30 June 2023

<https://ajpps.org>

DOI

10.25259/AJPPS_2023_009

Quick Response Code:



ABSTRACT

Objectives: Pharmacists can increase patients' knowledge and understanding of their medications and assist them to make appropriate decisions. However, clients' perception is a rate determining step to their accepting such Pharmacists roles. In this study we evaluated clients' perceptions on pharmacists provided medication counseling and education.

Materials and Methods: A descriptive cross-sectional survey was conducted using a 27 item, three sectioned questionnaire among 405 respondents > 16years old for 10 weeks in secondary Health facility in Lagos state. Nigeria. Using Statistical Package for Social Sciences (SPSS) version 22, descriptive analysis (frequency), reliability (Cronbach alpha), correlation (spearman's rho), association (chi-square) were conducted with P value< 0.05. Three (3) was used as a logical mid-point and a positive perception was assumed if an overall mean of above 3 was obtained.

Results: Majority of the respondents were female 267 (65.9%), 47.4% fall within the age range of 20-39 years, and the highest proportion of respondents (44%) have secondary school educational qualification. About half of the respondents strongly disagreed that pharmacists are responsible for providing information on disease condition and minor ailments 181(44.7%) and strongly agreed that pharmacists always indicate medication use in writing, 278 (68.6%), there was correlation between this and pharmacists usually re-emphasized information in writing using spearman's rho (p=0.000). Most respondents strongly disagreed that pharmacy is only a business and of no benefit to patients 314 (78.9%) and 270 (66.7%) agreed that pharmacists should be an integral part of the health delivery system. Overall mean \pm SD was 4.11 \pm 0.841, while mean \pm SD on patients' knowledge of pharmacists' roles and their opinion on usefulness of pharmacists counseling and education were 4.26 \pm 0.839 and 3.95 \pm 0.840 respectively. Overall value of 0.66 was obtained for reliability test using Cronbach's alpha. There is significant association between the patients' age and their perception on need to go back to physician for clarification on medication use after pharmacists counseling (P=0.000), also between respondents' gender and their perception that counseling received from pharmacists has benefits to them. (P=0.007).

CONCLUSION: Generally, respondents have positive perceptions on pharmacist provided medication counseling and education. Our study results showed that pharmacists are seen as important professionals in providing medication related information.

Keywords: Patients' perception, Medication counseling and education, Pharmacist roles

This is an open-access article distributed under the terms of the Creative Commons Attribution-Non Commercial-Share Alike 4.0 License, which allows others to remix, transform, and build upon the work non-commercially, as long as the author is credited and the new creations are licensed under the identical terms.

©2023 Published by Scientific Scholar on behalf of American Journal of Pharmacotherapy and Pharmaceutical Sciences

INTRODUCTION

Over the years, pharmacists' roles in health-care system evolved from the traditional practices of compounding and dispensing to patient-oriented care and medication therapy management role which encapsulate the concept of pharmaceutical care.^[1] Patient education and counseling on proper use of medications are vital parts of the trending roles of pharmacists.

Pharmacists, by virtue of their knowledge and expertise in the use of medicines, are better placed among all health-care professionals to counsel and educate patients on the use of pharmacological agents.^[2] Patient counseling and education involve provision of comprehensive information about disease, lifestyle modifications, proper, rational, and effective use of medications which are given orally or in written form to patients or their caregivers for optimal benefits.^[3,4]

During counseling, pharmacists are able to identify and resolve possible drug-related problems, to provide information that improves patients' adherence to treatment and, to improve their quality of care.^[2,5] The impact of pharmacist's delivered educational interventions yield bountiful benefits such as improved treatment outcomes in patients with chronic diseases^[5-7] reduced risk of potential adverse drug reactions,^[7] improved adherence, and therapeutic outcomes, patient satisfaction,^[8] improved patient clinical and humanistic outcomes, improved quality of life outcomes, and reduced long-term health-care cost.^[3,5,6,9]

Despite the obvious benefits that pharmacists' counseling and education seem to offer patients, studies have shown that the general public are either unaware or slow to accept and take advantage of the expanded roles and responsibilities of pharmacists,^[10,11] the value of these services has not received commensurate recognition by patients.^[2] This disconnect has been attributed to absence of patient counseling during dispensing by pharmacists due to time pressures and heavy workload.

Furthermore, patients often have expectations regarding their medications and treatment when assessing care and it has been posited that patients' expectations influence their perceptions.^[1] The perceptions of patients about services provided by pharmacists depends on patients' knowledge of such services. Consequently, this affects patients' acceptance and utilization of such services.^[12]

Lack of pharmacist-provided counseling forces patients to seek medication information from other health-care providers (or from non-medical sources), thus informing their perceptions of the pharmacists as merely prescription dispensers and not a medication counselor.^[1,11,13]

Patients' perception of the pharmaceutical care role of pharmacists has been studied extensively especially in disease management in Nigeria;^[11,14,15] however, such studies are limited in evolving roles like counseling and education

services. There is a need to understand patients' perceptions about counseling and education services rendered by pharmacists as these will assess any gap in the quality of service provided by Pharmacists and provide impetus on improvements required for medication counseling and education to guarantee better patient outcomes and quality of life. This study evaluated clients' perceptions on pharmacists provided medication counseling and education.

MATERIALS AND METHODS

Study setting

This study was conducted in the Pharmacy department of Orile-Agege General Hospital, Lagos, Southwestern Nigeria (a secondary healthcare facility). A hospital specially equipped to provide medical and pharmaceutical services for ambulatory and institutionalized patients within and outside the region. It serves as a referral center for primary health-care facilities and provides referrals to tertiary hospitals. The hospital has two pharmacies, a free health section [for 0-12 years, 60 years old and above, Lagos state staff, National Health Insurance Scheme (NHIS)] and fee-paying section (a private-government joint venture), for all the patients. The pharmacy had a total of 16 registered Pharmacists and nine pharmacy technicians at the time of this study. Counseling was provided by registered Pharmacists who have received adequate training and practice by virtue of their BPharm/Pharm D degrees, Mandatory Continuing Professional Development and other trainings. The two pharmacies have outstanding records of clients' patronage and attends to approximately 200 patients daily. Patient education and counseling are offered to all patients when dispensing medications to them.

Study design

This study involved a questionnaire-guided descriptive cross-sectional survey of 405 consenting patients attending the general hospital and patronized either of the two pharmacies between February 1, and April 19, 2018 (10 consecutive weeks).

Participants' recruitment and sampling procedure

Participants recruited for the study were unassisted outpatients aged 16 years and above who were visiting either of the two pharmacies for prescription refill, and who had at least a previous encounter with a pharmacist. Individuals who declined participation and those attending the pharmacy for the 1st time were excluded from the study. Included participants were approached for enrolment while waiting to be attended to at the respective pharmacies. The objectives of the study were explained to the eligible participants, after which individual informed verbal consent to participate in

the study was obtained. Raosoft sample size calculator was used to obtain a sample size of 421 at 95% confidence level, a margin of error of 4.73%, a population of 20000 (estimated number of patients visiting the pharmacy in 10 weeks) and assumed response distribution placed at 50%. All consenting adult outpatients that received medication at the pharmacy during the study period were sampled consecutively until the sample size was achieved.

Questionnaire design and construction

A 27-item, three-sectioned structured questionnaire was used. The first section consisted of demographic data (age, sex, educational level, marital status, and occupation). The second section (11 items) covered the clients' opinion on the content and usefulness of pharmacist-provided medication counseling and education and pharmacist's accessibility where prescriptions were refilled. The third section (11 items) obtained details on patients' perception on contemporary roles of pharmacists in patient care. The 2nd and 3rd section were adopted from a study by Adisa *et al.*^[16] and other literature on effective counseling,^[17] and were anchored on a 5-point Likert scale (strongly disagree, disagree, undecided, agree, and strongly agree).

Data collection

Using 20 patients, pretesting was conducted prior to the main study to ascertain the appropriateness of the sampling procedure and ease of comprehension of the questions. Based on the feedback from the pre-test and validity assessments, modifications were made to some questions that were meant to explore respondents' views on the content and usefulness of medication counseling.

Fourteen questionnaires were distributed 3 times a week for a period of 10 weeks giving approximately 42 patients/week. It was self-administered and completed at the study site on the day of the interview during the waiting period for their refill of medications. Interventions were made only when clarification was required. An interpreter aided patients who could not read and write in filling of the questionnaire.

All consenting adults outpatients that received medication at the pharmacy during the period were purposively sampled until the calculated sample size is reached. Patient education and counseling were offered to all patients when dispensing medication to them.

Counseling was based on features of effective patient counseling.^[17] These features include establishing trust, communicating verbally and non-verbally, listen, ask questions, remain clinically objective, show empathy and encouragement, provide privacy and confidentiality, and tailoring counseling to meet patient needs.

Data analysis

Both descriptive and inferential analyses of the data obtained were done using Statistical Package for the Social Sciences version 22. Cronbach Alpha test was used to determine the reliability of the questionnaire at a value of 0.66. Mean with Standard deviation (\pm SD) were obtained. Negatively worded questions in Section 3 were reversed. With a total of 22 items for opinions and perceptions on medication counseling, three was used as a logical mid-point and a positive perception was assumed if an overall mean of above 3 was obtained. Furthermore, a maximum score of 110, a minimum score of 22, and a score above 66 was considered positive. Further statistical analyses were performed using Spearman's rho (correlation coefficient) and Chi-square to assess the association between variables. $P < 0.05$ was considered significant.

Ethical Approval

Approval of the study protocol and ethical clearance was obtained from the Lagos University Teaching Hospital Lagos Nigeria Health Research Ethics Committee with assigned number ADM/DCST/HREC/APP/1082. Verbal consents were obtained from all participants before data collection. Confidentiality and anonymity of responses were assured while participants were informed that participation is voluntary. Only the consenting individuals were enrolled.

RESULTS

Response rate

Four hundred and five questionnaires were filled completely and returned resulting in a response rate of 96.2%.

Demographic characteristics of study participants

The sociodemographic characteristics of respondents are reflected in [Table 1]. The greatest number of respondents was in the age range of 20–39 (47.4%) compared to other groups. More than one half of the respondents were females (65.9%) with majority having secondary school education ($n = 178$, 44.0%). More than one half were married (66.7%) while majority were artisans (40.5%).

Patients' perception of usefulness of pharmacists' provided medication counseling and education

The frequency of response to different aspects of the questions that evaluated patients' opinion on usefulness of pharmacists' provided education and counseling is summarized in [Table 2]. Most respondents strongly disagreed that pharmacists are responsible for providing information on disease condition and minor ailment (86.1%). The majority strongly agreed that pharmacists

always indicate medication use in writing (68.6%) and this strongly correlates with pharmacists usually re-emphasizing information in writing. Respondents mostly agreed

that advice on precautions to be taken during the use of medication are given by pharmacists (54.6%). However, the majority disagreed that advice on side-effects of medication is given by pharmacists (43.5%).

Table 1: Sociodemographic characteristics of patients.

Characteristics	Frequency (n=405)	Percentage
Gender		
Female	267	65.9
Age		
<20 years	22	5.4
20–39	192	47.4
40–59	129	31.9
60–79	35	8.6
Above 80	27	6.7
Educational qualification		
No formal education	37	9.1
Primary education	45	11.1
Secondary education	178	44.0
Tertiary education	121	29.9
Postgraduate education	24	5.9
Occupation		
Student	28	6.9
Civil servant	67	16.5
Artisan	164	40.5
Professionals	97	24.0
Retiree	49	12.1
Marital status		
Single	50	12.3
Married	274	67.7
Divorced	13	3.2
Widowed	16	4.0
No response	52	12.8

With regards to frequency and duration of use of drugs, most respondents agreed that information on frequency of use of drugs (51.4%) and information on drug duration (56.0%) are provided by pharmacists. A strong correlation was also observed between provision of information on frequency of use of drugs and information on duration of drug use.

More than one half of the studied population agreed that pharmacists freely counsel on drug interactions (51.6%) and that pharmacists give adequate explanation on the dosage regimen (50.6%). Moreover, just over one half (50.6%) and a little less than one half (48.1%) of the respondents agreed that pharmacist medication information is helpful and encounter with pharmacist have positive impacts on medication usage, respectively.

Patients' perception on roles of pharmacists in patients care

[Table 3] shows patients' perception on roles of pharmacists in patient care. Most patients agreed that counseling received from pharmacists is beneficial (52.6%) and that counseling by pharmacists should be encouraged by stakeholders (56.3%). They also agreed that pharmacists should be an integral part of the health delivery systems (66.7%).

However, the majority (74.7%) strongly disagreed that pharmacists should only be involved in the sales of medicines

Table 2: Patients' perception of usefulness of pharmacists' provided education and counseling.

S. No.	Item no	SD (%)	D (%)	U (%)	A (%)	SA (%)	M	±SD
1.	Pharmacists are responsible for providing information on disease condition and minor ailment	276 (86.1)	2 (0.5)	45 (11.1)	66 (16.3)	16 (4.0)	2.11	1.248
2.	Pharmacists always indicate medication use in writing	2 (0.5)	9 (2.2)	7 (1.7)	109 (26.9)	278 (68.6)	4.63	0.667
3.	Pharmacists usually re-emphasize information verbally	10 (2.5)	4 (1.0)	5 (1.2)	142 (35.1)	244 (60.2)	4.53	0.688
4.	Pharmacists give advice on precaution to be taken during use of medication	17 (4.2)	80 (19.8)	18 (4.4)	221 (54.6)	69 (17.0)	3.65	1.027
5.	Pharmacists give advice on side-effect of the medication	6 (1.5)	176 (43.5)	21 (5.2)	146 (36.0)	56 (13.8)	3.17	1.175
6.	Pharmacist usually provides information on frequency on use of medication	3 (0.7)	8 (2.0)	9 (2.2)	208 (51.4)	177 (43.7)	4.36	0.686
7.	Pharmacists usually provide information on duration of use of medication	2 (0.5)	22 (5.4)	13 (3.2)	227 (56.0)	141 (34.8)	4.19	0.779
8.	Pharmacist freely counsel on drug interaction	8 (2.0)	75 (18.5)	34 (8.4)	209 (51.6)	79 (19.5)	3.68	1.050
9.	Pharmacist gives adequate explanation on the dosage regimen	2 (0.5)	12 (3.0)	17 (4.2)	282 (69.6)	92 (22.7)	4.13	0.639
10.	Pharmacist medication information is helpful	4 (1.0)	71 (17.5)	6 (1.5)	119 (29.4)	205 (50.6)	4.57	0.595
11.	Encounter with pharmacist have positive impacts on medication usage	2 (0.5)	9 (2.2)	19 (4.7)	180 (44.4)	195 (48.1)	4.40	0.750

SD: Strongly disagree, D: Disagree, U: Undecided, A: Agree, SA: Strongly agree, M: Mean, ±SD: Standard deviation

Table 3: Patients' perception on roles of pharmacist in patient care.

S. No.	Item no	SD (%)	D (%)	U (%)	A (%)	SA (%)	M	±SD
1.	Counseling received from pharmacists has benefit to patients	6 (1.5)	2 (0.5)	10 (2.5)	213 (52.6)	174 (43.0)	4.40	0.567
2.	Medication counseling by pharmacists should be encouraged by stakeholders	2 (0.5)	7 (1.7)	22 (5.4)	228 (56.3)	146 (36.0)	4.27	0.675
3.	Pharmacists should be an integral part of the health-care delivery system	2 (0.5)	7 (1.7)	10 (2.5)	270 (66.7)	116 (28.6)	4.25	0.547
4.	Pharmacists should be actively involved in health decision making	11 (2.7)	2 (0.5)	14 (3.5)	248 (61.2)	130 (32.1)	4.28	0.553
5.	Pharmacists offer unsolicited counseling to patient at every encounter	4 (1.0)	17 (4.2)	53 (13.0)	225 (55.6)	106 (26.2)	4.07	0.792
6.	Pharmacist should only be involved in the sales of medicines and not necessarily patients counseling	12 (3.0)	12 (3.0)	14 (3.5)	69 (17.3)	298 (74)	4.55	0.923
7.	Pharmacist' is not always accessible to patients during prescription refill	23 (5.7)	34 (8.4)	24 (5.9)	157 (38.8)	167 (41.2)	4.02	1.150
8.	pharmacy is only a business and of no benefit to patients apart from sales of medicines	5 (1.2)	6 (1.3)	15 (3.2)	65 (16.3)	314 (78.9)	4.67	0.730
9.	Encounter with pharmacists does not make positive impact on medication usage since physician has given direction on how to take the medicines	8 (2.0)	11 (2.7)	25 (6.2)	95 (23.5)	266 (65.7)	4.47	0.885
10.	Pharmacists are more knowledgeable about medication usage than physician from personal experience	26 (6.4)	69 (17.0)	63 (15.5)	95 (23.5)	152 (37.5)	3.70	1.308
11.	There may be need to go back to the physician for clarification on medication use after pharmacists counseling	18 (4.4)	21 (5.2)	42 (10.3)	97 (24)	227 (56)	1.76	1.106

SD: Strongly disagree, D: Disagree, U: Undecided, A: Agree, SA: Strongly agree, ±SD: Standard deviation

and not necessarily patient counseling. Three quarters of the study participants (78.9%) also strongly disagreed that pharmacy is only a business and of no benefit to patients apart from the sales of medicine. More than half of respondents (65.7%) disagreed that pharmacists do not make positive impact on medication usage since physician has given direction on usage.

Moreover, less than one half of respondents (37.5%) agreed that pharmacists are more knowledgeable than physicians on medication usage while more than half (56.6%) strongly disagreed that there is need to go back to the physician for clarification on medication use after pharmacist counseling.

The overall mean ± SD were 4.11 ± 0.841, respectively. Mean ± SD obtained for opinion on usefulness of pharmacists and their perceptions about pharmacist counseling and education were 3.95 ± 0.840 (score = 86.9) and 4.26 ± 0.839 (score = 93.72), respectively.

Association between respondents' demographics and their perceptions about pharmacist counseling and education

[Table 4] shows a statistically significant association between respondents' age, sex, occupation, educational qualification, and their perceptions about pharmacists counseling and education ($P < 0.05$).

DISCUSSION

Education and counseling are major components of pharmaceutical care. Streams of evidence have shown that drug information services, health promotion, and health education are the roles of pharmacists. This study assessed patients' views and perception of the usefulness and roles of pharmacists within a collaborative health-care system.

The study revealed that patients perceive pharmacists' provision of education and counseling as useful and agreed that their contact with the pharmacist has made a positive impact on their medication use process since pharmacist have better knowledge of medicines and their uses. Hence, patients perceive the role of pharmacists as more of medication-related than providing information on disease management. Consistent with this finding are studies that reported that the roles of the pharmacist within collaborative patient care involving other health-care professionals include providing drug information to patients and other health-care providers and acting as consultants for treatment-related issues.^[18,19] These assertions mean that pharmacists are assuming more non-traditional roles.^[20]

In this study, a higher proportion of the patients agreed that pharmacists provide both verbal and written information on medication use. Providing written medication information complements the verbal medication counseling and assist

Table 4: Association between respondents' demographics and their perceptions about pharmacist counseling and education.

Description	Chi-square	DF	P-value
Age			
Need to go back to the physician for clarification on medication after pharmacists counseling	60.716	16	0.0001
Medication counseling by pharmacist should be encouraged by stakeholders	39.825	16	0.001
Counseling received from pharmacist has benefit to patient	38.052	12	
Pharmacist are more knowledgeable about medication usage than physician from my personal experience	95.242	16	0.01
Sex			
There may be need to go back to the physician for clarification on medication usage after pharmacist counseling	20.767	4	0.001
Medication counseling by pharmacist should be encouraged by stakeholder	22.943	4	0.001
Counseling received from pharmacist has benefit to patient	12.242	3	0.007
Educational qualification			
There may be need to go back to physician for clarification on medication usage after pharmacists counseling	32.987	16	0.007
Medication counseling by pharmacist should be encouraged by stakeholder	37.858	16	0.002
Occupation			
There may be need to go back to the physician for clarification of medication usage after pharmacist counseling	62.776	16	0.001
Medication counseling should be encouraged by stakeholders	46.322	16	0.001
Pharmacists are more knowledgeable about medication usage by physician from my personal experience.	77.525	16	0.001
Counseling received from pharmacist has benefit to patients.	30.125	12	0.003

patients especially the elderly in remembering the medication use information. A study conducted in New Zealand which reported patients' desire for written information on medication use, as a way to facilitate their decision-making and self-management of their health is in line with the result of this study.^[21] Another study carried out in Netherlands among patients from the pulmonology discharged with at least one prescribed drug reported patients' preference for both oral instructions and written information tailored toward individual patients need.^[22] A combination of oral and written information often guarantees longer retention of medication information, which would ultimately improve treatment adherence, and patient satisfaction with care. Hence, The American society of health-system pharmacists in its policy guideline^[23] also stated that pharmacists must have excellent oral and written communication skills to be effective providers of drug information.

Providing information on the side effects of drugs is another essential role that should not be left out during patient education because it has the potential to enhance medication use, and therapeutic outcomes.^[24] In this study, an appreciable number of patients agreed that pharmacists usually provide information on the dosage regimen including, duration of medication use, drug interaction, but also affirmed that pharmacists do not give adequate information on medication side-effects. Supporting these findings is an earlier study conducted in Nigeria that reported that the provision of information on the side effects of medication and how to manage them by pharmacists was not satisfactory.^[1] In contrast with the study findings is a

study conducted in Southwest Nigeria, reported, which that pharmacists provided medication counseling on medication side effects, medication history, and allergies.^[25] Similarly, in Canada, a study found that pharmacists discussed the medication side effects and the management strategies with the patients.^[26] However, Borgsteede *et al.*^[22] noted that information on medication use is preferable compared to that on side effects as information on medication side effects could have a counter effect by negatively influencing patients' attitude toward medication use. Therefore, to effectively carry out this professional role, pharmacists need to acquire knowledge on the side effects of medications and prioritize when and how to provide information on side effects.

Furthermore, in this study, patients agreed that once clinicians are involved in giving information on medication regimen, the services of the pharmacist may not make any significant impact on medication taking. Most patients agreed that pharmacist should only be involved in the sales of medicines and not necessarily patients counseling as there are occasions, they may need to go back to the physician for clarification on medication use after pharmacists counseling. This notion and perceptions observed in this study is proof that the public image of the pharmacist is that of a "pill dispenser". As such, pharmacists often suffer from a lack of professional identity. The establishment of a global pharmacist council is not only timely but will project the relevance of the global pharmacy council in building international recognition of the pharmacy profession to secure acceptance as an integral part of the health-care system.^[27]

Based on the perception of the pharmacist role, most patients agreed that pharmacists should be an integral part of the

health-care delivery system and should be actively involved in health decision-making.

Limitations of this study include difficulty in data collection as a lot of clients were not willing to join in the survey and some respondents were slow in responding to questionnaires. We also suspected that some patients felt obligated to choose positive answers as they completed survey while waiting for their medicines to be dispensed. The survey was also conducted in a single health-care facility and the outcomes may not be generalized.

CONCLUSION

Based on the overall mean \pm standard deviation, respondents were generally positive on their perception to pharmacist provided medication counseling and education, but they had better perception on the roles being provided than their usefulness in counseling and education. Furthermore, their perception of the pharmacist role in a collaborative healthcare with other health-care professional is contradicting and not very clear.

Pharmacists are seen as an important profession in providing medication related information, they must ensure that important counseling and education point are attended to, so that maximum therapeutic outcomes are achieved and their professional status remain valid.

Acknowledgment

We thank all patients for their participation in this study. We also like to thank the head of pharmacy department of Orile-Agege General hospital and all pharmacists who supported us during data collection.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent.

Financial support and sponsorship

None.

Conflicts of interest

There are no conflicts of interest.

REFERENCES

1. Aderemi-Williams RI, Musa PG, Soremekun RO, et al. Perception of patients accessing out-patient pharmacy on the quality of pharmaceutical services in a tertiary health facility in Lagos, Nigeria. *Highland Med Res J*. 2017;17:38-45.
2. Lau ET, Tan SH, Antwertinger YJ, et al. Counseling interactions between patients living with persistent pain and pharmacists in Australia: Are we on the same page? *J Pain Res*. 2019;12:2441.
3. Palaian S, Chhetri AK, Prabhu M, et al. Role of pharmacist in counseling diabetes patients. *J Pharmacol*. 2005;4:1.
4. Palaian S, Prabhu M, Shankar P. Patient counseling by pharmacist-a focus on chronic illness. *Pak J Pharm Sci*. 2006;19:65-72.
5. Villako P, Volmer D, Raal A. Factors influencing purchase of and counselling about prescription and OTC medicines at community pharmacies in Tallinn, Estonia. *Acta Pol Pharm*. 2012;69:335-340.
6. Beney J, Bero LA, Bond C. Expanding the roles of outpatient pharmacists: Effects on health services utilisation, costs, and patient outcomes. *Cochrane Database Syst Rev*. 2000;2:CD000336. doi:10.1002/14651858.CD000336
7. Bennett MI, Bagnall AM, Raine G, et al. Educational interventions by pharmacists to patients with chronic pain: Systematic review and meta-analysis. *Clin J Pain*. 2011;27:623-630.
8. Mathew A, Yohannes MH, Girmay B. Changing role of pharmacists and their skills of communication: A study in Eritrea. *Pharmacologyonline*. 2010;1:772-779.
9. Dalton K, Byrne S. Role of the pharmacist in reducing healthcare costs: Current insights. *Integr Pharm Res Pract*. 2017;6:37-46.
10. Kelly DV, Young S, Phillips L, et al. Patient attitudes regarding the role of the pharmacist and interest in expanded pharmacist services. *Can Pharm J (Ott)*. 2014;147:239-247. doi:10.1177/1715163514535731
11. Schommer JC, Gaither CA. A segmentation analysis for pharmacists' and patients' views of pharmacists' roles. *Res Soc Adm Pharm*. 2014;10:508-528.
12. Muhammad A, Khawaja N, Murtaza G. General public's perception regarding role of pharmacists in health care system in Khyber Pakhtunkhwa province, Pakistan: A quantitative survey study. *Lat Am J Pharm*. 2015;34:1953-1960.
13. Adnan S, Tanwir S, Abbas A, et al. Perception of physicians regarding patient counseling by pharmacist: A blend of quantitative and qualitative insight. *Int J Pharm Ther*. 2014;5:117-121.
14. van Geffen EC, Philbert D, van Boheemen C, et al. Patients' satisfaction with information and experiences with counseling on cardiovascular medication received at the pharmacy. *Patient Educ Couns*. 2011;83:303-309.
15. Igbanugo SJ, Dabi IS, Abah IO. Perception of pharmaceutical care roles of pharmacists among in-patients in a tertiary care facility in Jos City, Nigeria. *J Pharm Res Int*. 2014;4:1332-1340.
16. Adisa R, Adeniran A, Fakeye O. Client perception of pharmacist provided medication counseling and contemporary roles in patient care. *West Afr J Pharm*. 2014;25:115-124.
17. Terrie YC. Ten behaviors of effective counselors. *Pharm Times*. 2008;74:45.
18. Rahayu SA, Widiyanto S, Defi IR, Abdulah R. Role of pharmacists in the interprofessional care team for patients with chronic diseases. *J Multidiscip Healthc*. 2021;14:1701-1710. doi:10.2147/JMDH.S30993
19. Bragazzi NL, Mansour M, Bonsignore A, Ciliberti R. The role of hospital and community pharmacists in the management of COVID-19: Towards an expanded definition of the roles, responsibilities, and duties of the pharmacist. *Pharmacy*

- (Basel). 2020;8:140. doi:10.3390/pharmacy8030140
20. Strand MA, Bratberg J, Eukel H, Hardy M, Williams C. Community pharmacists' contributions to disease management during the COVID-19 pandemic. Erratum appears in *Prev Chronic Dis*. 2020;17:E69. *Prev Chronic Dis*. 2020;17:E69. doi:10.5888/pcd17.20031
 21. Chan AH, Aspden T, Brackley K, et al. What information do patients want about their medicines? An exploration of the perspectives of general medicine inpatients. *BMC Health Serv Res* 2020;20:1131. doi:10.1186/s12913-020-05911-1
 22. Borgsteede SD, Karapinar-Çarkit F, Hoffmann E, Zoer J, van den Bemt PM. Information needs about medication according to patients discharged from a general hospital. *Patient Educ Couns*. 2011;83:22-28. doi:10.1016/j.pec.2010.05.020
 23. Ghaibi S, Ipema H, Gabay M. ASHP guidelines on the pharmacist's role in providing drug information. *Am J Health Syst Pharm*. 2015; 72:573-577.
 24. Jimmy B, Jose J. Patient medication adherence: Measures in daily practice. *Oman Med J*. 2011;26:155-159. doi:10.5001/omj.2011.38
 25. Showande SJ, Laniyan MW. Patient medication counselling in community pharmacy: Evaluation of the quality and content. *J Pharm Policy Pract*. 2022;15:103. doi:10.1186/s40545-022-00502-3
 26. Dyck A, Deschamps M, Taylor J. Pharmacists' discussions of medication side effects: A descriptive study. *Patient Educ Couns*. 2005;56:21-27. doi:10.1016/j.pec.2003.10.006
 27. Raza MA, Aziz S, Noreen M, Anjum I, Raza SM. A Portrait of the pharmacy profession globally: pharmacist universal professional identity and establishment of global pharmacy council. *Innov Pharm*. 2022;13:10.24926/iip.v13i1.4502. doi:10.24926/iip.v13i1.4502

How to cite this article: Eze1 UI, Fasanya MO, Babalola OC, et al. Patients' perceptions of medication counseling and education provided by pharmacists. *Am J Pharmacother Pharm Sci* 2023;9.