Research Article

Adult HIV/AIDS Patient's Level of Satisfaction on Pharmaceutical Service: An Institutional Prospective Cross Sectional Study

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ABSTRACT

Introduction: Patients are essential sources of information to assess the accessibility and effectiveness of pharmaceutical care. Therefore, their perception and satisfaction on the quality of care delivered has a direct influence on treatment adherence. This study was thus aimed to assess HIV/AIDS patients' level of satisfaction on the pharmaceutical services provided in Zewditu Memorial Hospital (ZMH), Addis Ababa, Ethiopia. **Methods:** An institution based cross sectional study was conducted from April 16, 2018 to May 16, 2018 in ZMH. **Results:** Among the total 285 participants enrolled in the study, 172(60.4%) of them were females and the mean age of the participants was 42.5 ± 9.8. The participants of this study received ART service for a mean duration of 7.3 ± 3.5 years. The overall satisfaction to the ART pharmaceutical service was rated as excellent, very good, good, fair, and poor by 26.7%, 13.7%, 38.6%, 13% and 8.1% of the study participants, respectively. Participants who were well informed by the pharmacist about drug-drug and drug-food interaction (AOR=2.72, 95% CI: 1.13-6.54) were more likely to be satisfied with pharmaceutical service compared to their counterparts. **Conclusion:** In conclusion, participants were satisfied with the availability and commitment of pharmacists. Provision of medication related information was found to increase the likelihood of being satisfied in ART service.

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INTRODUCTION

HIV infection has remained a serious disease of public health importance since 1981. During the last four decades, it is claimed that more than 35.0 million people have died from AIDS related illnesses. Globally, it is estimated that approximately 36.7 million [34.0 million-39.8 million] people were living with HIV by the end of 2016 with 1.8 million new HIV infections [1].

Sub-Saharan Africa (SSA) countries, particularly, continue to bear a huge burden of HIV infection. The region is home to 70% of world's people living with HIV (PLWH) [2]. Moreover, 75% of the total HIV/AIDS related deaths in 2015 were from SSA [3]. Ethiopia is one of the SSA countries with high burden of the infection [4]. According to HIV related estimates and projections for Ethiopia [5], there were 610,335 people living with HIV (PLHIV) with estimated adult HIV prevalence being 0.96%, in 2018. In urban settings, however, the prevalence of HIV is 3.0% [6]. More than half (59%) of PLWH in Ethiopia are enrolled in highly active antiretroviral therapy (HAART) program [7]. In Ethiopia, ART service is available in 1047 health facilities [8]. Evidences suggest that improved access to HAART is helping to drive a significant decline in HIV related morbidity and mortality [9].

Patient satisfaction on pharmaceutical care can be conceptualized as patients' evaluation of the performance of pharmacists led patient care activities [10]. It is one of the imperative components for the great success of any healthcare services, especially in the ART units [11]. Patient satisfaction has a direct effect on adherence to HAART [12]. It is essentially an important issue in African countries such as Ethiopia, where there is a dearth of adequate resources and skilled human capital to provide efficient health care services to PLWH [13].

Certain patient characteristics are known to correlate with the global patient satisfaction rating. Older patients were significantly more satisfied than younger patients [14]. However, the impact of information provided by pharmacists such as drug-drug interaction on patients' level of satisfaction was not studied. Identifying these factors affecting pharmaceutical service in ART clinic is crucial for improving treatment outcome. Hence, this study was designed to identify the level of HIV/AIDS patients' satisfaction towards the pharmaceutical service provided at the ART clinic and its associated factors in Zewditu Memorial Hospital (ZMH), Addis Ababa, Ethiopia.

METHODS AND METHODS

Study design

An institution-based prospective cross sectional study, using a quantitative data collection and key informant interview method, was conducted in ZMH, Addis Ababa, Ethiopia.

Study setting and period

The study setting, ZMH, was selected based on the virtue of being a leading medical center in Ethiopia, in the treatment of HIV/AIDS. Currently, it provides ART pharmaceutical care for more than 7,000 PLWH. This study was carried out from April 16, 2018 to May 16, 2018.

Sampling and study participants' selection

In this study, patients who were ART care beneficiaries for more than 1 year and above the age of 18 were included. The number of patients to be involved in the study was determined using the single proportion formula [15] considering the prevalence data (78.5%) taken from previous similar study done in Ethiopia [16]. Margin of error was set to be 5% (95% confidence interval). Accordingly, the sample size was:

$n= ((1.96)2 \times 0.785\ [1-0.785)/((0.05)2]$

$n= 259$

Assuming a 10% non - response rate, the total sample size was 285.

For obtaining a representative of the population who has been visiting

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the ART pharmacy, a systemic random sampling technique was used. The average daily flow of patients to the hospital was approximately 100 patients. We had a 22 working days to collect data in the given study period. We were, therefore, expected to interview 13 patients per day. Accordingly, every eighth patient was approached to participate in the study. The first participant of the day was selected using a simple random sampling from one to eight. In place of patient refused to participate in the study, the next patient was enrolled. None of the study participants discontinued the study.

Data collection and management

Data was collected using a tool adopted from Larson et al. [17]. Questionnaire was designed and modified appropriately after it was pretested on 25 clients prior to the actual data collection. Based on the pre-test, we added variables such as provisions of drug interaction related information to patients into the existing tool. Moreover, the content validity of the data collection tool was confirmed by team of expert including senior infectious disease physician in ZMH and a public health personnel and clinical pharmacist from Addis Ababa University. The aim of the study and the potential risk it might pose was explained to patients prior to data collection and their written consent was confirmed.

In collecting data on the patients' level of satisfaction towards the ART pharmaceutical service, study participants were asked to respond to a number of assessment questions classified on a Likert scale of 1-5, with"1" stood for rating of the item as "poor", while "2", "3", "4", and "5" stood for "fair", "good", "very good", and "excellent", respectively. These satisfaction assessment questions are regrouped in 8 themes.

Data analysis

After checking completeness and consistency of the data collected, it was entered to and analyzed using SPSS Statistics for Windows, version 20.0. Frequencies, percentages, t-test, and ANOVA with post hoc test were used to analyze different variables. P-value less than 0.05 were used as cut off point for determining statistical significance of associations among different variables.

RESULTS

Socio-demographics characteristics of participants

Of the total 285 participants (100% response rate) enrolled in the study, majority (172; 60.4%) of them were females. More than half (53.3%) of the respondents were married. The mean age (± SD) of the participants was 42.5 ± 9.8 and the highest proportion was found between the age group of 31 and 40 years. More than one-third (67.4%) of participants completed secondary or above level of education [Table 1]. Study participants had received the ART service for a mean duration of 7.3 ± 3.5 years.

Patients' satisfaction towards the service

More than half of the patients rated the time given by the pharmacist to listen what they are in need of as either excellent (123; 43.2%) or very good (27; 9.5%). Moreover, majority (70.2%) of them claimed that there is excellent use of easy and understandable language by pharmacist for communication. Most participants (55.1%), however, rated the provision of written information by pharmacists as poor [Table 2].

As it is indicated in Table 2 below, 156 (54.7%) of the participants rated the service provided about medication precaution and side effect by the pharmacist as poor. Similarly, more than half of the participants indicated that they are not satisfied with pharmacist effort to give information about drug-drug and drug-food interactions.

The arrangement of medication and the cleanliness of the environment was rated as excellent by 192 (67.4%) and 189(66.3%) participants, respectively. Of the total participants, 138(48.4%) of them rated the availability of medication as excellent and the overall appearance of the pharmacy was rated as excellent by 68.4% of the participants. The finding of this study indicated that more than a quarter (26.7%) of study participants rated the overall satisfaction as excellent; whereas, 13.7%, 38.6%, 13% and 8.1% of them rated their satisfaction as very good, good, fair and poor, respectively.

Factors affecting patient satisfaction towards the pharmaceutical service

Binary logistic regression analysis showed that there is a significant ($p<0.05$) association between provision of information about drug-drug/drug-food interaction and overall satisfaction of study participants. Participants who were provided with information related to drug-drug and drug-food interaction were 2.72 times more likely to be satisfied than those who didn't receive information (AOR=2.72, 95% CI: 1.13-6.54). Participants who reported shorter time to receive service were 4.06 times more likely to be satisfied compared to their counterparts (AOR=4.06, 95% CI: 1.69-9.74). However, no association was found between patients' socio-demographic variable and overall satisfaction [Table 3].

Table 1: Socio-demographic characteristics of adult HIV/AIDS patients attending at ZMH, Addis Ababa in 2018.

Age groups, year		
18-30	33	11.6
31-40	111	38.9
41-50	77	27
51-60	57	20
>60	7	2.5
Sex		
Male	113	39.6
Female	172	60.4
Marital status		
Single	67	23.5
Married	152	53.3
Divorced	38	13.3
Widowed	28	9.8
Education status		
Cannot read or write	33	11.6
Primary	60	21.1
Secondary	98	34.4
College and above	94	33
Employment status		
Student	3	1.1
Civil servant	79	27.7
Private sector	63	22.1
Self-employed	82	28.8
House wife	50	17.5
Unemployed	8	2.8
Monthly income in ETB		
≤500	19	6.7
501-1000	20	7
1001-2000	59	20.7
2001-3000	67	23.5
3001-4000	46	16.1
4001-5000	39	13.7
>5000	35	12.3
Duration of ART use in year		
≤5	108	37.9
06-Oct	118	41.4
>10	59	20.7

Table 2: Patient satisfaction towards pharmaceutical service in ZMH in 2018 (n=285).

Questions	Mean (Likert scale)	Frequency (%)				
		Excellent	Very good	Good	Fair	Poor
Pharmacists' communication						
Pharmacist taking time to listen to you	3.47	123 (43.2)	27 (9.5)	60 (21.1)	11 (3.9)	64 (22.5)
Pharmacists answers to your queries	3.85	168 (58.9)	20 (7.0)	30 (10.5)	21 (7.4)	46 (16.2)
Use of easy and understandable language	4.29	200 (70.2)	31 (10.9)	15 (5.3)	15 (5.3)	24 (8.4)
Labeling your medication with a readable and understandable instruction	2.07	50 (17.5)	15 (5.3)	19 (6.7)	21 (7.4)	180 (63.2)
Asked your concern about your medication	2.63	91 (31.9)	8 (2.8)	28 (9.8)	21 (7.4)	137 (48.1)
Provision of drug information in written form	2.35	68 (23.9)	18 (6.3)	17 (6.0)	25 (8.8)	157 (55.1)
Medication use information						
Pharmacist told you name of the medication	2.19	55 (19.3)	14 (4.9)	33 (11.6)	11 (3.9)	172 (60.4)
Brief explanation about medication administration provided	3.53	136 (47.7)	28 (9.8)	36 (12.6)	22 (7.7)	63 (22.1)
Provision of adequate information about your medication precaution and side effect	2.36	65 (22.8)	18 (6.3)	29 (10.2)	17 (6.0)	156 (54.7)
Information provided to you about your medication's drug-drug and drug-food interactions	2.19	54 (18.9)	13 (4.6)	30 (10.5)	24 (8.4)	164 (57.5)
Pharmacist provides you information on how to solve medication related side effect	2.23	57 (20.0)	17 (6.0)	25 (8.8)	22 (7.7)	164 (57.5)
Pharmacist provides you your medication with appropriate packaging	4.42	211 (74.0)	34 (11.9)	14 (4.9)	1 (4.0)	25 (8.8)
Pharmacist provides you information about the proper storage of your medication	3.3	120 (42.1)	33 (11.6)	31 (10.9)	15 (5.3)	86 (30.2)
Pharmacists' commitment and respect						
The courtesy and respect shown to you by the Pharmacist	3.96	125 (43.9)	62 (21.8)	74 (26.6)	11 (3.9)	13 (4.6)
Availability of the Pharmacist during the time of visit	3.96	136 (47.7)	67 (23.5)	45 (15.8)	10 (3.5)	27 (9.5)
Pharmacist keeps your privacy during counseling	3.95	168 (58.9)	29 (10.2)	30 (10.5)	23 (8.1)	35 (12.3)
Time to receive pharmaceutical service	4.03	183 (64.2)	25 (8.8)	20 (7.0)	16 (5.6)	41 (14.4)
Shorter waiting time to receive service	3.96	131 (46)	10 (35.4)	0	0	53 (18.6)
Pharmacists' efforts to solve medications problems						
Pharmacist advice you how well your medical condition is controlled	2.27	63 (22.1)	17 (6.0)	24 (8.4)	12 (4.2)	169 (59.3)
Pharmacist advice you in detail how each medication supposed to help you	1.72	29 (10.2)	10 (3.5)	15 (5.3)	28 (9.8)	203 (71.2)
Pharmacist Advise you about your disease and provide general advise on healthy life	2.16	57 (20.0)	17 (6.0)	21 (7.4)	9 (3.2)	181 (63.5)
Pharmacist told you what to do when you miss your dose	2.24	55 (19.3)	32 (11.2)	19 (6.7)	0	179 (62.8)
Pharmacist offers you information source	1.56	21 (7.4)	10 (3.5)	13 (4.6)	21 (7.4)	220 (77.2)
Infrastructure and appearance of the pharmacy						
How would you rate the arrangement of medication on shelves and tables	4.22 ± 1.18	192 (67.4)	34 (11.9)	17 (6.0)	14 (4.9)	28 (9.8)
How would you rate the cleanliness of the environment and shelves	4.26 ± 1.99	189 (66.3)	33 (11.6)	32 (11.2)	9 (3.2)	22 (7.7)
Is the space within the pharmacy adequate for all activities going in there	4.13 ± 1.19	182 (63.9)	28 (9.8)	30 (10.5)	21 (7.4)	24 (8.4)
How would you rate the overall appearance of the pharmacy	4.02 ± 1.19	172 (68.4)	23 (8.1)	40 (14.0)	24 (8.4)	26 (9.1)
Comfortable waiting hall	3.68 ± 1.14	161 (56.5)	18 (6.3)	22 (7.7)	23 (8.1)	61 (21.4)
Availability of medication						
How would you rate the availability of medication	3.688 ± 1.08	138 (48.4)	41 (14.4)	28 (9.8)	34 (11.9)	44 (15.4)
Overall satisfaction						
Participants overall satisfaction	3.38 ± 1.23	76 (26.7)	39 (13.7)	110 (38.6)	37 (13.0)	23 (8.1)

DISCUSSION

In recent decades, determining patients' level of satisfaction is found to be the most useful tool for getting their views on the health care service [18]. This is due to its ability to reflect the quality of health care delivery and provider's ability in successful delivery of care that meets patients' expectation and needs [19,20]. A satisfied patient is more likely to develop a longer lasting rapport with their health care provider. An individual who fails to take the ART due to dissatisfaction will end up in developing resistant strains to drugs in a matter of few minutes [21].

Present study showed that the overall mean satisfaction of the

Table 3: Factors affecting overall satisfaction of patients attending ART service in ZMH, Addis Ababa in June 2018.

Variables	Yes	No	Crudes odds ratio	Adjusted odds ratio
Age				
18-30	27	6	1.14 [0.39-3.35]	4.06 [0.95-17.28]
31-40	88	23	0.97 [0.45-2.09]	1.86 [0.67-5.10]
41-50	59	18	0.83 [0.37-1.87]	1.43 [0.51-3.98]
>51	51	13	1	1
Gender				
Male	93	20	1.40 [0.77-2.56]	1.51 [0.71-3.17]
Female	132	40	1	1
Marital status				
Single	50	17	0.63 [0.21-1.94]	0.90 [0.21-3.70]
Married	116	36	0.70 [0.24-1.97]	1.11 [0.31-3.98]
Divorced	36	2	3.91 [0.70-21.88]	4.35 [0.64-29.30]
Widowed	23	5	1	1
Educational status				
Can't read or write	27	6	0.92 [0.32-2.59]	2.35 [0.58-9.55]
Primary	48	12	0.82 [0.35-1.88]	1.79 [0.65-4.91]
Secondary	72	26	0.56 [0.28-1.14]	1.09 [0.44-2.68]
College	78	16	1	1
Information about missed dose				
Yes	90	135	1.83 [0.97-3.44]	1.22 [0.57-2.58]
No	16	44	1	1
Information about medication name				
Yes	87	138	1.89 [0.99-3.59]	1.54 [0.69-3.41]
No	15	45	1	1
Information about drug-drug and drug-food interaction				
Yes	87	10	3.15 [1.51-6.54]*	2.72 [1.13-6.54]*
No	138	50	1	1
Shorter waiting time				
Yes	198	27	5.60 [2.92-10.74]*	4.06 [1.69-9.74]*
No	34	26	1	1
Availability of medication				
Yes	176	49	3.36 [1.84-6.10]*	2.03 [0.96-4.27]
No	31	29	1	1

participants on ART pharmaceutical service provided at ZMH was 3.38 ± 1.23. This finding is in line with a similar study done in Gondar on expectation and satisfaction of ART clients towards the pharmaceutical service [16]. This indicates the similarity of pharmacy practice in the settings.

In our study, 43.1% of participants rated the time taken by the pharmacist to listen to what they need as excellent; this was higher when compared with another study done in ART special unit in Addis Ababa [22]. This might be due to the effort exerted by the hospital to modernize the pharmacy service in recent years. The easy and understandable language utilization by the pharmacists was rated excellent (4.29) as per Likert scale. This was slightly higher compared to the report of the study done in Gondar (3.90) by Abebe et al. [16].

The effort of pharmacists to solve patients' medication related problem was rated poor by majority of the participants. This finding is supported by a study done in Nigeria, where perception of patients regarding the pharmacists' efforts to solve patients' medication related problems were negative [23]. This could be because of lack of knowledge or less willingness of pharmacists to solve problems related to drugs.

Previously, several factors including patient's age, educational level, health status and the severity of illness was found to influence satisfaction on ART care services [24]. However, in this study no significant association was found between patients' socio-demographic variable and overall satisfaction. This could be because the ART service is free of charge so could not be altered by of socio-demographic factors. In addition, the chronicity of the disease might make patient to have similar level of understanding about the service.

Present study furthermore revealed that provision of information about drug-drug and drug-food interaction of antiretroviral agents, and shorter time to receive the service influenced study participants' overall satisfaction towards the pharmaceutical service provided in the hospital. This indicates that improving the pharmaceutical service and knowledge as well as skill of pharmacists can improve patients' level of satisfaction towards ART service.

CONCLUSION

The adult HIV/AIDS patients' satisfaction with the overall ART pharmaceutical service was rated positively by participants with a mean value of 3.38. Study participants were found to be better satisfied with the pharmacists' availability, commitment, confidentiality and for using easy and understandable language in the service. However, majority of the participants were not satisfied with the provision of medication related information and on the pharmacists' efforts to solve medications related problems. Short waiting time and information

related to antiretroviral drug interactions positively influenced patients' level of satisfaction.

ETHICAL APPROVAL AND CONSENT TO PARTICIPATE

Ethical approval was obtained from Ethics review committee of school of pharmacy and a formal letter was written from the Department of Pharmaceutics and Social Pharmacy to Zewditu Memorial Hospital to get permission for conducting the study. The data collectors clearly explained the aims of the study for the study participants. Information was collected after obtaining written consent from each participant. To ensure confidentiality, participants' data were linked to a code number and registered. The right was given to the study participants to refuse or discontinue participation at any time they want and the chance to ask any thing about the study.

AVAILABILITY OF DATA AND MATERIAL

The data sets generated during the current study are available from corresponding author on a reasonable request.

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COMPETING INTEREST

The authors declare that they have no competing interests

AUTHOR'S CONTRIBUTIONS

AG and ZT conceived the study, developed the proposal. AG conducted the study. AG, ZT and SA analyzed and interpreted the data. SA, ZT drafted the manuscript. All authors read and approved the final manuscript.

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