



Assessment of Patients' Satisfaction with Pharmaceutical Care Services in a Nigerian Teaching Hospital: A Cross Sectional Study

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Authors' contributions

This work was carried out in collaboration among all authors. Authors SCO and SCO conceptualized the design of the study and data analysis. Author CLI designed the questionnaire. Authors CAE, PCU, IJO, SMN and WJI participated in data collection and writing up the manuscript. All authors gave consent for the submission of the manuscript. All authors read and approved the final manuscript.

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ABSTRACT

Objective: Pharmaceutical Care (PC) services have come to be the cornerstone of pharmacy practice all over the world. PC has been linked to better clinical and humanistic outcomes for patients. In Nigeria, only a few studies have analyzed pharmacists' pharmaceutical care services in hospitals. This study aims to ascertain patients' satisfaction with pharmaceutical care services and evaluate pharmacists' practices in Nigerian hospitals.

Methods: This was a cross-sectional study using a semi-structured questionnaire among inpatients and outpatients visiting five clinics in the hospital. The questionnaire was interviewer-administered. Descriptive statistics were used to summarize the findings. The chi-square test was used to determine the association between respondents' sociodemographic variables and their satisfaction towards pharmacists' medication counselling.

Results: Five hundred and three patients participated in the study. Females that participated in the study formed 58.6% of the total population. Approximately 71.4% of the respondents were satisfied with the pharmaceutical care services provided by pharmacists in the hospital. Most participants (70.8%) completed tertiary education, and the majority (63.4%) of the visits were follow-ups. There was no statistically significant correlation between the sociodemographic factors and patients' satisfaction, except for age and patronage, which showed a positive association.

Conclusion: Patients at the University of Nigeria teaching hospital were satisfied with the pharmaceutical care services offered by the pharmacists. However, some of the respondents noted some level of dissatisfaction with the willingness of pharmacists to re-counsel patients upon request. An effective policy and strategy would address the issue and raise satisfaction.

Keywords: Patients; satisfaction; pharmaceutical care; services; Nigeria; hospital.

ABBREVIATIONS

PC : *Pharmaceutical Care*
IBM : *International Business Machine*
SPSS : *Statistical Package for Social Sciences*

1. INTRODUCTION

Pharmacists collaborate with other health professionals to achieve the best clinical outcome and improve patients' quality of life. Pharmacy services have expanded beyond simple medication supply to a more patient-centred and caring service [1]. The American Pharmaceutical Association described pharmaceutical care as a patient-centred, outcomes-oriented pharmacy practice that requires pharmacists to work in collaboration with the patient and the patient's other healthcare providers to promote health, prevent disease, and assess, monitor, initiate, and modify medication use to assure that drug therapy regimens are safe and effective [1]. The level of happiness a patient feels after using a service is known as patient satisfaction. Additionally, it reveals the disparity between patients' perceived service quality and expectations and their actual experiences with the service [2]. It is well-known that satisfaction affects compliance and the desire for medical care [3]. Patient satisfaction is crucial in determining how well medical services are provided [4]. In evaluating the effectiveness

of medical care, the patient's perception is becoming more and more valued [5]. The healthcare industry is currently making constant efforts to guarantee greater customer satisfaction. By doing this, one can spot healthcare service delivery issues and take steps to improve patient satisfaction [6].

Measuring healthcare quality and using this data for service improvement have become central issues [7]. The direct approach to determining patients' satisfaction which involves asking patients to evaluate their satisfaction with encounters in particular healthcare facilities or with specific providers, was employed in this study [8]. One of the ways by which pharmacists can improve patients' knowledge and understanding of their drugs is through medication counselling treatments, allowing them to make informed decisions about their treatment [9]. According to earlier research, patient satisfaction with pharmaceutical services is influenced by a variety of factors, including the professionalism of the pharmacy staff, interactions with patients (including their mode and method of communication), pharmacists' concerns for patients' health, and pharmacists' competency in describing the uses, side effects, and storage of medications [10].

A critical evaluation of the literature reveals that more research needs to be done to assess the

practices of pharmacists in Nigeria, particularly in hospitals. Switching from dispensing medications to delivering patient-centred care is one of the essential elements to enhancing clinical and therapeutic health outcomes. The development of pharmaceutical practices will help to improve patients' accessibility to medicines, increase the availability of drugs, establish effective monitoring techniques, and boost patient confidence and satisfaction in hospitals. To guarantee that patients receive pharmaceutical care services, pharmacists have essential duties to play. This study aimed to determine the patients' satisfaction levels with pharmaceutical care services as one method of evaluating pharmacist engagement and roles in this area. The results of this study would form a policy framework that will encourage pharmacists' practices, thus improving patients' therapeutic outcomes. This study is appropriate for the scientific community since it employed an established scientific method of observational studies to assess pharmacists' practices to improve patients' satisfaction in Nigerian hospitals.

1.1 Aims and Objectives

1.1.1 Primary objective

This study aims to assess the pharmaceutical care services provided by pharmacists in a Nigerian teaching hospital.

1.1.2 Secondary objectives

- To ascertain the patients' level of satisfaction in a Nigerian teaching hospital
- To measure the specific factors responsible for patients' satisfaction in the hospitals
- To suggest possible interventions to improve patients' satisfaction in teaching hospitals

2. METHODS

2.1 Study Design and Participants

This survey was a cross-sectional study among inpatients and outpatients at the University of Nigeria teaching hospital, Ituku-Ozalla Enugu, Nigeria.

2.2 Setting

The study was conducted at the University of Nigeria teaching hospital, Ituku-Ozalla Enugu,

Nigeria. Various inpatient wards and outpatient clinics were conveniently sampled from the hospital.

2.3 Sampling

The systematic sampling method was used. The average number of patients in the hospital per time was determined from the hospital's medical records, and the sample size was calculated. It was randomly distributed among different hospital patient wards and outpatient clinics. In each hospital ward, after visiting the first patient bed, a space of 3 patient beds was given, and the subsequent fourth bed was visited until the questionnaires were filled. For outpatients in the clinic, the first patient was selected daily by drawing a number from 1 up to 7 and continuing with every seventh number until the daily sample limit was reached.

2.4 Eligibility Criteria

To be eligible for the study, participants had to be at least 18 years old and either receive care in a hospital ward or attend one of the outpatient clinics for the first time or as a follow-up. The study did not include eligible respondents who did not give their informed consent.

2.5 Sample Size Calculation

The study covered both the hospital wards and the outpatient clinics in the hospital. With a 5% error margin and a 95% confidence range, a sample size of 503 was deemed to be representative of the population. The sample size was calculated using Slovinc's formula for Sample Size Calculation

$$(n = N / (1 + N (e)^2))$$

where n represents the sample size,
N represents the target population,
And e represents the margin of error, which is set at 0.05.

The hospital's medical records were used to determine the average target population (N = 4305) for both inpatients and outpatients at each time point. The participating wards and clinics received a proportionate share of the sample size. The fact that data collection was evenly distributed among the authors according to the clinics and wards they were operating at the time and possibly because patients were familiar with the authors and visited when they were at ease

and willing to answer questions contributed to the fact that a 100% response rate was achieved.

2.6 Participant Recruitment and Data Collection

All potential participants in the ward and clinic visitors received participant information sheets. Following signing the study consent form, the questionnaire was distributed to those who had expressed interest. The entire data was gathered for this investigation between June 15 and July 20, 2022.

2.7 Study Instrument

A pretested and validated instrument designed to assess patients' satisfaction towards pharmacists' practices in providing pharmaceutical care services in hospitals was adopted from the study by Surur et al.[10] and Aziz [11]. The instrument consists of 2 parts; the first part seeks information on the patient's demographics, and the second part with 13 items that assess the patient's satisfaction with the pharmaceutical care services. Each item has 5-point Likert scale responses (very low = 1, low = 2, moderate = 3, high = 4, very high = 5).

2.8 Data Analysis

The data collected was coded and entered into Microsoft Excel 2010. The data was cleaned and checked for appropriateness. Descriptive statistics (frequency, percentage, and mean) were used to present respondents' sociodemographic characteristics. A chi-square test determined the association between respondents' sociodemographic variables and their satisfaction with pharmacists' medication counselling. The predictors of satisfaction towards pharmacists' medication counselling were determined using Logistic regression. P values ≤ 0.050 was considered statistically significant. All analyses were performed using IBM Statistical Product and Service Solution (SPSS) for Windows, version 21.0 (IBM Corp, version 21.0 and Armonk, NY, USA).

3. RESULTS

3.1 Sociodemographic and Patients' Preliminary Information

Table 1 displays the demographic findings. Women made up 295 of the respondents, or 58.6% of the total, with the majority of respondents being between the ages of 18 and 28 [181(36.0%)] and those 62 and older

[52(10.3%)]. Among the patients, 260 (51.7%) were married, 233 (46.3%) were single, 2 (0.4%) had divorced, and 8 (1.6%) were widows. The majority of the patients [356(70.8%)] had completed their secondary school, while the lowest percentage [31(6.2%)] and highest percentage [116(23.1%)] had completed their primary education. Regarding their employment situation, we divided participants into 214 (42.5%) employed, 182 (36.2%) self-employed, and 107 (21.3%) jobless. The median monthly income for just over half [260((51.7%)] of the patients was 50,000 Naira. Most participants (494) were Christians (98.2%), with 0.8% being Muslims, 0.6% being traditionalists, and 0.4% others. Three hundred ninety-four participants—78.3%—were uninsured, whereas 109 participants—21.7%—were. Only 36.6% of participants were first-time visitors, while about 63.4% were follow-up visits.

3.2 Patients' Satisfaction with Pharmaceutical Care Services Provided by Pharmacists

Table 2 gives the satisfaction level between the patients and each of the parameters used to measure the satisfaction level. At a glance, it is clear that clarity of pharmacists' instructions had the highest satisfaction level [328(65.2)], followed by pharmacists' interest in their health [320(63.6%)], pharmacists' courtesy and respect [308(61.2%)], response to drug-related questions [302(60.0%)], Pharmacists' effort to solve medication-related problems [274(54.5%)], Pharmacists' information on sufficient treatment period [265(52.7%)], Pharmacists' information on medication storage[262(52.1%)], and Information on expected outcomes of medications [254(50.5%)] while showing some level of dissatisfaction on Pharmacists' willingness to counsel on request[301 (61.0%)], Pharmacists' Information on the type of food to take [279(55.5%)], and Pharmacists' enquiry on adherence to previously dispensed prescriptions [265(52.7%)].

3.3 Overall Satisfaction Level of Patients with Pharmaceutical Care Services in the Hospital

Table 3 displays the percentage distribution for the general perception of the patient's satisfaction with pharmaceutical care services. One of the key findings of our study is that, compared to the 28.6% of patients who said they were dissatisfied with the hospital's

pharmaceutical care services, 71.4% of patients at the Nigerian teaching hospital expressed satisfaction with the facility's present pharmaceutical care services.

3.4 Model summary for simple linear Regression

Table 4 shows the value of the adjusted R² = 0.016; hence when multiplied by 100%, the value of adjusted R² will be 1.6%. This percentage showed that 1.6% of the variation in satisfaction is due to age, marital status, and patronage. The remaining 98.4% of the variation in satisfaction is

due to other predictors that are not included in the model or factors that are uncontrollable.

3.5 Correlation Coefficient of Satisfaction

Table 5 shows the correlation coefficient of the patients' socio-demographics. From the Table, we can only ascertain that we are 95% confident that satisfaction is dependent on age, marital status, and patronage (p-value less than 0.05). But the other sociodemographic parameters are independent of satisfaction from a p-value greater than 0.05. These were further illustrated in the discussion, where several other studies were reviewed and compared to this study.

Table 1. Sociodemographic and patients' preliminary information

Characteristics		Frequency	Percentage (%)
Age (years)	18-28	181	36.0
	29-39	131	26.0
	40-50	78	15.5
	51-61	61	12.1
	62 and above	52	10.3
	TOTAL	503	100.0
Gender	Male	208	41.4
	Female	295	58.6
	TOTAL	503	100.0
Marital Status	Married	260	51.7
	Single	233	46.3
	Divorced	2	0.4
	Widowed	8	1.6
	TOTAL	503	100.0
Educational Level	Primary	31	6.2
	Secondary	116	23.1
	Tertiary	356	70.8
	TOTAL	503	100.0
Occupational Status	Employed	214	42.5
	Unemployed	107	21.3
	Self Employed	182	36.2
	TOTAL	503	100.0
Monthly Income (Naira)	< 50,000	260	51.7
	50, 000-99, 000	131	26.0
	100, 000-199, 000	78	15.5
	200, 000-299, 000	18	3.6
	>300, 000	16	3.2
	TOTAL	503	100.0
Religion	Christianity	494	98.2
	Islam	4	0.8
	Traditionalist	3	0.6
	Others	2	0.4
	TOTAL	503	100.0
Health Insurance	Insured	109	21.7
	Not Insured	394	78.3
	TOTAL	503	100.0
Patronage	First-time Visit	184	36.6
	Follow-up Visit	319	63.4
	TOTAL	503	100.0

Table 2. Patients' satisfaction with pharmaceutical care services provided by pharmacists

Variable	Response, N (%)	
	Not Satisfied	Satisfied
Pharmacists' interest in your health	183 (36.4)	320 (63.6)
Pharmacists' courtesy and respect	195 (38.8)	308 (61.2)
Privacy of conversation	227 (45.1)	276 (54.9)
Pharmacists' explanation of side effects and interactions	246 (48.9)	257 (51.1)
Clarity of pharmacists' instruction	175 (34.8)	328 (65.2)
Pharmacists' information on medication storage	241 (47.9)	262 (52.1)
Answering of drug information questions	201 (40.0)	302 (60.0)
Information on expected outcomes of medications	249 (49.5)	254 (50.5)
Pharmacists' effort to solve medication problem	229 (45.5)	274 (54.5)
Pharmacists' information on type of food to take	279 (55.5)	224 (44.5)
Pharmacists' information on sufficient treatment period	238 (47.3)	265 (52.7)
Pharmacists' enquiry on adherence of previous dispensed prescription	265 (52.7)	238 (47.3)
Pharmacists' willingness to counsel on request	307 (61.0)	196 (39.0)

Table 3. Overall Satisfaction Level of Patients with Pharmaceutical Care Services in the Hospital

	N (%)	
	Satisfied	Not Satisfied
	359 (71.4)	144 (28.6)
TOTAL	503 (100)	

Table 4. Model summary for simple linear regression

Model	R	R square (R ²)	Adjusted R ²	F	Sig
1	0.128 ^a	0.016	0.010	2.775	0.041

a. Predictors: (Constant), patronage, age, marital status

b. Dependent Variable: FINAL_SWPMC

4. DISCUSSION

In a teaching hospital in Nigeria, this study was conducted to evaluate how satisfied patients were with pharmaceutical care services. This is to assess the hospital pharmacists' practices in Nigeria. There is a connection between patient satisfaction and the services provided by the pharmacists. This report shows 71.4% of patients were satisfied with pharmacists' pharmaceutical care services. According to the results of the correlation study, satisfaction was positively correlated with age, marital status, and patronage (both the initial and subsequent visits). However, no significant association was found between educational level, gender, and occupation with patients' satisfaction. It has been shown that those between 18 and 28 were the most satisfied with pharmaceutical services, while those 62 years of age and beyond were the least happy. Also, those on follow-up visits were more satisfied than those that came for the first time. The results also show that patients were

satisfied with pharmacists' instructions being clear, their interest in their health, their respect and courtesy, their responses to drug-related questions, their efforts to solve medication problems, their knowledge of a sufficient treatment period, their understanding of how to store medications, and their knowledge of the expected effects of drugs, though they did express some level of dissatisfaction with pharmacists' performance. The findings of this study can be compared to those of research by Surur et al.[10], which discovered that 79.4% of respondents had high expectations for receiving quality services. Other sociodemographic factors of a patient were not found to predict the degree of satisfaction, even though age and marital status were discovered to demonstrate a significant association with patients' satisfaction in the current study.

Additionally, the outcome is similar to a survey by Yuliandani [12] that found that clinical pharmacy services like counselling, medication treatment

monitoring, patient support programs, and pharmaceutical care were generally well-liked by patients. Additionally, a study by Raza [1] found, in line with the results of the present study, that service promptness, pharmacist attitude, prescription counselling, pharmacy location, and waiting for space all benefit patient satisfaction. The highest satisfaction ratings were provided for the pharmacy staff's civility and respect (56.8%), the drugstore's location's convenience (52.5%), and the pharmacist's skill in providing drug use instructions [13]. This is in line with recent research that found a high level of satisfaction with the characteristics mentioned earlier. Additionally, data from the current investigation and studies by Alomi et al.[14] and Alotaibi et al.[15] revealed high levels of patient satisfaction with pharmacotherapy. In contrast, a study by

(10) found that the percentage of patients who were generally satisfied was only 46.19%, which was seen as low. However, they also discovered a link between satisfaction and age. A study by Gemmechu [16] found that patients' satisfaction with pharmaceutical care services was insufficient and that the main factors influencing the level were:

- The number of medications taken each day.
- The length of the hospital stay.
- The previous history of admission.
- The need for specific clinical pharmacist assignments.
- The prior record of access.

Table 5. Correlation coefficient of satisfaction

		N (%)			χ^2	P-value
		Satisfied	Not Satisfied	Total		
Age (years)	18-28	115 (22.9)	66 (13.1)	181 (36.0)	21.157 ^a	0.000**
	29-39	106 (21.1)	25 (5.0)	91(25.8)		
	40-50	61 (12.1)	17 (3.4)	78 (15.5)		
	51-61	35 (7.0)	26 (5.2)	61 (12.1)		
	>62	42 (2.0)	10 (2.0)	52 (10.3)		
Gender	Male	154 (30.6)	54 (10.7)	208 (41.4)	1.234 ^a	0.267
	Female	205 (40.8)	90 (16.7)	295 (58.6)		
Marital status	Married	200 (39.8)	60 (11.9)	260 (51.7)	11.320 ^a	0.010**
	Single	150 (29.8)	83 (16.5)	233 (46.3)		
	Divorced	0 (0.0)	2 (0.4)	2 (0.4)		
	Widowed	1 (0.2)	7 (1.4)	8 (1.6)		
Educational level	Primary	24 (4.8)	7 (1.4)	31 (6.2)	3.080 ^a	0.214
	Secondary	89 (17.7)	27 (5.4)	116 (23.1)		
	Tertiary	246 (48.9)	(110) 21.9	356 (70.8)		
Occupational status	Employed	154 (30.6)	60 (11.9)	214 (42.5)	1.953 ^a	0.377
	Unemployed	81 (16.1)	26 (5.2)	107 (21.3)		
	Self Employed	124 (24.7)	58 (11.5)	182 (36.2)		
Monthly income (Naira)	< 50,000	198 (39.4)	62 (12.3)	260 (51.7)	9.384 ^a	0.052
	50, 000-99, 000	81 (16.1)	50 (9.9)	131 (26.0)		
	100, 000-199, 000	54 (10.7)	24 (4.8)	78 (15.5)		
	200, 000-299, 000	14 (2.8)	4 (0.8)	18 (3.6)		
	>300, 000	12 (2.4)	4 (0.8)	16 (3.2)		
Religion	Christianity	351 (69.8)	143 (28.4)	494 (98.2)	2.464 ^a	0.482
	Islam	4 (0.8)	0 (0.0)	4 (0.8)		
	Traditionalist	1 (0.2)	2 (0.4)	3 (0.6)		
	Others	2 (0.4)	0 (0.0)	2 (0.4)		
Health Insurance	Insured	76 (15.1)	33 (6.6)	109 (21.7)	0.185 ^a	0.667
	Not Insured	283 (56.3)	111 (22.1)	394 (78.3)		
PATRONAGE	First-time Visit	119 (23.7)	65 (12.9)	184 (36.6)	6.370 ^a	0.012**
	Follow-up Visit	240 (47.7)	79 (15.7)	319 (63.4)		

Table 6. Result of Binary logistic regression analysis

		Unstandardized Coefficients		Standardized Coefficients	Wald	df	Sig	95.0% Confidence Interval (CI) for B	
		B	Std Error	Exp (B)				Lower Bound	Upper Bound
Step 1a	Age	-0.006	0.084	0.994	0.006	1	0.940	0.843	1.172
	Marital Status	-0.237	0.177	0.789	1.782	1	0.182	0.558	1.117
	Patronage(1)	-0.454	0.216	0.635	4.405	1	0.036	0.416	0.970
	(Constant)	1.470	0.417	4.350	12.429	1	0.000		

a. *Dependent Variable: Final outpatient satisfaction in pharmacist medication counselling in Nigerian teaching hospital*

b. *Variable(s) entered on step 1: AGE, MARITAL STATUS, PATRONAGE*

Despite finding a decent overall level of satisfaction, the researchers concluded that there is a significant association between the amount of pleasure and the patients' demographics [17]. Additionally, according to a survey by Hussien, most respondents reported dissatisfaction with the services obtained at the Reksodiwiry Hospital's pharmacy installation, contrary to the current study's conclusions [18].

5. CONCLUSION

Typically, the statistical analysis results suggest that most patients are happy with the services provided by pharmacists in the hospital. Age, marital status, and patronage (first-time and follow-up visits) correlate positively with patients' satisfaction. Patients are most satisfied when pharmacists' instructions are clear, whereas they are least comfortable when given information about what kind of food to eat while taking particular medications. The results of this study would aid in the implementation of pharmaceutical care policies and strategies, enhancing and maximizing the clinical advantages received by patients from pharmacists in Nigerian tertiary hospitals.

6. STRENGTH AND LIMITATIONS

This study is unique due to the scarcity of research on patient satisfaction with pharmaceutical care in tertiary hospitals in Nigeria. Again, the questionnaire was interviewer-administered, so respondent bias was greatly minimized. This study's limitations include but are not limited to the cross-sectional design, meaning causality cannot be implied. Finally, the sample size may not be an accurate representation of the sample population.

CONSENT

However, informed consent was obtained from all the participants. Study participants were

informed that participation in the study was voluntary and was free to withdraw from the study anytime without any consequences. No identifier information was obtained from them, as confidentiality, privacy, and anonymity were upheld following the Nuremberg Code and Helsinki declarations.

ETHICS APPROVAL

This study did not involve the use of human subjects, so an exception was sought and obtained from the Health Research and Ethics Committee of the University of Nigeria Teaching Hospital (Reference Number: NHREC/05/01/2008B-FWA00002458-1RB00002323).

COMPETING INTERESTS

Authors have declared that no competing interests exist

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APPENDIX 1

Sociodemography of Participants

1. Age (18-28yrs, 29-39yrs, 40-50yrs, 51-61yrs, 62yrs and above)
2. Gender (male, female)
3. Marital Status (Married, Single, Divorced, widowed)
4. Educational Level (Primary, secondary, Tertiary)
5. Outpatient unit visited (Medical outpatient, general outpatient, surgical outpatient, ophthalmology clinic, dermatology)
6. Occupational Status (Employed, unemployed, self-employed)
7. Monthly income (<50, 000 Naira, 50,000-99,000 Naira, 100,000-199,000 Naira, 200,000-299,000 Naira, >300,000 Naira)
8. Religion (Christian, Islam, Traditionalist, Others)
9. Health Insurance (Insured, Not insured)
10. Patronage (first time visit, follow up visit)

Satisfaction of Respondents with Pharmacist Medication Counselling (Very low, Low, Moderate, High, Very high)

1. The pharmacist interest in your health
2. The professionalism of the pharmacist
3. The courtesy and respect shown to you by the pharmacist
4. The privacy of your conversation with the pharmacist
5. How well the pharmacist explains possible side effects, drug- drug interactions and drug food interactions
6. The promptness of prescription medication service
7. The care the pharmacy professional takes while supplying your medication
8. The fairness of cost of medications in the pharmacy
9. The amount of time the pharmacy professional spends with you
10. The clarity of the pharmacy professional's instructions about how to take your medication
11. The information the pharmacist gives you about the proper storage of your medication
12. How well the pharmacy professional answers your questions
13. The information the pharmacy professional gives you about the results you can expect from your medication therapy
14. The way your pharmacist works together with your doctor to make sure your medications are the best for you
15. The amount of time you spend waiting for your prescription to be filled
16. The availability of medications that are prescribed to you in the pharmacy
17. The clarity of the label on the medication supplied to you
18. Your feelings of the quality of medications dispensed to you
19. The overall cleanliness and comfort of the waiting area
20. Pharmacists' additional counseling on request or re- counseling (if requested, they will provide).
21. The location of the pharmacy relative to other service areas
22. The pharmacists' efforts to solve problems that you have with your medications
23. Pharmacist provides me any knowledge to dietary compliance regarding my disease (if provided any).
24. The pharmacist explains the treatment period sufficiently (especially when I receive a medication for the 1st time)
25. The pharmacist inquiries of my adherence to the previously dispensed prescription (if provided any).

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