

# Patient Satisfaction Towards Outpatient Pharmacy Services and Associated Factors at Dessie Town Public Hospitals, South Wollo, North-East Ethiopia

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**Background:** Satisfaction of patients is a key measure of quality pharmacy service delivery. However, the traditional way of drug inventory and dispensing practice by professionals negatively affects the satisfaction of patients. Hence, assessment of satisfaction level is an important tool to identify gaps in pharmacy service delivery and works for its improvement.

**Objective:** To determine the level of patients' satisfaction towards outpatient pharmacy service and contributing factors at Dessie Town Public Hospitals, South Wollo, North-east Ethiopia, 2020.

**Methods:** We implement a facility-based cross-sectional survey on 414 patients over the age of 18 years from the outpatient pharmacy service of Dessie town public hospitals. The study was done from February to June 2020 through a systematic random sampling method and face-to-face pharmacy exit interview using the Self Reporting Questionnaire-17. We used Epi-data version 3.1 for data entry and SPSS-21 software for analysis. We assessed the strength of association in the binary logistic regression with odds ratio and declare statistical significance with p-value <0.05.

**Results:** Among the total patients participated, 246 (59.4%) were satisfied towards outpatient pharmacy services. In this finding, comfortability of waiting area [AOR=1.87; 95% CI, (1.13, 4.18)], frequency of visit [AOR=2.4; 95% CI, (1.19, 4.80)], and payment status [AOR=2.90; 95% CI, (1.21, 6.95)] showed a positive association towards satisfaction. On the other hand, age (28–37 years) [AOR=0.16; 95% CI, (0.08–0.34)], number of drug dispensed [AOR=0.3; 95% CI, 0.13–0.41] and medication availability [AOR=0.44; 95% CI, (0.26, 0.71)] showed a negative association with patient satisfaction.

**Conclusion and Recommendations:** The findings of the current study revealed that patients' satisfaction towards outpatient pharmacy services provided by public Hospitals at Dessie town was low. Hence, hospitals need to take attention to and consider the identified gaps like improving the availability of drugs, comfortability of waiting area, payment status, and the number of drugs dispensed, and the frequency of visits.

**Keywords:** patients' satisfaction, pharmacy service, Dessie

## Background

Satisfaction is a psychological state and can be stated as the congruence between an individual's expectations and reality. Patients' satisfaction is a health-care recipient's reaction to salient aspects of the contexts, process, and result of their service experience.<sup>1,2</sup> The satisfaction of patients is an emotion, a feeling, and a matter of perception. It arises from the patients' appraisal of experience in hospital services; it involves likes and dislikes which are internal and external to the patients.<sup>3</sup>

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Patients' satisfaction is related to the extent to which general health-care needs and condition-specific needs are met. Evaluating to what extent patients are satisfied with health services is clinically relevant, as satisfied patients are more likely to comply with treatment, take an active role in their care to continue using pharmacy care services and stay within a health provider and maintain with a specific system.<sup>3,4</sup> The pharmacy service is an essential element of the health-care system that has a direct contribution to improve public health and positive health outcomes.<sup>5</sup>

The availability of pharmacy service and satisfied patients are essential to increase the quality of pharmacy service provided.<sup>6</sup> Pharmacist involvement in patient care through pharmacy services increased the level of patient's satisfaction<sup>7</sup> with all the aspects related to a pharmacist and provided care. Being an important member of the health-care team, it is the prime responsibility of the pharmacist to provide good services to patients.<sup>8</sup> A study that was conducted at Qatar public Hospital showed that patient satisfaction is positively influenced by service promptness, pharmacist attitude, medication counseling, pharmacy location, and waiting for area.<sup>9</sup>

Many factors affect patient satisfaction in pharmacy service including: socio-demographic variables (age, sex, marital status, and race), waiting time, health status, and the patient's expectations, pharmacy location, availabilities of medication, and cost.<sup>6,10-15</sup>

Consequently, patient satisfaction has been categorized as an important humanistic outcome measure in pharmacy service.<sup>16</sup> The new role of the pharmacist has evolved from the traditional activity of dispensing medications to broader responsibilities of pharmacy service, but pharmacy service requires a much more intimate and intensive relationship between the pharmacist and patient than simple pharmacy dispensing.<sup>17</sup>

Patient satisfaction is considered a goal to be achieved by health-care services and, therefore, should be researched to incorporate improvements in the health-care system.<sup>18</sup> The patient-pharmacist relation has immense importance in improving patient health.<sup>12</sup> Patients who are satisfied with pharmacy services are more likely to take their medications appropriately and less likely to change from one health care to another. Satisfaction data play a significant role in the strategy and health-care providers use in delivering services for patients.<sup>11</sup>

Additionally, measurement of patient satisfaction is increasingly playing a fundamental role in the trust-based relationship between patients and health-care providers. It is also viewed as an established indicator of the quality of care.<sup>19</sup> Therefore, it is very important to conduct a study on this topic and will be used as a bull's eye in the identification of what has been done and what will be done and to correct, prevent, or better treat the bottlenecks of the good pharmacy service. This study will be helpful for program planners, health-care managers, hospital managers, pharmacy managers and researchers to understand the extent of the problem in the hospital and to plan different strategies that help them to improve patient satisfaction and thereby to advance the quality of health-care delivery. It may also be used as the baseline data for further study on the area.

Even though most hospital pharmacy professionals are engaged in the traditional dispensing of drugs and management of drug inventory, this traditional practice affects patient satisfaction and the potential role of pharmacists in improving the patients' health. Many studies have been conducted to assess patient satisfaction with medical services and associated factors towards satisfaction, but only a few of them have specifically investigated outpatient pharmacy service in the Amhara region and none in the current study area as per the researcher's knowledge. Hence, this study aimed and assessed patient satisfaction and associated factors involved in outpatient pharmacy service provided by Dessie town public hospitals, South Wollo, North-east Ethiopia.

The results obtained from this study will therefore be essential for public health practitioners, researchers, and pharmacy practitioners to intervene in the gap in evidence and improvement of quality of outpatient pharmacy services.

## Research Questions

The purpose of this study was to assess Patients' Satisfaction towards outpatient pharmacy Service and associated factors at Dessie town public hospitals, south Wollo, north-east Ethiopia, 2020. The particular research questions that guided the current study were:

1. What is the prevalence of patients' satisfaction towards outpatient pharmacy services at Dessie town public hospitals, south Wollo, northeast Ethiopia?
2. What are the factors associated with patients' satisfaction towards outpatient pharmacy service at

Dessie town public hospitals, south Wollo, north-east Ethiopia?

## Methods and Materials

### Study Area and Period

This study was conducted in Dessie town, Amhara region, North-east Ethiopia. Dessie is located 401 km north away from the capital city of Ethiopia, Addis Ababa, and 475 km from the capital city of the Amhara region; Bahir Dar based on the 2018/2019 Dessie town health plan and program report.<sup>20</sup> The city has one referral hospital, one district hospital, eight health centers, and six health posts, three private hospitals, and 45 private clinics, two diagnostic laboratories, one international laboratory, and 62 pharmacies. Dessie referral hospital is one of the hospitals in the region which is providing patient diagnosis and treatment services for the community. The hospital serves patients from all parts of the regions (nearly 4 million people) and other neighborhood regions such as Afar and Oromia regional states. The hospital has 638 health-care professionals. Boru-Meda Hospital is another district hospital in Dessie town which serves for 2 million peoples and has 222 health-care professionals (76 nurses, 17 midwives, 15 physicians, 14 lab technicians, 21 pharmacists, and 79 other health-care professionals).<sup>20</sup> The study was conducted on the above two hospitals from February/2020-June/2020.

### Study Design

A facility-based quantitative cross-sectional study was conducted to assess the level of patients' satisfaction towards outpatient pharmacy services and associated factors at Dessie town public hospitals. All adults aged over 18 years who visited the outpatient pharmacy units of the two hospitals and the patients who were willing to give written consent were included in the study.

### Sample Size Determination

To determine the sample size, the outcome variable and various factors significantly associated with the outcome

variable were considered. Both for the first and the second objectives, the sample size was calculated and the larger sample size was used for this study.

1. For the first objective, the sample size was determined using a single population proportion formula.

$n = Z(\frac{\alpha}{2})^2 \frac{P(1-P)}{(D)^2}$  n=sample size;  $Z(\alpha/2) = 1.96$ , which is the upper percentile of the standard normal distribution; P= patient satisfaction on outpatient pharmacy service, 51.6%<sup>21</sup> at Black Lion Specialized Hospital of patient level of satisfaction on outpatient pharmacy service. D=marginal error assumed to be 5%, the sample size will be  $n = (1.96)^2 \frac{0.516(1-0.516)}{(0.05)^2}$ , this gives  $n=383$ , and at last 10% of non-response rate was added, and it was  $384 + 39 = 422$ .

1. The sample size was determined by various factors that were significantly associated with the outcome variable; two-sided confidence interval using double population proportion formula with the assumptions of 95% CI, 5% margin of error, 80% power, and exposed to unexposed ratio 1, and using Epi-Info version 7 (Table 1).

At last added 10% of non-response rate on the factor that consists large sample size on the above table that is  $356 + 36 = 392$ . Hence, the higher sample size from the two objectives (422) was taken.

### Sampling Technique and Procedure

To get the sample size of 422, we collected the data for one month using systematic random sampling. The average number of patients who got this service per day in DRH and BMH of outpatient pharmacy was determined for 1month of the data collection period.

To determine the value of the sampling fraction ("K"),  $K = N/n$ . Hence,  $K = 2706/422$ ;  $K = 6$  since every "6" patient was interviewed. And the first patient was selected by

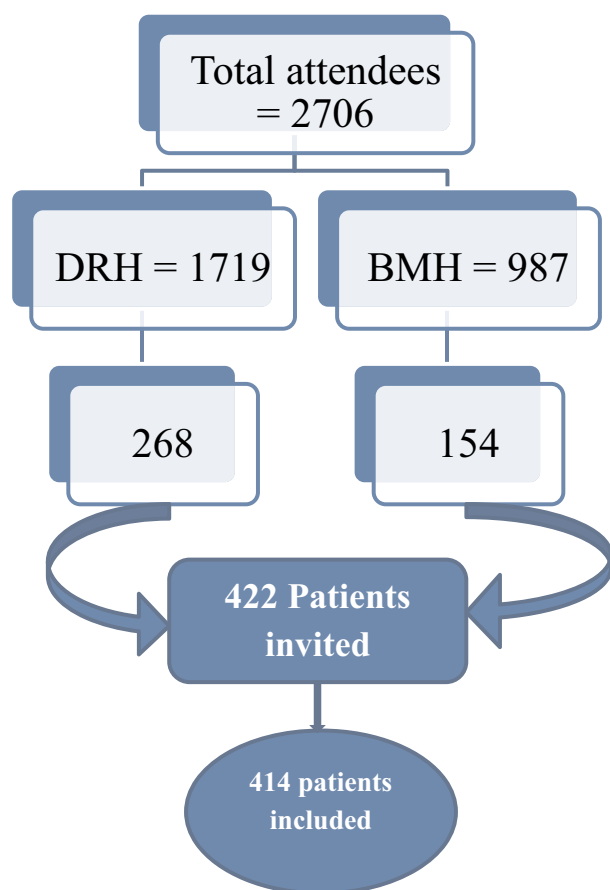
**Table 1** Sample Size Determination to Assess Patients' Satisfaction Towards Outpatient Pharmacy Services, 2020

S.No	Factor	% Outcome Unexposed	AOR	Sample Size
1	The waiting area is comfortable and convenient (21)	35.6	0.5	356
2	The staff number is enough to the service (22)	54.23	0.32	120
3	Patient-pharmacist interaction status (13)	48.24	0.28	106

lottery method. The number of subjects that were included in the study from each hospital was calculated using the proportionate to size allocation technique (Figure 1).

## Study Instruments

An instrument developed and validated by Larson LN, Rovers JP, Mackeigan LD in its modified version was used to assess patient satisfaction with pharmacy service in the hospitals.<sup>22</sup> The questionnaire consists of socio-demographic factors, Pharmacy item and service sought related question and facility-related question, and satisfaction questions. The satisfaction question consists of Self Reporting Questionnaire 17. To guarantee data validity, questionnaire items were adopted from a study by Larson et al.<sup>22</sup> The questionnaire was pretested among 20 adults (age>18yrs) (face validity), who was not part of the sample size and Cronbach's alpha was determined to test its reliability. Since the value of the reliability coefficient for the 17 questionnaires was 0.87. Hence, the reliability of the instrument was found to be very good.



**Figure 1** Sampling procedure for the study, 2020 (n=414).

## Data Collection and Quality Control Issues

Data were collected by face-to-face pharmacy exit interview technique. Three BSc nurses were collected the data for one month. Before involvement in the data collection, training was given to data collectors by the investigator on how to use the questionnaire, ethical principles of confidentiality, and data management. The data collectors were expected to explain the purpose and another detail of the study and written consent was obtained from each study subject. The questionnaire required 20 minutes to complete. Data quality control issues were also ensured by conducting the pre-test among 20 samples obtained from the outpatient hospital pharmacy of Kemissie hospital before actual data collection time. Data were also checked daily for completeness and consistency.

## Data Analysis and Processing

Data was entered into Epi-data version 3.1 and analyzed using SPSS version 21.0. Descriptive statistics were employed to summarize the socio-demographic characteristics of the patients and facility-related factors. The adjusted odds ratio was used to measure the association between independent variables and level of patient satisfaction towards outpatient pharmacy services. Then, the satisfaction score was dichotomized into satisfaction (below the mean) and dissatisfaction (above the mean). Binary logistic regression analyses were run to determine associations between the different independent variables and the key outcome variables (satisfaction with outpatient pharmacy services). In all of the analyses, significance testing was done using two-sided p-values (P) and 95% confidence levels. Those variables with  $P < 0.2$  in the univariate analysis were included in the multivariate analysis. In the final model, p-value  $< 0.05$  was considered statistically significant.

## Ethical Considerations

Ethical clearance was obtained from the Ethical review Committee of Wollo University. The committee had reviewed the document and gave approval in accordance with the Declaration of Helsinki as the study involved human subjects. The ethical clearance number was CMHS/085/13/2020. The purpose of the study was explained and permission was obtained from the respective health institution officials. Informed written consent from the individual respondent was obtained by clearly

explaining the purpose and the procedures of the study and the right to decline from the interview were assured. The name of the patient was not recorded and all information taken from the patients was kept confidential and used only for the present study. During data collection, respect was given to individual respondents. Participation was based on volunteerism. Ethical issues were considered during the training of data collectors.

## Results

### Socio-Demographic Characteristics of Respondents

A total of 422 patients were invited to participate from the two hospitals and 414 patients were included in the study and the response rate was 98.1%. Two hundred sixteen (52.2%) respondents were male. Among the respondents, 112 (27.1%) were between 18–27 years and 230 (55.6%) of the respondents were married. Regarding the educational level of the respondents, 117 (28.3%) attended primary school. Two hundred forty-one (58.2%) were self-employed. Two hundred fifty-nine (62.6%) of the respondents were Muslim religion followers. Among the total respondents, 237 (57.2%) lived in urban areas and 377 (91.1%) speak Amharic. Two hundred two (48.8%) patients were using outpatient pharmacy services for free or were insured. One hundred seventy-five (42.3%) received pharmacy service once in the last six months (Table 2).

### Patients' Response Towards Facility-Related Service Attended at Outpatient Pharmacy Units

More than half of the respondents agreed on the pharmacy location appropriateness/convenient 279 (67.4%), regarding the comfortability of the counseling area less than half of the respondents 133 (32.1%) agreed, the comfort of the waiting area (63.8%,  $n = 264$ ), and the majority of the respondents agreed on the cleanliness of the dispensary 262 (63.3%). Furthermore, nearly half of the respondents believed that the number of pharmacy staff was not adequate to provide the services (Figure 2).

### Patient's Response Towards Availability of Pharmaceutical Items

More than half of the studied population (231, 55.8%) claimed that they got the medications they need from the outpatient pharmacy units. Among the total sampled

population, 230 (55.6%) patients sought the service for their relatives/families, and the remaining 184 (44.4%) sought it for themselves. The vast majority of the studied population (161, 41%) received more than two medications from the pharmacy units (Table 3 and Figure 3).

### Satisfaction Scores of Patients Towards Outpatient Pharmacy Services

The vast majority of the study respondents had a high satisfaction on how to take medications ( $n = 349$ , 84.3%), voice tone ( $n = 328$ , 83.5%), cleanliness of pharmacy service area ( $n = 301$ , 72.7%), label readable and understandable instruction ( $n = 301$ , 72.7%) of the pharmacists. They also had a high satisfaction on the service waiting time ( $n = 296$ , 71.5%), service equality ( $n = 298$ , 72.0%), courtesy and respect ( $n = 295$ , 73%), cost of medication ( $n = 286$ , 70%) and professionalism of the pharmacist ( $n = 281$ , 67.9%). Less than two-third of the participants were satisfied with promptness of prescribed drug ( $n = 278$ , 67.1%). Nearly half of the respondents were satisfied with the medication storage conditions ( $n = 192$ , 46.4%) (See Table 4).

### Patients Level of Satisfaction Towards Outpatient Pharmacy Services

Based on the five-point Likert scale, the mean summary score of satisfaction was 40.88. By taking this summary score as a cut of point, 246 (59.4%) patients were found to have satisfaction towards outpatient pharmacy services scoring  $\leq$  the mean with a standard error of 2.4 at 95% CI (54.7, 64.3) and the remaining patients (168, 40.6%) were found to be dissatisfied towards the services with a standard error of 2.4 at 95% CI (35.7–45.3) scoring above the mean.

### Factors Associated with Patient Satisfaction Towards Outpatient Pharmacy Services at Dessie Town Public Hospitals in North-East Ethiopia

On bi-variate analysis at  $p$ -value  $< 0.2$ ; patients whose age was found between 28–37 years, 47–58 years, and  $\geq 58$  years had COR of 0.27 [COR = 0.27; 95% CI, 0.15–0.48], 0.4 [COR = 0.4; 95% CI, (0.21–0.76)] and 0.3 [COR = 0.3; 95% CI, 0.1–0.8], respectively. Patients whose Level of education categorized under unable to read and write and secondary education were [COR = 0.44; 95% CI, (0.24, 0.81)], (COR = 0.55; 95% CI,



**Table 2** Socio-Demographic Characteristics of Participants (n=414)

Variables	Frequency (n)	Percentage (%)
Sex		
Male	216	52.2
Female	198	47.8
Age (in Years)		
18–27	112	27.1
28–37	102	24.6
38–47	94	22.7
48–57	63	15.2
>58–67	43	10.3
Level Education		
unable to read and write	81	19.6
primary Education	117	28.3
Secondary Education	111	26.8
Diploma & Above	105	25.4
Ethnicity Amhara	377	91.1
others	37	8.9
Marital Status Single	134	32.4
Married	230	55.6
Divorced	30	7.2
Widowed	20	4.8
Employment Status		
Employed	93	22.5
Unemployed	241	58.2
Student	60	3.4
Retired	6	1.4
Religion Islam	259	62.6
Orthodox	133	32.1
Protestant	21	5.1
Others	1	0.2
Residence Urban	237	57.2
Rural	177	42.8
Payment status		
By Company Free/Health	46	11.1
Insurance	202	48.8
Cash/Out Of Pocket	166	40.1

(0.32, 0.95)], respectively. Patient who visited for first time [COR = 1.81; 95% CI, (1.04,3.15)], Residence [COR = 1.5; 95% CI, (1.00,2.24)], number of drug dispensed [COR= 0.45; 95% CI, (0.28,0.71)], waiting area comfort ability [COR=1.47; 95% CI, (0.97,2.23)], Private counselling area [COR=0.65; 95% CI, (0.42,1.07)], pharmacy location [COR=0.65; 95% CI, (0.43,0.99)], Prescribed medication availability [COR = 0.54; 95% CI, (0.36,0.81)] and number of pharmacist enough to give service [COR = 0.7; 95% CI, (0.47,1.06)].

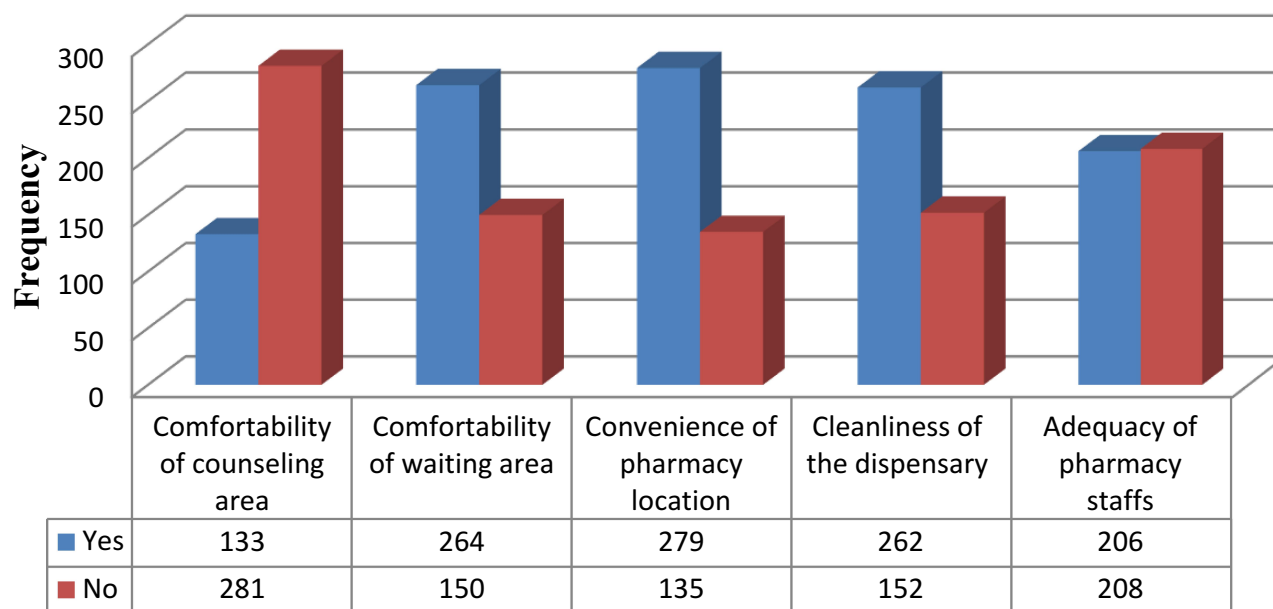
However, on the multivariate analysis payment status, frequency of pharmacy visit, and Comfortability of waiting for the area showed a statistically significant association while age, medication availability, and many drug dispenses showed a negative association towards the level of satisfaction. With age, patients were 28–37 years [AOR=0.16; 95% CI, (0.08–0.34)] and 48–57 years [AOR=0.3; 95% CI, (0.13–0.68)]; Accordingly payment status; respondents who were insured/free from charge and patient who were covered their expenditure by the company were 3.6[AOR=3.6; 95% CI, (1.47,8.76)] and 2.90 [AOR=2.90; 95% CI, (1.21,6.95)] time more satisfied compared to who covered medication costs from out-of-pocket expenditures, respectively. Moreover, a participant who got prescribed medication from the hospital pharmacy was 0.44 [AOR=0.44; 95% CI, (0.26, 0.71)] times more satisfied than those who did not get prescribed medication. Furthermore,; respondents who were comfortable with the waiting area of the hospital were also 1.87 times more satisfied compared to uncomfortable respondents [AOR=1.87; 95% CI, 1.13–4.18]; a participant who was visited the first time was 2.4 [AOR=2.4; 95% CI, 1.19–4.8] times more likely to be satisfied compared to a participant who visited more than one times, respectively. Additionally, respondents who received one drug were 70% less likely to be satisfied compared to those respondents who received more than one drug from the pharmacy [AOR=0.3; 95% CI, 0.13–0.41] (Table 5).

## Discussions

Patient satisfaction with service rendered should be considered as an outcome measure of the care provided which helps improve the quality of the pharmacy service. This study examined patients' satisfaction towards out-patient pharmacy service at Dessie town public hospitals.

The mean satisfaction score in the present study was 59.4%. This overall result of patient satisfaction regarding pharmacy services was good compared to a different study finding in Ethiopia.<sup>23–25</sup> The current finding was consistent with a study that was conducted in Brazilian Health Care (58.4%). The current finding is higher than the finding that was conducted at Black lion Specialized Referral Hospital (51.6%).<sup>21</sup> The possible reason might be due to the higher sample size used in this study. Unfortunately, the present finding is lowest when compared with finding in South Korea (74.6%), Spain, Valencia (76%), and the United Arab Emirates (77.1%).<sup>9,10,26</sup> The higher level of satisfaction rate in this study might reflect that developed

## Facility-related service



**Figure 2** Patients' response towards facility-related service attended the Outpatient Pharmacy Units of Dessie Town Public Hospitals, 2020 (n=414).

pharmacy services in developed countries than in developing countries like Ethiopia.<sup>23</sup>

In contrast to this study finding, a study conducted at Yekatit 12 Hospital medical College “availability of prescribed drug” had the highest percentage of satisfaction<sup>24</sup> while in this current finding Counselling on how to take medications (84.3%) had the highest percentage of satisfaction and “privacy of conversation” had the lowest percentage of satisfaction (31.5%) due to pharmacy setting is not convenient to provide a private room for each patient who needs pharmacy service.<sup>27</sup> In the current study, satisfaction reports very low figures were noted towards the privacy of conversation, counseling time, medication storage, and instruction about medication side effects. This is a warning message

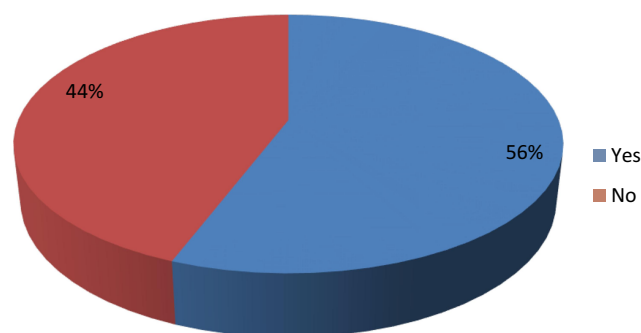
that may make the whole pharmacy service poor and valueless. This implies that this area needs to be addressed to improve overall patient satisfaction.

Patients' satisfaction was assessed for the association between different socio-demographic characteristics and other related factors and level of satisfaction. Unlike many other studies,<sup>21,24,28,29</sup> some of the socio-demographic characteristics showed statistically significant association with satisfaction like age, payment status, and frequency of visit in both bivariate and multivariate model analysis. Based on this current finding, respondents who were aged greater than or equal to 58 years were 83% less likely to be satisfied than respondents whose age

**Table 3** Patient Response Towards Pharmaceuticals at Dessie Town Public Hospitals Northeast Ethiopia, 2020 (n=414)

Service sought
For self: 184 (44.5)
For relatives: 230 (55.5)
Number of drug dispensed
One: 84(20.6%)
More than one: 330(79.6%)
Frequency of visit
one time: 175 (42.3)
More than one time: 239 (57.7)

## Medication availability



**Figure 3** Patient response towards medication availability, 2020 (n=414).

**Table 4** Satisfaction Scores of Participants, 2020 (n=414)

Variables	Satisfied	Neutral	Dissatisfied
	Frequency (N, %)	Frequency (N, %)	Frequency (N, %)
The professionalism of the pharmacy personnel	(281,67.9)	(59,14.3)	(74,17.9)
Service equality	(298,72)	(66, 15.9)	(50,12.1)
Clarity of the voice and tone of the pharmacy personnel	(338, 81.6)	(23, 5.6)	(53,18.8)
Counseling on how to take medications	(349, 84.3)	(18,4.3)	(47, 11.4)
Treating with courtesy and respect	(295,71.3)	(41,9.9)	(78, 18.8)
Counseling about medication precautions and side effects	(178, 43)	(25,6)	(211, 51.0)
Amount of time the pharmacist offers	(174,42)	(55,13.3)	(185,44.7)
Counseling on proper storage of medications	(192, 46.4)	26(6.3)	(196,47.3)
Appropriateness of pharmacy location	(244,58.9)	(48,11.46)	(122, 29.5)
Fairness of service waiting time in the pharmacy	(296, 71.5)	(41, 9.9)	(77, 18.6)
Label readability and provision of understandable instruction	(301, 72.7)	(31, 7.5)	(82,19.8)
Privacy of conversation	(129, 31.2)	(32, 7.7)	(253, 61.1)
Promptness of prescribed drug	(278, 67.1)	(52,12.6)	(84, 20.3)
Cleanliness of Pharmacy service area	(301,72.7)	(57, 13.8)	(56, 13.5)
Pharmacist politeness and interest	(264, 63.8)	(42,10.1)	(108, 26.1)
Availability of prescribed medication	(267,64.5)	(34, 8.2)	(113,27.3)
Fairness of cost of medication	(286, 69.1)	(62,15)	(66, 15.9)

group between 18–27 years. In support of this finding, studies conducted in six regions of Ethiopia, India, China, and Brazil age were a significant factor towards satisfaction.<sup>23,24,30</sup> The six regions of the Ethiopian study showed that respondents whose age group 35–49 were less likely to be satisfied compared to those respondents whose age group in between 15–19 years. This may be because as age increases patient satisfaction rate might decrease because of the decline of health status.<sup>31</sup> On the other hand, a study conducted in Black lion specialized hospital and Nigeria teaching hospital reported no significant association showed between age and patient satisfaction.<sup>10,32</sup> This variation might be due to a small number of the sample size used in those studies, and from this figure simply understand that age might significantly affect older adult satisfaction negatively due to a decreased physiological changes thereby decreasing their satisfaction.<sup>33</sup>

The other significant variable in this current finding was payment status. Respondents who were covered their health cost through company were 2.9 times more satisfied when compared with who paid out of pocket and respondents who were covered their health cost through insurance/free fee paid were 3.6 times more satisfied than who were paid out of pocket. In support of this finding; a study conducted in Mizan Tepi University Teaching Hospital and Hiwot Fana Specialized Hospital showed a significant association between payment status and satisfaction.<sup>9,34</sup> Similarly; a published study finding done in China and

South Korea showed free fee paid service increased the satisfaction of patients towards satisfaction.<sup>24,35</sup> In contrast to this current finding, studies conducted in Black Lion Specialized Hospital and Gondar University Hospital reported no significant association between payment status and satisfaction.<sup>10,36</sup> This variation may be due to the small sample size used in this mentioned study finding.

Together with this, the frequency of visits showed a significant association with satisfaction. Individuals who visited the pharmacy service within six months one time were 2.4 more likely to be satisfied than those patients who received the service more than one time within six months (AOR; 2.4(1.19,4.80)). Correspondingly, the current finding is supported by a study finding in Nigeria, Benin City.<sup>32</sup> This might be due to repeated visits increase expenditures and related sources. On the other hand; study findings in the University of Gondar and Hiwot Fana Specialized Referral Hospital showed no significant association was found between the frequency of visit and patient satisfaction.<sup>10</sup> This discrepancy may be due to the small number of sample sizes in Gondar university hospital and the difference in the study period. Regarding facility-related factors; the number of drugs dispensed, medication availability, comfortability of waiting areas were associated with satisfaction. Patients who offered one drug were 70% less likely to be satisfied than those who offered more than one drug. This finding was supported by a study



**Table 5** Bivariate and Multivariable Logistic Regression Analysis of Factors Associated with Patients' Satisfaction, 2020 (n=414)

Variables	Frequency (%)		COR, 95% CI)	AOR, 95% CI	P
	Satisfied	Dissatisfied			
Age 18–27 years	48 (19.5)	64(38.1)	<b>1.00</b>	<b>1.00</b>	
28–37 years	75(30)	27(16.1)	0.27(0.15,0.48)	0.16(0.08,0.34)	<b>0.001*</b>
38–47 years	50(20.3)	44(26.2)	0.66(0.38,1.2)	0.49(0.24,0.99)	0.047
48–57 years	41(16.7)	22(13.1)	0.4(0.2,0.76)	0.3(0.13,0.68)	<b>0.004*</b>
≥58years	32(13)	11(6.6)	0.3(0.1,0.8)	0.17(0.05,0.53)	<b>0.002*</b>
Level of education illiterate	55(22.4)	26(15.5)	0.44(0.24,0.8)	1.03(0.45,2.3)	0.93
District education	70(28.5)	47(28)	0.6(0.37,1.08)	1.16(0.57,2.34)	0.67
Secondary education	70(28.5)	41(24.4)	0.55(0.3,0.9)	0.71(0.37,1.39)	0.32
Diploma & above	51(20.7)	55(32.1)	<b>1.00</b>	<b>1.00</b>	
Residence Urban	131(53.3)	106(63.1)	1.5(1.00,2.24)	1.44(0.86,21.07)	0.08
Rural	115(46.7)	62(36.9)	<b>1.00</b>	<b>1.00</b>	
Payment type By company	35(14.2)	11(6.5)	2.3(1.1,4.8)	2.90(1.21,6.95)	<b>0.016*</b>
Free/health insurance	117(47.6)	85(50.6)	2.43(1.15,5.12)	3.6(1.47,8.76)	<b>0.005*</b>
Cash/out of pocket	94(38.2)	72(42.9)	<b>1.00</b>	<b>1.00</b>	
Frequency of visit one time	94(38.2)	82(48.8)	1.8(1.04,3.15)	2.4(1.19,4.80)	<b>0.014*</b>
More than one times	152(61.8)	86(51.2)	<b>1.00</b>	<b>1.00</b>	
Number of drug dispensed					
One	42(17.1)	42(25)	0.45(0.28,0.71)	0.3 (0.13, 0.41)	<b>0.001*</b>
More than One	204(82.9)	126(75)	<b>1.00</b>	<b>1.00</b>	
Comfortability of private counselling area Yes	88(35.8)	45(26.8)	0.65(0.4,1.07)	0.55(0.30,1.19)	0.34
No	158(64.2)	123(73.2)	<b>1.00</b>	<b>1.00</b>	
Comfortability of waiting area					
Yes	148(60.2)	116(69)	1.47(0.9,2.2)	1.87(1.13,4.18)	<b>0.015 *</b>
No	98(39.8)	52(31)	<b>1.00</b>	<b>1.00</b>	
Convenient of pharmacy location Yes	175(71.1)	104(37.3)	0.65(0.43,0.9)	0.61(0.37,1.003)	0.051
No	71(28.9)	64(38.1)	<b>1.00</b>	<b>1.00</b>	
Number of Pharmacists enough to provide service Yes	131(53.3)	75(44.6)	0.7(0.47,1.06)	0.76 (0.48,1.22)	0.272
No	115(46.7)	93(55.4)	<b>1.00</b>	<b>1.00</b>	
Prescribed medication availability Yes	152(61.8)	79(47)	<b>1.00</b>	<b>1.00</b>	<b>0.001*</b>
No	94 (38.2)	89(53)	0.54(0.36,0.81)	0.44 (0.26,0.71)	

**Notes:** 1, Showed a reference used. \*Showed a p-value < 0.05 in the multivariate analysis and statistically significant.

finding conducted in six regions of Ethiopia. Conversely, a study conducted in a different university teaching hospital in Ethiopia showed that no significant association existed between the number of drugs dispensed and patient satisfaction.<sup>9,10,24</sup> This discrepancy might be the difference in the study period and the number of the sample size used. As a result, this association showed patients need

more than one drug to be more satisfied may be due to poor health perception of more drug cures more.<sup>29</sup>

Medication availability was another significant factor that showed association in this current study finding. Similarly, different studies in Ethiopia at different times found a significant association between medication availability and satisfaction.<sup>9,24,28</sup> Patients who did not access

even a single medication from the hospital pharmacy were 56% less likely to be satisfied than those who did access medication from the hospital pharmacy. In contrast to this finding, the study finding in South Korea and Nigeria teaching hospital reported no significant association found with medication availability and satisfaction.<sup>35</sup> Towards this finding, variation may be due to the existence of equipped pharmacy service (supply and medicine) and different patient demography.<sup>12</sup> As a result, the current finding suggests medication availability is a core service that patients interestingly find to be satisfied more.<sup>10</sup>

Lastly, the comfortability of the waiting area also showed a positive association with patient satisfaction. Patients who perceived the waiting area was comfortable were 1.87 times more likely to be satisfied than those who perceived it not comfortable. This current study finding was in line with other similar studies conducted in Ethiopia<sup>1,18,23</sup> and outside Ethiopia: India, Qatar, and Nigeria.<sup>12,32,34</sup> Conversely, a study in Brazil showed that no significant association was found between the comfortability of the waiting area and satisfaction.<sup>30</sup> The discrepancy might be due to the comfortable waiting area is not the concern of a developed country<sup>9</sup> and also might be due to geographical variation. The current study has some limitations. First, it was cross-sectional, and so it is difficult to see the temporal relationship between patient satisfaction and its associated factors. Second, this study might be subjected to social desirability bias because the interview was done in a hospital setting. Moreover, the study might be influenced by the Hawthorn effect and potential response bias.

## Conclusions

The results of this study showed overall patients' satisfaction with outpatient pharmacy service provided at Dessie town hospitals was low. Hence, these demand the hospitals take further action on the identified problems to improve the services delivered to the patients. The respondents tend to show low satisfaction towards the privacy of conversation, the counseling time, medication precautions and side effects, and the medication storage conditions. Such findings revealed that pharmacy service might be improved. Variables such as age, prescribed medication availability and the number of drugs dispensed showed a negative association while payment status, frequency of visit, comfortability of waiting area showed a positive association towards satisfaction. Consequently, the above-mentioned

gaps need to be improved to reach an optimal level of patient satisfaction.

## Abbreviations

AOR, adjusted odds ratio; ART, antiretroviral therapy; BMH, Boru-Meda Hospital; COR, crude odds ratio; DRH, Dessie Referral Hospital; EHRIG, Ethiopian Hospital Reform Implementation Guideline; GPP, Good Pharmacy Practice; MCH, mother and child health; OHP, Outpatient Hospital Pharmacy; SPSS, Statistical Package for Social Sciences; WHO, World Health Organization.

## Disclosure

The authors declared that there is no potential conflict of interest for this work.

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