

Assessment of patient satisfaction with pharmacy service and associated factors in public hospitals, Eastern Ethiopia

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Abstract

Background: A comprehensive understanding of the extent of patient satisfaction and its determinants are crucial in improving the quality of service. Hence, this research was designed to measure patient satisfaction with pharmacy service.

Methods: A cross-sectional study was conducted among 422 patients to assess satisfaction with pharmacy service in public hospitals located in Eastern Ethiopia from September to January 2018. Data were collected through an exit interview using structured questionnaires. Then, it was entered into EpiData version 3.1 and exported to STATA version 14.2 for analysis. Associations between dependent and independent variables were assessed by multiple logistic regression using an adjusted odds ratio at a 95% confidence interval and the *p* values of less than 0.05.

Results: A total of 407 samples were included in the final analysis. The mean overall satisfaction of clients measured out of five was 2.29 (standard deviation \pm 0.56). The proportion of overall satisfaction was 46.19%. Patients within the age range of 26–35 years and 36–50 years were found to have 50% (adjusted odds ratio = 0.5, 95% confidence interval: 0.3, 0.9) and 60% (adjusted odds ratio = 0.4, 95% confidence interval: 0.2, 0.8) decreased likelihood of satisfaction compared with patients within the range of 18–25 years, respectively. Likewise, patients who attended only secondary education compared to their counterpart (a certificate and above) were less likely to be satisfied (adjusted odds ratio = 0.4, 95% confidence interval: 0.2, 0.8). In contrast, rural dwellers and patients who collected all their medications from the respective hospital were found to be more satisfied compared with their equivalent (adjusted odds ratio = 3, 95% confidence interval: 1.8, 5.2) and (adjusted odds ratio = 2.2, 95% confidence interval: 1.4, 3.5), respectively.

Conclusion: Patient satisfaction with pharmacy service was found to be very low considering the current health-care system movement toward delivering quality service. Hence, health-care providers and administrators should give due attention to contributing factors in order to improve the quality of service and ultimately increase patient satisfaction.

Keywords

Pharmacy service, patient satisfaction, Ethiopia

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Introduction

Contemporary health-care system is required to embrace the concept of quality. The measurement of health-care quality and the use of this data for service improvement have become a central issue.¹ Although varieties of approach have been used to measure the quality in health care, the concept proposed by Avedis Donabedian remains the most influential quality measurement approach. According to this scholar, to assess and thus enhance the quality of health care, it is essential to consider three components: structure, process, and outcome.²

Patient satisfaction is one of the components used to assess the quality of health-care system. In this regard,

patient satisfaction is believed to correlate with the extent of quality of service.^{3,4} In addition, involvement of patients in

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the process of providing care is another major aspect of measuring patient satisfaction. This gives an opportunity for health-care administrators to develop strategies to meet patients' expectation and enhance their role in the process of improving the quality of service.^{1,5}

Patient satisfaction is reflection of the level of matching between their expectation and actual experience with the health-care service.⁶ Patient satisfaction is very complicated process and can be affected by numerous factors such as patients' sociodemographic factors, experience with health-care service, and expectation. In order to provide quality health-care services in public hospitals, understanding the determinants of patient satisfaction is crucial.⁶⁻⁹

Hospital pharmacy service is one aspect of health care that needs to be delivered to the standard in order to improve overall quality of health care.¹⁰ The service delivered by the hospital pharmacy unit is a vital component of an institutional health-care system. Medication dispensing and drug distribution, compounding, medication utilization review, adverse drug reaction monitoring, and drug information service are the main services delivered through this unit.¹¹ High patient satisfaction could be an indicator of effective pharmacists' performances which in turn is expected to influence the quality of service positively.¹²⁻¹⁷

In developing countries, the health-care system is largely controlled by government and often struggles with the lack of quality.¹⁸ In these settings, there has been an initiative that encourages health administrators to identify health-care quality as one of the key drivers for strengthening health systems.¹⁹ Although there has been considerable increase in attention paid to improve the quality of health care, the measurement of quality of health care or its component is in infant stage.²⁰

Although there are some studies conducted particularly to assess the patient satisfaction with pharmacy services, there are no relevant, sufficient, or effective studies conducted especially in Eastern part of the nation. Furthermore, a few existing data have shown significantly low patient satisfaction in this sector. For instance, according to a study conducted in southern Ethiopia, only 52.6% of the patients were satisfied with the pharmaceutical services they received.²¹ Hence, it is very important to determine patient satisfaction and associated factors in order to take necessary measures. Therefore, the objective of this study was to assess the patient satisfaction with pharmacy service and associated factors in public hospitals located in Eastern Ethiopia.

Methods

Study setting and period

A cross-sectional study was conducted from September to January 2018 in public hospitals, Eastern Ethiopia. Eastern Ethiopia covers large area of the country extending from Awash to Ethiopian Somali region linking three regional

states: Harar, Oromia, and Ethiopian Somali. This study was limited to the western and eastern Hararghe zone, Dire Dawa administrative city, and Fafan zone of the Ethiopian Somali region. There were 13 public hospitals in the study area including: two specialized hospitals (Hiwot Fana Specialized Hospital, Meles Zenawi Specialized Hospital), eight general hospitals (Jegol General Hospital, Dil Chora General Hospital, Gara Muleta General Hospital, Karamara General Hospital, Gelemso General Hospital, Chiro General Hospital, Bisidimo General Hospital, Deder General Hospital), and three primary hospitals (Sabian Primary Hospital, Haramaya Primary Hospital, Chelenko Primary Hospital). All the hospitals were included in the study.

Study population

The study population was patients who were served in outpatient pharmacy units of public hospitals located in Eastern part of Ethiopia. Severely ill patients who were not able to undergo an interview and mentally ill patients were excluded from the study. Patients who failed to give consent were excluded as well. Similarly, clients who visited the pharmacy on behalf of other patients were not considered in the survey.

Sample size and sampling procedure

The sample size for proportion of patient satisfaction was determined using the single population formula considering the patient satisfaction of 51.9%,²⁰ 5% sampling error, and with 95% confidence interval. Hence, this yields a sample size of 383. With the assumption of 10% non-response rate, the number of patients needed for first objective was determined to be 422. As regards to the sample size for factors associated with patient satisfaction, it was calculated using OpenEpi version 3 and considering 80% power of the study, 95% two-sided confidence interval, 1:1 case to control ratio, and 10% non-response rate. The least odds ratio and proportion of cases with exposure for factors reported to have association with patient satisfaction in previous studies were selected to estimate sample size. Accordingly, independent variables such as age, education, and occupation were used to calculate sample size.^{21,22} Finally, the largest sample size (422) was considered for the survey.

Sampling with probability proportional to size was used to select the study units. To this end, the sample was allocated proportionally to each hospital based on the average number of prescriptions filled monthly in outpatient pharmacy of each hospital. Table 1 shows a total number of prescriptions filled at each hospital with respective proportionally selected number of study participants. In each hospital, using a systematic random sampling technique, every 23rd sequence of client was included in the study. The first case was selected using lottery method at each hospital.

Table 1. Sampling size allocation for the study conducted on patients' satisfaction with pharmacy service and associated factors in public hospitals, Eastern Ethiopia.

Serial number	Name of the hospital	Average number of prescriptions filled monthly in outpatient pharmacy	Proportionally allocated study participants
1.	Hiwot Fana Specialized Hospital	1674	50
2.	Meles Zenawi Specialized Hospital	1475	44
3.	Jegol General Hospital	756	22
4.	Dil Chora General Hospital	1809	54
5.	Gara Muleta General Hospital	854	25
6.	Karamara General Hospital	872	26
7.	Gelemso General Hospital	988	29
8.	Chiro General Hospital	1608	48
9.	Bisidimo General Hospital	680	20
10.	Deder General Hospital	840	25
11.	Sabian Primary Hospital	950	28
12.	Haramaya Primary Hospital	865	27
13.	Chelenko Primary Hospital	760	24
Total		14,131	422

Data collection tool and procedure

Structured interview guide was used for an exit interview to assess the patient satisfaction with pharmacy service. Validated questionnaires were adapted from previous literatures.^{23,24} The required modifications were done on the interview questions derived from both literatures to suit our purpose. The questionnaires were translated into local languages (Amharic, Affan Oromo, and Somali) for interview purpose and back translated to English language to check the consistency. The questionnaires were translated by fluent user of each language. After that, pre-test was conducted on 5% of total sample size to check the functionality of the tools and further modifications were made. The tools contained three sections as follows: sociodemographic characteristic, patients' health experience, and the patients' satisfaction with pharmacy service. The questionnaires consist of the following: structural aspects of the pharmacy setting, the availability of medicine, providers' interaction with patients, and patient counseling were used to assess patients' satisfaction. The questionnaires were rated using five-point Likert-type scale from one to five, with one being very dissatisfied and five being very satisfied one. A data collector for each hospital was recruited. Training was given to data collectors on the content of data collection tools and interviewing techniques. The data collection process was supervised by the principal investigator and co-investigators.

Data processing and analysis

The data collected using a five-point Likert-type scale were treated as continuous variable to calculate the mean score for each participant.²⁵ After checking normality of data, we used the mean score to determine the magnitude of overall patient satisfaction. Respondents with an average score of less than the mean value were classified as dissatisfied, and those with

an average score of mean value and above were considered as satisfied. Data were entered into EpiData version 3.1 and exported to STATA version 14.2 for analysis. Data were described using proportion, mean, and standard deviation (SD). Bivariate analyses were done to assess the relationship between each independent variable and patient satisfaction. To control the effect of confounding variables, independent variables which have a *p* value of less than 0.2 were included in multiple logistic regression analysis. Associations between dependent and independent variables were assessed using the adjusted odds ratio (AOR) at 95% confidence interval (CI) and *p* values of less than 0.05. Assumption on fitness of goodness of the final model was checked by Hosmer and Lemeshow's goodness-of-fit test and was found fit. Multicollinearity was checked and the cut-off point of correlation coefficient factor of 0.8 was used to exclude correlated variables.²⁶ We did not find significant correlation among variables included in the multivariable analysis.

Results

Sociodemographic characteristics of participants

A total of 422 patients were approached and 407 questionnaires were found to be complete and included in the analysis. As can be seen from Table 2, the number of males was slightly higher than females, 212 (52.09%). The mean age of participants was 35.93 years (SD ± 12.56 years). It is noticeable that a significant proportion of the patients were from urban area, accounting for 59.46% whereas three quarters of participants were single, 262 (64.37%). Regarding the education, 152 (37.35%) of patients did not have formal education while only about one in four achieved certificates and above. Mean monthly income was 3391.67 Ethiopian birr (SD ± 156.49).

Table 2. Sociodemographic characteristics of patients in public hospitals in Eastern Ethiopia, 2018 ($n=407$).

Variables	n (%)
Sex	
Male	212 (52.09)
Female	195 (47.91)
Age (years)	
18–25	102 (25.06)
26–35	141 (34.64)
35–50	112 (27.52)
above 50	52 (12.78)
Place of residence	
Urban	242 (59.46)
Rural	165 (40.54)
Marital status	
Single	262 (64.37)
Married	145 (35.63)
Educational status	
No formal education	152 (37.35)
Primary education	102 (25.06)
Secondary education	54 (13.27)
Certificate and above	99 (24.32)
Occupation	
No job	99 (24.32)
Government employee	88 (21.62)
Farmer	82 (20.15)
House wife	75 (18.43)
Merchant	44 (10.81)
Daily laborer	19 (4.67)

Patients' experiences with pharmacy service

Table 3 depicts the experience of patients during the service. The considerable portion of participants (61.18%) visited hospitals for the first time. Regarding medication dispensed, only about one-third of the patients (35.14%) collected all the prescribed medications whereas the vast majority (64.18%) got little medication or none. A massive 84.03% of participants were paid out-of-pocket for the medication dispensed. Finally, the overwhelming majority (79.36%) of patients were served under 15 min.

Patients were further asked regarding their view on the action needed to improve the quality of pharmacy service. The need to improve medication availability was mentioned most frequently by nearly half of the participants, 204 (50.12%). The need to increase space in the waiting area, increasing the number of staffs, and reducing bureaucracy were other frequently referred measures that patients thought would improve the quality of pharmacy service.

Patients' satisfaction with pharmacy service

Table 4 represents both the overall patient satisfaction and satisfaction for each organizational aspect of service: organizational structural, medication availability and supply,

Table 3. Patient experiences with pharmacy services in public hospitals in Eastern Ethiopia, 2018 ($n=407$).

Variables	n (%)
Familiarity with institution	
First visit	249 (61.18)
Chronic care	158 (38.82)
Self-judged health status	
Severely sick	252 (61.9)
Sick	155 (38.1)
Medication dispensed	
All	143 (35.14)
None or some	264 (64.86)
Payment modality	
Out-of-pocket	342 (84.03)
Paid by insurance	33 (8.11)
Free	32 (7.86)
Waiting time	
< 15 min	323 (79.36)
> 15 min	84 (20.64)
Patients' view on the requirement to improve the service*	
Improve medication availability	204 (50.12)
Increase waiting area space	197 (48.40)
Increase number of staffs	195 (47.91)
Reduce bureaucracy	107 (26.28)
Reduce waiting time	92 (22.60)

*The respondents can tell more than one option.

Table 4. The mean score of patient satisfaction toward specific organizational aspects and the overall satisfaction, 2018 ($n=407$).

Variables	Mean	SD	SE	95% CI
Structural aspect of the setting	2.12	0.56	0.03	2.08, 2.19
Medication availability and supply	2.43	1.37	0.68	2.30, 2.56
Pharmacist–patient relationship	2.10	0.63	0.03	2.03, 2.16
Patient counseling	2.51	0.73	0.04	2.43, 2.58
Overall satisfaction	2.29	0.56	0.03	2.24, 2.35

SD: standard deviation; SE: standard error; CI: confidence interval.

pharmacist–patient relationship, and patient counseling. The mean overall satisfaction of clients measured out of five was 2.29 (SD \pm 0.56, 95% CI: 2.24, 2.35). The proportion of overall satisfaction was 46.1.9% (95% CI: 41.37, 51.07). Relatively higher satisfaction was reported for patient counseling with mean satisfaction level of 2.51 (95% CI: 2.43, 2.58). The lowest score was reported for pharmacist–patient relationship followed by the structural aspect of the setting, 2.10 and 2.12, respectively.

Determinants of patients' level of satisfaction with pharmacy service

Patients within the age range of 26–35 years and 36–50 years were found to have 50% (AOR=0.5, 95% CI: 0.3, 0.9) and

Table 5. Factors associated with patient level of satisfaction with pharmacy services in public hospitals in Eastern Ethiopia, 2018 ($n=407$).

Variables	Satisfaction		COR (95% CI)	AOR (95% CI)
	Yes n (%)	No n (%)		
Age (years)				
18–25	63 (33.5)	39 (18.8)	1	1
26–35	58 (30.9)	83 (37.9)	0.4 (0.3, 0.7)	0.5 (0.3, 0.9)*
36–50	39 (20.7)	73 (33.3)	0.3 (0.2, 0.6)	0.4 (0.2, 0.8)*
> 50	28 (14.9)	24 (11.0)	0.7 (0.4, 1.4)	0.9 (0.4, 2.2)
Residence				
Urban	94 (50.0)	148 (67.6)	1	1
Rural	94 (50.0)	71 (32.4)	2.1 (1.4, 3.1)	3.0 (1.8, 5.2)*
Educational status				
No formal education	71 (37.8)	81 (37.0)	0.9 (0.5, 1.4)	0.5 (0.3, 1.0)
Primary education	49 (26.1)	53 (24.2)	0.9 (0.5, 1.6)	0.6 (0.3, 1.1)
Secondary education	18 (9.5)	36 (16.4)	0.5 (0.2, 0.9)	0.4 (0.2, 0.8)*
Certificate and above	50 (26.6)	49 (22.4)	1	1
Medication dispensed				
All	82 (43.6)	61 (27.8)	2.0 (1.3, 3.0)	2.2 (1.4, 3.5)*
None or some	106 (56.4)	158 (72.2)	1	1

COR: crude odds ratio; AOR: adjusted odds ratio.

*The values show significant association ($p < 0.05$).

60% (AOR=0.4, 95% CI: 0.2, 0.8) decreased likelihood of satisfaction compared with patients within the range of 18–25 years, respectively. However, patients living in rural area were 3.0 times (AOR=3, 95% CI: 1.8, 5.2) more satisfied than their counterpart, urban dwellers. Similarly, patients who attended only secondary education had 60% decreased likelihood of being satisfied compared to those who had a certificate and above (AOR=0.4, 95% CI: 0.2, 0.8). Finally, the number of medications dispensed in the hospital pharmacy was found to have a significant association with satisfaction. Patients who had all of the prescribed medications dispensed were 2.2 times more satisfied compared with those who did not get all the prescribed medication or got some (AOR=2.2, 95% CI: 1.4, 3.5) (Table 5).

Discussion

This study was undertaken with the aim of assessing patient satisfaction with hospital pharmacy service and its determinants. In this study, the overall satisfaction with pharmacy service was found to be 46.19% (95% CI: 41.37, 51.07). The mean satisfaction calculated out of five was 2.29 (SD \pm 0.56, 95% CI: 2.24, 2.35). The age of the participants, place of residence, education level, and medication availability were independent variables significantly associated with patient satisfaction with pharmacy service.

In this study, patients reported low satisfaction, only less than half of the respondents reported satisfaction with the service they provided with (46.19%). This study is in agreement with studies conducted elsewhere in Ethiopia: Mizan-Tepi (47.4%)²¹ and Gondar (48.1%,²⁷ 2.48 mean satisfaction calculated out of five).²² Similar finding was reported from

Tanzania and Nigeria, 46%²⁸ and 49%,²⁹ respectively. However, our finding is considerably less than reports from Brazil²⁷ and South Korea,³⁰ 58.4% and 74.6%, respectively. The difference in the level of satisfaction observed can be explained in many ways. First, the data collection instrument used across studies is not similar and this may have impacted the results. Second, the analysis approach used was different in each study and this might have contributed to the variation. What is more, in later settings such as South Korea and Brazil, the superior quality service is expected and might have contributed for the improved patient satisfaction.

There are multitudes of studies indicating the determinants for patient satisfaction, although the findings are often indecisive and vary from setting to setting. Although there are conflicting reports, demographic characteristics such as age, gender, standard of living, education, and occupation have been linked with patient satisfaction.^{21,22,28,31–35} Apart from demographic characteristics, the association between patients' health-care experience and satisfaction is well-documented.^{27,28} For example, waiting time, payment modality, and medication availability are often reported to have strong association with patient satisfaction.^{22,28,32,36}

In this study, participants' age was found to have strong association with the patient satisfaction. Patients within the age range of 26–35 years (AOR=0.5, 95% CI: 0.3, 0.9) and 36–50 years (AOR=0.4, 95% CI: 0.2, 0.8) were less likely to be satisfied compared with patients within the age range of 18–25 years. This could be due to high expectation among adult population. This study is in contrast with other studies which reported good satisfaction among older compared with their counterpart.^{22,31,37}

However, patients who were from the rural area reported good satisfaction compared to those patients living in the urban area (AOR=3, 95% CI: 1.8, 5.2). The role of place of residence is not reported often as a factor in many previous studies.^{21,22,28,31–35} This could be due to different reasons. First, in our setting, significant portion of patients were served from rural area while in other studies either there were no patients from rural area or the place of residence was not assessed and hence not reported. Generally speaking, the high satisfaction seen among rural dwellers could be due to lower expectation toward the service.

Evidences indicate better satisfaction from patients with little or no formal education.^{21,22,33} In agreement with this, in this study, patients who attended secondary education scored higher satisfaction compared with patients who had a certificate and above. This might be due to lower awareness about the service delivered in pharmacy from patients with less education compared with their counterpart.

There are handful evidences indicating association between the health experience of patients and satisfaction. In this regard, waiting time, medication availability, payment modality, and self-judged health status are the commonly reported factors.^{22,28,36,38,39} Although there might be variation among settings, medication availability can be a major factor in determining patient satisfaction. The poor access to medication has remained major compliant among patients in Ethiopian health-care settings. Patients are forced to purchase medication from private community pharmacies often with high cost. In our study, for example, only 35.14% of patients had all drugs dispensed in the hospital pharmacy from the prescribed drugs. As a result, patients who had all their medications dispensed were more satisfied compared with those who did not get all the prescribed drugs or did get some (AOR=0.4, 95% CI: 1.4, 3.5). This finding is consistent with studies conducted elsewhere in Ethiopia.^{32,39}

Limitation of study

Regardless of the sound concept, study design, tools, and data analysis we applied in this study, the result should be interpreted and generalized cautiously for different reasons. First, the nature of the care given in other part of the hospital might have affected patients' satisfaction with pharmacy service. Second, the specific types of service the patient had in the hospital pharmacy and their expectation have been not assessed which might have affected the level of patient satisfaction. Finally, we were not able to determine association between family income and patient satisfaction due to incomplete response.

Conclusion

In this study, the patient satisfaction levels with pharmacy service were found to be very low. The finding seen in this study is unacceptable, and the stakeholders should work to improve the overall quality of the service provided in the

pharmacy unit in order to improve the patient satisfaction. Moreover, a number of demographic characteristics were reported to have a strong association with patient satisfaction. In addition to sociodemographic variables, medication availability was independent variables strongly linked to patient satisfaction. Hence, the health-care providers and administrators should work to increase medications availability in the hospitals.

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Author contributions

All authors participated starting from the conception of the research idea to interpretation of the result and manuscript authorization. All authors have read and agreed to the final manuscript.

Availability of data and material

The data collection tools are attached as an additional supporting file. The data sets are available from the corresponding author on reasonable request.

Declaration of conflicting interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Ethical approval

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Informed consent

Written informed consent was obtained from all subjects before the study.

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Supplemental material

Supplemental material for this article is available online.

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