

## Perception of patients accessing out- patient pharmacy on the quality of pharmaceutical services in a tertiary health facility in Lagos, Nigeria

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### Abstract

**Background:** Periodic assessment of Pharmacists' services is beginning to be of necessity in resource constrained settings. This study aimed to provide baseline information of patients' perception and associated factors on different aspects of pharmaceutical services currently provided at the out- patient pharmacy of Lagos University Teaching Hospital (LUTH).

**Methods:** A cross-sectional survey was conducted between August and October 2015 amongst patients accessing services provided in three LUTH out-patient pharmacies. Patients' perception on different aspect of pharmacy services were assessed by a 28-item questionnaire. Factors associated with patients' perception of pharmacy services were evaluated by appropriate non parametric tests.

**Results:** Participants included a total of 428 patients; 54% females (n=231), 54% married (n=229), and a little above one-third in the age bracket of 30-39 years. The median percentage score of overall perception of pharmacy services was 59% [interquartile range (IQR):45%-73%]; appearance of the pharmacy and pharmacists, 80% (IQR: 80%-100%);

prescription services, 60% (IQR:40%-100%); and counselling and drug information, 58% (IQR:33%-75%). There was no correlation between patients' knowledge of pharmacy profession and perception of pharmacy services ( $r=0.02$ ,  $p=0.72$ ). There was significant variation in the patients' perception across different pharmacy service points ( $p=0.009$ ). Also, more educated patients had lower perception of pharmacy service, while self-employed respondents had high perception of pharmacy services.;

**Conclusion:** Patients' overall perception of pharmacy services was above average. There is need for improvement in the quality of services, especially in the availability of essential drugs at competitive prices and provision of adequate counselling and drug information services to patients.

**Key words:** Patient satisfaction, Hospital Pharmacy Services, Pharmacists, Pharmaceutical care

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### Introduction

Patients' perception of a service is how patients perceive or experience it and this can be used to gauge the quality of service from the patients' perspective<sup>1</sup>. Patients, which can be viewed as consumers have expectations when they visit the hospital for health services, and their perception of the service is influenced by the perceived fulfilment of their expectations<sup>2</sup>. The relationship between perception and satisfaction is that patient/client satisfaction is the degree of positive feeling that patients/clients experience (positive perception) having used a service. It indicates also the gap between quality of service expectation and the actual experience of the service provided from the patients' point of view<sup>3</sup>.

Applying a consumer model such as the expectancy disconfirmation model<sup>2</sup>, it is assumed that the higher the perceived fulfilment of expectations compared to the expectation, the higher the satisfaction. Accordingly, when expectations are low, they will be more easily met and a high level of satisfaction maintained. However, if patients' expectations are high, the care provider will have a harder task meeting the expectations and satisfaction is likely to be lower<sup>2,4</sup>.

Knowledge about a service is a major determinant of clients' expectation<sup>2</sup>. Considering the influence of expectations on perception of service, it is important to assess clients' knowledge when evaluating their perception of a service. A previous review<sup>5</sup> showed that many patients lack an understanding about the expanded roles of pharmacists within the context of pharmaceutical care. <sup>5</sup> The review showed that patients' expectation of pharmacists is predominantly that of a supplier of prescription products<sup>1</sup>. However, in the modern model of health care provision, the role of the pharmacist is not limited to the supply of medicines but has expanded to involve collaborative disease state management, medication therapy management, and other cognitive and clinical pharmacy services. These expanded roles are encapsulated in the concept of pharmaceutical care. The primary goal of

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pharmaceutical care is to ensure that patients receive the best medication and medication - related therapy that is safe, effective, affordable and suited to their needs with resultant improvement in the patients' quality of life<sup>6,7</sup>. This is a sharp departure from the traditional product oriented service of merely dispensing medicines. While, pharmaceutical care as a practice philosophy has been established in the developed countries for over decades<sup>6,7</sup>, in Nigeria it is still emerging and requires continuous evaluation and improvement<sup>8,9</sup>.

Exploring patients' perception of pharmaceutical services is an important component of quality improvement. Getting views of the patients on the care services is a much realistic tool to evaluate and improve the health care services<sup>10</sup> since it is based on direct experiences of the users<sup>11</sup>. With the rising strength of consumerism and quality consciousness in the society, clients' perception is now considered as an important outcome of the quality of healthcare<sup>12,13</sup>. Measuring patients' perception of health services offers several practical advantages: it can be measured rapidly following the delivery of care; it is inexpensive; it does not depend on the quality of data found in the medical records, and it is more sensitive to differences in the quality of care than indicators such as adjusted mortality rates or complication rates<sup>14</sup>.

Other utilities of patients' perception data include focusing interventions on specific areas for improvement, strategic decision making,<sup>15</sup> managing the expectations of patients, and benchmarking<sup>5,16</sup>.

There are limited studies on the perception of patients on pharmaceutical services in Nigeria. The few available studies yielded mixed results, with some studies reporting low satisfaction with the quality of pharmacy services in the hospital<sup>17</sup> while others reported excellent patient perception about the pharmaceutical care role of Pharmacists<sup>18</sup> and pharmacist involvement in disease management.<sup>19,19</sup> This suggest that patients' perception is context dependent, hence it is important to conduct locally relevant studies in order to generate data which can be used for quality improvement. Our literature search did not reveal any study carried out in Lagos University Teaching Hospital (LUTH) to assess patients' perception of quality of pharmaceutical services currently available. This study aimed to assess the perception of patients and associated factors on different aspects of pharmaceutical services at the out- patient pharmacy of Lagos University Teaching Hospital. This will provide baseline information on patients' perception as well as identify possible weaknesses and strengths associated with pharmaceutical services currently rendered. This feedback will provide the hospital management and staff useable data which can be used to design interventions to improve quality of service delivery and practice. Furthermore, the experience of

patients in one setting may become a useful source of transmitted learning that will benefit patients in other settings.

## Materials and Methods

### *Study design and Setting*

This was a cross-sectional survey conducted between August and October 2015 in the pharmacy department of Lagos University Teaching Hospital (LUTH). The hospital is one of the foremost tertiary hospitals in Nigeria with a 761-bed capacity. It is located in Idi-Araba, Surulere area of Lagos State. The pharmacy department is one of the pioneer departments of the hospital with over ten units distributed across major clinical departments of the hospitals to meet patients' medication and medication-related needs. Each of the pharmacy units had between 5 to 10 pharmacists.

### *Sample size and sampling procedure*

The statistical formula for estimating minimum sample size in cross-sectional studies was used to obtain the sample size of 385<sup>20</sup>. The formula is  $N = Z^2P(1-P)/d^2$  where Z is the standard normal deviate = 1.96, p is the hypothesized proportion with outcome; we hypothesize that 50% of the sample population will have good perception of pharmacy services, and d= precision of estimate put at 5%. However, the total sample size used for the study was 426 in order to account for none and incomplete responses. Consenting out-patients or their caregivers (where the patient is dependent on one) who accessed pharmacy services during the study period were recruited using a multistage systematic sampling technique. In the first stage, three pharmacy units with a track record of high patronage by out-patients were purposively selected for the study. These included: Out-Patient Pharmacy (OPP), Family Medicine Pharmacy (FMP) and Guinness Eye Centre Pharmacy (GECPC). The number of attendees per day at the selected pharmacies range between 100 and 120. A sample of 143 was chosen from each of the pharmacy units over a period of three months by systematically sampling three persons per day (143 divide by 60) using a sampling interval of every 40<sup>th</sup> patient (120 divide by 3).

### *Survey Instrument and procedure for data collection*

A self or interviewer-administered questionnaire, adopted from a previous survey on patients perception of pharmacy services in Nigeria<sup>19</sup> was used for the survey. The instrument consisted of five sections (mostly closed-ended questions or a selection from options provided). The questionnaire was used to assess the following areas: demographic characteristics of respondents, knowledge about pharmacy profession, and respondents' perceptions on different aspect of pharmacy services such as the appearance of the pharmacy and

pharmacists, prescription services, counselling, and drug information services. Face validity of the survey tool was established for appropriateness, repetitiveness, and clarity by a panel of expert faculties prior to the survey. The questionnaire was pre-tested (state where). It was then administered to eligible patients or their care givers after an informed consent was obtained. For patients who do not understand or read the English language, the questionnaire was administered through an interpreter. Patients on admission (in-patients) and patients younger than 15 years were excluded from the study. Ethical clearance was obtained from Lagos University Teaching Hospital Research and Ethics Committee prior to undertaking the study.

#### Data Analysis

Data from the questionnaire was analyzed by both descriptive and inferential analysis using Statistical Package for Social Sciences (SPSS) version 20.0 (SPSS Inc. Chicago, Illinois, USA). For descriptive analysis, categorical variables were presented as tables with frequencies and proportions, while continuous variables were presented as tables with median and interquartile ranges (IQR). To assess patient's knowledge of pharmacy profession and perception of pharmacy services, responses to the questionnaire items were classified as positive or alternate response depending on the assessment question. Positive responses were assigned a score of 1, while alternate responses were assigned a score of 0. The maximum score for knowledge was 3, while the maximum score for overall perception of pharmacy was 22. Perception on appearance of the pharmacy and pharmacist, prescription services, and counselling and drug information services had maximum scores of 5, 5, and 12 respectively. Percentage scores were computed for knowledge, overall perception, and perception subscales. Percentage score by demographic groups and service settings were compared by ManWhitney U test, independent samples Kruskal-Wallis Test, and Spearman's rho correlation as appropriate. Non parametric test were used for comparison as the response scale was not normally distributed. All statistical tests were 2-tailed and a p value less than 0.05 was considered statistically significant.

## Results

#### Demographic characteristics of study participants

A total of 428 respondents participated in the survey. The socio-demographic characteristics of respondents are reflected in Table 1. Respondents within the age bracket of 30 to 39 years were more (n=145, 33.9 %) in comparison to the other age groups. A little above half of the respondents were females (n=231, 54%), married (n=229, 54%) and majority were of the Christian faith (n=354, 83%). In terms of educational attainment, half of the respondents had a graduate level and above education, while the dominant form of employment

reported was self-employment.

#### Knowledge of pharmacy

Respondents demonstrated appropriate knowledge of pharmacy with a median knowledge score of 100% (IQR:75% to100%) (Table 2). In all, 98% accurately identified that pharmacy is part of the health care profession, 97% think that pharmacists are important to the hospital just like Doctors and Nurses, and 95% think that it is better to get medicines in the pharmacy within the hospital than buying medicines from the chemists/patent medicine stores outside the hospital. When respondents' knowledge of pharmacy were compared across different pharmacy service points, there was less variability in respondents knowledge at Guinness Eye Centre (GEC) compared to other pharmacy service points (p =0.034). In addition, there was no significant correlation between knowledge of pharmacy profession and patient perception of pharmacy services (r=0.02, p=0.72),

Table 1: Socio-demographic characteristics of study participants

Characteristics	Group	Number (%) of respondents			
		ECP n=146	FMP n=137	OPD-LUTH n=145	Total n=428
Age, years	<20	10 (6.8)	0	7 (4.8)	17 (0.4)
	20-29	32 (21.9)	41 (29.9)	39 (26.9)	112 (26.2)
	30-39	47 (32.2)	43 (31.4)	55 (37.9)	145 (33.9)
	40-49	21 (14.4)	34 (24.8)	12 (8.3)	67 (15.7)
	50-59	19 (13.0)	10 (7.3)	10 (6.9)	39 (9.1)
	60+	17 (11.6)	9 (6.6)	22 (15.2)	48 (11.2)
Sex	Male	85 (58.2)	78 (56.9)	27 (18.6)	190 (44.4)
	Female	58 (39.7)	59 (43.1)	114 (78.6)	231 (54.0)
Marital status	Single	77 (52.7)	70 (51.1)	37 (25.5)	184 (43.0)
	Married	63 (43.2)	66 (48.2)	100 (69.0)	229 (53.5)
	Divorced/ Separated	4 (2.7)		6 (4.1)	10 (2.3)
	Widowed/ widower	2 (1.4)		1 (0.7)	3 (0.7)
	Religion	Christianity	129 (88.4)	113 (82.5)	112 (77.2)
	Islam	17 (11.6)	24 (17.5)	32 (22.1)	73 (17.1)
	Others			1 (0.7)	1 (0.2)
Education	No formal	3 (2.1)	1 (0.7)		4 (0.9)
	Primary	6 (4.1)	12 (8.8)	8 (5.5)	26 (6.1)
	Secondary	60 (41.1)	54 (39.4)	51 (35.2)	165 (38.6)
Occupation	Graduate and above	65 (44.5)	70 (51.1)	79 (54.5)	214 (50.0)
	Unemployed	28 (19.2)	34 (24.8)	23 (15.9)	85 (19.9)
	Self employed	38 (26.0)	30 (21.9)	59 (40.7)	127 (29.7)
	Government employed	34 (23.3)	58 (42.3)	21 (14.5)	113 (26.4)
	Private employed	29 (19.9)	7 (5.1)	22 (15.2)	58 (13.6)
	Retired	9 (6.2)	4 (2.9)	12 (8.3)	25 (5.8)

GEC, Guinness Eye Centre Pharmacy; FMP, Family Medicine Pharmacy; OPD-LUTH, Lagos University Teaching Hospital Out-Patient Pharmacy

Table 2: Comparison of patient's knowledge of pharmacy profession and perception of pharmaceutical services at different pharmacy service in Lagos University Teaching Hospital

Assessment subscale	Median percentage score (interquartile range)				*P value
	All n=428	GEC n=146	FMP n=137	OPD:LUTH n=145	
Patients knowledge about pharmacy	100 (75.00-100.0)	100 (100-100)	100 (75.00 - 100)	100 (75.00 - 100)	0.034
Overall perception of pharmacists and pharmacy services	59.09 (45.45-72.73)	63.64 (54.55-77.27)	59.01 (45.45-72.72)	54.54 (40.91-77.27)	0.009
Perception of appearance of pharmacy and pharmacists	80.00 (80.00 - 100)	80.00 (80.00-100)	80.00 (60.00 - 100)	80.00 (60.00 - 100)	0.413
Perception of prescription services	60.00 (40 - 100)	60.00 (40.00-60.00)	60.00 (40.0 - 70.00)	60.00 (20.00- 60.00)	0.56
Perception of counseling and drug information services	58.33 (33.33-75.00)	58.33 (41.67-83.33)	58.33 (33.33-66.60)	41.66 (33.33- 75.00)	0.004

\* independent samples Kruskal-Wallis Test

#### *Perception of pharmaceutical services*

Perception score of pharmacy services overall, and of the different aspects of pharmacy services and setting is summarised in Table 2. It shows that overall perception was a little above average; median score of 59% (IQR: 45% to 73%) and varied significantly across the different service points, with the Guinness Eye Centre (GEC) recording the highest score of 63%, while the family medicine pharmacy and outpatient unit had scores of 59% and 55% respectively ( $p=0.009$ ). When the different aspects of pharmacy service were evaluated (Table 2), perception of the appearance of the pharmacy and pharmacists was highest with a median score of 80% (IQR: 80% to 100%), while perception on counselling and drug information services was lowest (58%).

Responses to assessment of different aspect of pharmacy services displayed in Table 3 shows that on perception of the appearance of the pharmacy a little above 80% of the respondents had positive perception of the location of the pharmacy, but positive perception of the space in the waiting area and personality of the pharmacist received a slightly lower rating by 74% and 70% of respondents respectively. On prescription services perception of waiting times were above average with 59% of the respondents indicating that they did not always wait for more than 30 minutes before the pharmacist attended to them. However, availability of prescribed medicines at all times was a major challenge

as only a little above a quarter of the respondents (26%) indicated that they were able to get all their prescribed medicines at the pharmacy. Also, only about 40% of respondents were of the opinion that prices of medicine are cheaper in the hospital pharmacy compared to community pharmacies, suggesting that medicines are more expensive in the hospitals' pharmacy compared to community pharmacies. Also, on counselling and drug information services, while most (86%) of respondents had a positive perception of the provision of information on how to use medicines, less than 10% of the respondents indicated that Pharmacists did not check back to ensure that patients adhered to the advice they were given.

Patient's characteristics associated with overall perception of pharmacy services. Gender, age, marital status and religion of respondents were not statistically significantly associated with their satisfaction with pharmacy services ( $p =0.59, 0.23, 0.62$  and  $0.063$  respectively) (Table 4). However, Education and Occupation were statistically significantly associated with their satisfaction with pharmacy services ( $p <0.001$  and  $0.04$  respectively). Also, self-employed respondents reported higher satisfaction with pharmacy services in comparison with those with other forms of employment, with privately employed respondents having the least satisfaction ( $p=0.04$ ).

Table 3: Item performance on assessment of respondents' perception of different aspects of pharmaceutical services in Lagos University Teaching Hospital

Assessment area	Statement	Positive response	Alternate response(s)	Positive responses, n (%)
Appearance of pharmacy and The pharmacists	Is the location of the pharmacy convenient for you	Yes	No, Don't know	359 (83.9)
	What do you think about the cleanliness of the pharmacy and its environment?	Clean, Very clean	Dirty, Others	417 (97.5)
prescription services pharmacists provided counselling and drug information services	Was the space in the waiting area enough	Yes	No, Don't know	317 (74.1)
	How will you assess the appearance of the pharmacist?	Neat, Very neat	Dirty/on kept, I have not noticed	389 (90.9)
	How will you assess the personality of the pharmacist?	Knows what he/she is doing	Not friendly, Don't seem to know what he/she is doing	301 (70.3)
	Do you always wait for more than 30 minutes before the Pharmacist attends to you?	No, Don't know	Yes	252 (58.9)
	How often do you get all the medicines the doctor wrote for you at this pharmacy?	All the time	Sometimes, Never, I don't know	113 (26.4)
	How often are you able to pay for all the medicines at this pharmacy?	All the time	Sometimes, Never, I don't know	238 (55.6)
	Do you think the prices of medicines in this pharmacy are cheaper than in pharmacies outside the hospital?	Yes	No, Don't know	170 (39.7)
	Did the pharmacist tell you about your medicines: names, benefits, how to use them and for how long to use them?	Yes	No, Don't know	298 (69.6)
	Was the information on how to use the medicines clearly written and did you understand the information?	Yes	No, Don't know	369 (86.2)
	Did the pharmacist tell you about possible side effects and how to manage them if they occur, things to avoid while taking the medicines and what to do in case you miss a dose?	Yes	No, Don't know	193 (45.1)
	Were you encouraged by the pharmacist to ask questions and did he/she give you satisfactory answers?	Yes	No, Don't know	243 (56.8)
	How did the pharmacist treat you	With respect	Without respect, In a hurry	294 (68.7)
	Were you told by the Pharmacist things you could do to improve your health condition?	Yes	No, Don't know	202 (47.2)
	Did you understand what the pharmacist discussed with you?	Yes	No, Don't know	296 (69.2)
	Did the pharmacist find out from you if you understood the whole discussion?	Yes	No, Don't know	217 (50.7)
Is the place you had a discussion with the pharmacist private enough for you?	Yes	No, Don't know	216 (50.5)	
Was there enough time for you to discuss your concerns about your medicines with the Pharmacist?	Yes	No, Don't know	211 (49.3)	
Did the pharmacist check back with you to see if you followed the advice you were given?	Often, Very Often	Never, Rarely	36 (8.4)	

Table 4: Association of patients' socio-demographic characteristics with overall perception of pharmacy services at Lagos University Teaching Hospital

Characteristics	Group	Median score of percentage positive rating (IQR)	P value*
Gender	Female	59.09 (40.91 - 77.27)	0.59
	Males	59.09 (50 - 72.73)	
Age	20-29	59.09 (45.45 - 72.73)	0.23
	30-39	63.64 (45.45 - 72.73)	
	40-49	68.18 (45.45 - 81.82)	
	50+	59.09 (45.45 - 77.27)	
Marital status	Single (never married)	59.09 (45.45 - 72.73)	0.62
	Married	59.09 (45.45 - 72.73)	
	Divorced/widowed	70.45 (45.45 - 81.82)	
Religion	Christianity	59.09 (45.45 - 72.73)	0.063
	Islam	63.64 (50 - 72.73)	
Education	NFE/Primary	72.73 (68.18 - 77.27)	<0.001
	Secondary	63.64 (45.45 - 81.82)	
	Graduate/Above	59.09 (44.32 - 68.18)	
Occupation	Unemployed/Retired	59.09 (45.45 - 72.73)	0.04
	Self employed	63.64 (45.45 - 81.82)	
	Private employed	54.55 (43.18 - 68.18)	
	Government employed	59.09 (40.91 - 72.73)	

\* independent samples Kruskal-Wallis Test was used for comparison, except for gender and religion were ManWhitney U test was used; NFE, no formal education

## Discussion

Respondents in our study had above average perception of pharmacy services. The highest perception score was in the appearance of pharmacies and pharmacists, followed by quality of prescription services, while counselling, and drug information services had the lowest perception score. Overall perception of pharmacy services was significantly associated with the service setting, and education and employment status of respondents.

Consistent with the results of the study of patients perception of the pharmaceutical care roles of pharmacists conducted in a tertiary healthcare facility in North-Central Nigeria,<sup>19</sup> most respondents in our study had adequate knowledge about the pharmacy. However, the assessment tool utilized in our study did not sufficiently describe the expanded roles of the pharmacists and hence limited in reporting on the respondent's knowledge of the expanded roles of pharmacists; awareness of which has been previously reported to be poor in the general population<sup>5</sup>. Despite the limitations of the tool, our findings suggest a growing awareness of the roles of pharmacists by the public, however, much more work needs to be done to inform patients about what the pharmacist is capable of doing in

the health care system and how pharmaceutical care can add value to patients' health care.

Although, the overall perception of pharmacy services in our study was above average (59%), it is lower than 86% reported in a study conducted in a Teaching Hospital in North central Nigeria<sup>19</sup> and slightly higher than the report of a recent study in a teaching hospital in Ethiopia which reported 52% satisfaction with pharmacy services and setting<sup>21</sup>. Our result is also comparable to the results of studies done in community pharmacies in Bosnia and Herzegovina where clients had a positive overall perception of pharmacists and of the services offered<sup>22</sup>.

There was excellent perception (80%) of the appearance of pharmacies and pharmacists in comparison to other aspects of pharmacy services assessed. However, of all the aspects of pharmacies and pharmacists assessed such as location, cleanliness of the environment, waiting areas, the appearance of pharmacists, and personality of pharmacists; the personality of the pharmacists received the lowest rating suggesting the need for improvement in pharmacist relationship with their clients. Building a therapeutic relationship is one of the basic elements of providing pharmaceutical care<sup>23, 24</sup>. "At the heart of any type of patient care, there exists a one-to-one relationship between a caregiver and a patient. In pharmaceutical care, the irreducible "unit" of care is one pharmacist in a direct professional relationship with one patient<sup>25</sup>. Therefore, the personality of the pharmacist should be such that facilitate the building of this relationship in order to achieve the goals of pharmaceutical care.

A major area of challenge in pharmacy services observed in this study was prescription services. In all, only just a little above half of the respondents were satisfied with the prescription services. Major areas of challenge in this regard included non-availability of prescription drugs and a perception of the high cost of medicines at the hospital pharmacy compared to community pharmacies. This observation is similar to reports in a Jamaican study where respondents identified affordability and availability of medicines as a major concern in public hospitals<sup>26</sup>. Non-availability and the high cost of medicines can lead to poor outcomes or failure of therapy<sup>27, 28</sup>. It is a non-contestable fact that, medicines give credibility to the health service and also improve the confidence in the health staff and health services provided hence there is need for availability at all times with minimal or no stock-out. Interventions by the Nigerian Government to improve access to medicines in Government hospitals include the Bamako initiative Essential Drug Revolving Fund (EDRF) program<sup>29</sup>. Despite the implementation of EDRF program, the non-availability of drugs most needed for healthcare and

disease control in public health facilities still remain a major challenge.<sup>30</sup> EDRF is expected to facilitate access to essential medicines at the lowest cost to patients,<sup>29</sup> however; this was not the case in the study setting as most of the respondents perceived that drugs were more expensive at the hospital's pharmacy. EDRF program in Government-owned health facilities in Nigeria is bedevilled with the challenge of de-capitalisation and lack of sustainability described in a recent review article as "the cycle of terror"<sup>30</sup>. This situation requires urgent action by all stakeholders including pharmacists to end this "cycle of terror" in order to ensure the delivery of healthcare of the highest quality. Similar to our study finding, lack of patients' satisfaction with prescription services had been observed by another study in a tertiary health facility in South-West Nigeria, though the study focused more of waiting time.<sup>31</sup> Improving prescription services should be a priority action in improving the quality of pharmacy services in our setting. This feedback from the patients indicates the need for improvement in the logistic process for drug management in LUTH which for effectiveness should be coordinated by pharmacists.

Four out of the thirteen items that assessed respondents' perception of pharmacists provided counselling and drug information services received a positive rating by less than half of the respondents. Areas that required improvement included provision of information on possible drug side effects and how to manage them, information on things to do to improve patients' health condition, allocation of adequate time to discuss concerns about the medicine with the pharmacists, and pharmacists checking back with the patients to see if they followed the advice given by the pharmacists. Of these items, pharmacists checking back with the patient received the lowest satisfaction as less than 10% of respondents reported that pharmacists checked back on them. Lack of communication and relevant messages to patients has been identified as important in impacting on the quality of service and thus affecting patients' satisfaction<sup>32</sup>. Given that patient counselling and provision of appropriate drug information; which is a major component of pharmaceutical care, is fundamental to helping people make the best use of medications,<sup>6, 25</sup> it should be accorded priority attention in order to improve the quality of pharmaceutical care in health facilities and ensure patients' adherence to their medication.

All patients should be treated with respect during the provision of services by a pharmacist, but in this study just above half (68.7%) of respondents reported that the pharmacist treated them with respect. In an Ethiopian study<sup>32</sup> lack of respect was identified as one the important reason impacting the quality of services delivery and thus patients' satisfaction.

Consistent with the findings of a recent study<sup>33</sup> our results showed a weak association between gender, age and marital status and satisfaction with pharmacy services. However, older age had previously been reported to have a strong positive influence on patient's satisfaction with health services<sup>34</sup>. We found that that the level of satisfaction tends to decrease with more educated patients. The possible explanation to this is that the more educated people are, the more likely they are to demand quality service and also assess the service they receive. Higher education has been shown to be a strong predictor of Lower satisfaction with some health services<sup>35</sup>.

Our study had some limitations which should be considered in interpreting the results of the study. This was a single institutional study and may not reflect the situation of pharmacy services in other settings. However, important challenges identified in this study might reflect patients experience elsewhere and can be used to prioritize actions for quality improvement of pharmacy services. Also, patients' knowledge and understanding of the expanded roles of pharmacists in pharmaceutical care were not adequately explored. When patients know more about the responsibility of pharmacists, they will have a higher expectation, and demand more from the pharmacists, which will, in turn, influence their perception of pharmacy services. Additional studies to explore patients understanding on the expanded roles of pharmacists within the context of pharmaceutical care are recommended.

### Conclusion

Despite adequate knowledge of pharmacy, respondents overall perception of pharmacy services was sub-optimal (a little above average) highlighting the need for improvement in the quality of service delivery. Poor service delivery is a setback to the attainment of pharmaceutical care goals, which aims to, within realistic economic expenditures, optimize the patient's health-related quality of life, and achieve positive clinical outcomes. Areas which should be prioritized for quality improvement include the availability of essential drugs at competitive prices and provision of adequate counselling and drug information services to patients. In addition, the pharmacist personality should support the establishment and sustenance of a therapeutic relationship between the pharmacist and the clients for the achievement of pharmaceutical care objectives.

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