

Patients Satisfaction with Pharmaceutical Care and Associated Factors in the Southwestern Ethiopia

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Background: An evaluation of patient satisfaction with service provided in the health care system has been globally recognized as the measure of health care service quality. However, there is a lack of research findings that indicate patient satisfaction with newly implemented patient-oriented pharmaceutical care (PC) service provided by clinical pharmacists in Ethiopia. Therefore, the current study is aimed to determine the level of patient satisfaction and associated factors with PC service provided by clinical pharmacists in the Southwestern Ethiopia.

Methodology: A facility-based cross-sectional study design was employed among patients admitted to Medical wards in Jimma University Medical Center (JUMC) (n=219) from May to June 2021. The pretested interviewer-administered questionnaire containing structured questions on a 5-point Likert scale was appropriately completed and returned for statistical analysis. For the analysis of data, Statistical Package for Social Sciences (SPSS) was used. The associations between status of patient satisfaction and predictors were determined at 5% (p<0.05) level of significance by employing multivariate logistic regression.

Results: The current study revealed that more than half (56%) of the respondents were satisfied with clinical pharmacy service. From 30% of drug therapy problems (DTPs) reported, non-adherence was the most prevalent (11.4%), while the dose being too low and adverse effects (0.9%) were the least reported. Moreover, the assignment particular clinical pharmacist (AOR: 2.091, 95% CI: 1.028, 4.255), previous admission (AOR: 0.459, 95% CI: 0.244, 0.86), number of medications taken per day (AOR: 1.929, 95% CI: 1.996, 3.739) and length of hospital stay (AOR: 2.236, 95% CI: 1.124, 4.446) were significantly associated with patient satisfaction.

Conclusion: The present study revealed that patient satisfaction towards PC was low. Lack of specific clinical pharmacist assignment, previous history of admission, number of medications taken per day and length of hospital stay are revealed as the major factors affecting the level of satisfaction. In addition, current findings implicate that clinical pharmacist collaboration with a multidisciplinary team is essential to increase patient satisfaction.

Keywords: Patient, Satisfaction, Pharmaceutical care, Ethiopia

Introduction

Over the past several decades, the pharmacy profession is experiencing rapid growth and development, particularly in transitions from medications compounding and dispensing to a patient-oriented pharmaceutical care (PC) service.^{1,2} PC is the responsible provision of drug therapy for the purpose of achieving definite outcomes that improve patient's quality of life,³ mainly provided by clinical pharmacists.⁴ In recent years, its implementation in the health care system has been evidenced by highlighting the benefits of PC particularly, in the reduction of

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preventable drug-related morbidity and mortality.⁵⁻⁷ Moreover, the World Health Organization (WHO) and the International Pharmaceutical Federation have indicated the importance of changing the traditional role of pharmacists from product-oriented towards a patient-centered practice by considering the high demand of health issues with myriad range of chronic diseases and poor adherence to prescribed medicines.⁸ Since then, many articles have highlighted the outcomes of PC implementation in the health care system throughout the world,⁹⁻¹⁵ even during the recent COVID-19 pandemic.¹⁶ For instance, preventing medication errors, reducing the incidence of adverse drug reaction, and saving medical costs are the main benefits of PC implementation reported in the aforementioned studies. Besides this, it has been revealed that pharmacists direct patients care, benefit patients and the health care services while appearing to be a highly cost-effective option.¹⁷⁻¹⁹

However, health care quality including PC has become a global concern that occasioned the healthcare industry to make rapid changes to meet the growing demands of its patient population.²⁰ Thus, evaluating PC service is very crucial to ensure and improve quality in pharmacist's decision making to optimize health care resources.²¹ The evaluation of patient's satisfaction, an integral healthcare quality component, is a very important indicator of quality assessment in a health care system as it offers information on the provider's success at meeting the expectations of most relevance to the client and a key determinant of patients' perspective behavioural intention.²²⁻²⁴ In Ethiopia, PC service has been newly implemented in different public hospitals in which Jimma University Medical Center is a pioneer in launching of the service.²⁵ Currently, in accordance with the National Clinical Pharmacy Service Directive developed by the Federal Ministry of Health of Ethiopia, PC services are being provided by clinical pharmacists, which includes patient assessment, developing care plan, and follow up and evaluation for continuous care of patients.²⁶ However, since its implementation there is no study that determines the patient's satisfaction with PC service provided by clinical pharmacists, particularly in south west of Ethiopia. A recent study conducted on patients' satisfaction with PC service among HIV/AIDS patients has revealed a low level of satisfaction.²⁷ This finding was specific and did not cover the holistic patient-oriented pharmacy practice. Thus, it is very crucial to assess the status of patient's satisfaction towards PC to ensure and improve the quality of this newly implemented

service in Ethiopia. Therefore, the current study was aimed to determine the level of patient satisfaction and associated factor with PC provided by clinical pharmacists in the south west Ethiopia.

Methodology

Study Design and Study Site

A facility based cross-sectional study design was employed among patients admitted to Medical wards in Jimma University Medical Center (JUMC) (n=219) from May to June, 2021. Geographically, Jimma University Medical Center is located in Jimma Town, and 350 km away from Addis Ababa, the capital of Ethiopia. The center provides the major services encompassing nine medicals and other clinical and diagnostic departments. Approximately, 15,000 inpatients and 160,000 out patients, 11,000 emergency cases, and 4500 deliveries came to the center in one year from a catchment population of about 15 million.²⁸

Sample Population, Size, and Sampling Technique

The sample size was determined using Raosoft sample size calculator.²⁹ A sample size consisted of 234 patients was calculated by considering a 5% margin of error, 95% confidence interval, and 50% distribution response for an approximate population of 600 (the total patients expected to be admitted to medical wards of JUMC during period of one month). Letting 5% dropouts, 245 participants were included in the study. All adult patients aged 18 years or older admitted to medical wards with at least a 24 hour hospital stay who provided a written informed consent were allowed to participate in the study while unconscious patients and those who refused to give the consent were excluded from the study.

Data Collection Procedure

For data collection, the questionnaire was designed based on extensive review of previous literatures.^{20-23,25,27} Face validity and as well as readability of the questionnaire has been examined by four experts, paying attentions on easy comprehension of the questionnaire to gear to general populations. Moreover, an English version of the questionnaire was translated to local languages (Afaan Oromo and Amharic) and reversed back to English for the purpose of consistency. The pre-test was conducted on 5% of populations to check acceptability and consistency data tools

before commencing the actual study. Based on pre-tested result, questions that could lead to bias were eliminated. The final questionnaire was supplied as [Supplementary File](#). Accordingly, data related to sociodemographic characteristics of the patients (gender, age, residence, marital status, educational level, occupational status, supporting or helping person, assignment of particular clinical pharmacist and patient admission related information (previous admission, presence of comorbidity, presence of adverse effects, number of drug taken per day, length of hospital stay) were collected by using interviewer administered questionnaire. Similarly, patient satisfaction with PC was evaluated using Likert scale questions. Moreover, prevalence, types and causes of drug therapy problem (DTP) were recorded from patient medical records by using semi structured data extraction formats from medical records of the patients. The Likert items were calculated on a 1–5 response scale; strongly satisfied (5), satisfied (4), neutral (3), dissatisfied (2) and strongly dissatisfied (1) with objective of determining the level of patient satisfaction with PC service. To ensure this objective, satisfaction level of patients was assessed; their response was dichotomized into unsatisfied and satisfied after computing the overall mean, from each calculated mean score of patients satisfaction. Accordingly, satisfied earn mean score of greater than or equal to overall mean, while unsatisfied possessed a mean score less than the overall mean.

Statistical Analysis

Based on appropriate coding and scoring formats, all filled questionnaires were checked to ensure their completeness before they were manually entered into the Statistical Package for Social Science (SPSS) version 21.0 (Chicago, SPSS Inc.). The descriptive statistics were used to summarize the results. Bivariate logistic regression was used to check the association between the outcomes (satisfied and unsatisfied) and independent variables (gender, age, residence, marital status, educational level, occupational status, supporting or helping person, particular clinical pharmacist heir, Previous admission, presence of comorbidity, presence of adverse effects, number of drug taken per day, length of hospital stay). Then, multivariate logistic regression was employed for independent variables possessing a p-value of less than 0.05 to identify the predictor's for patient's satisfaction at 5% level of significance.

Results

Characteristics of Study Participants

From a sample size consisted of 245 participants, 219 patients responded in the study providing a 89.4% response rate. Among study subjects, the majority of respondents (n=135, 61.4%) were males and married (n=155, 70.8%). Around 70% of study participants were from a rural area, and the highest percentage of their age groups was between 21- to 30-years-old. With regard to occupation, more than half (n=117, 53.4%) of respondents were farmers. Moreover, around 54% of respondents had no formal education and most of the participants were supported by their spouse ([Table 1](#)).

Patient and Admission Related Characteristics

Out of the study subjects, (n=113, 51.6%) of the respondents had a previous history of admission. Around 86% of respondents presented with comorbid, and (n=41, 19.2%) had developed an adverse effect with medication used. About 70.3% of patients responded that particular clinical pharmacists had followed up with them about their medication. Concerning length of hospital stay around 48% stayed less than two weeks, and 30.1% of DTP were documented ([Table 2](#)). Among DTP identified, non-adherence was more prevalent (11.4%) followed by needs additional therapy (11%) while the dose too low and adverse effect (0.9%) were the least reported ([Figure 1](#)).

Level of Patient's Satisfaction with Pharmaceutical Care

Assessment of the patient's satisfaction with PC was based on seven items assessed by five points Likert scale, which revealed the overall mean to be 2.98 ± 0.67 standard deviation. In addition, the dichotomized levels of patient satisfaction based on overall mean showed, more than half (56%) of respondents were satisfied with PC ([Figure 2](#)). A majority of patients responded 'satisfied' to 'very satisfied' for item like satisfaction with medication reconciliation, counselling of storage condition and instructions, and time spent with pharmacist while they responded dissatisfied with encouragement on adherence ([Table 3](#)). The detail of evaluation of patient satisfaction with PC using Likert scale items are depicted in [Table 3](#).

Table 1 Socio-Demographic Characteristics of the Respondents

Variables	Frequency (n=219)	Percentage (%)
Gender		
Male	135	61.6
Female	84	38.4
Age		
15_20	29	13.2
21_30	46	21.0
31_40	27	12.3
41_50	36	16.4
51_60	43	19.6
Above_60	38	17.4
Residence		
Urban	65	29.7
Rural	154	70.3
Marital Status		
Married	155	70.8
Divorced	24	11.0
Widowed	9	4.1
Single	31	14.2
Educational Level		
No Formal Education	119	54.3
Primary Education	57	26.0
Secondary Education	21	9.6
College And Above	22	10.0
Occupational Level		
Government Employee	11	5.0
Private Employee	31	14.2
Daily Laborer	20	9.1
Farmer	117	53.4
Others	40	18.3
Who supports you		
Parents	45	20.5
Self	16	7.3
Husband/Wife	101	46.1
Others	57	26.1

Factor Affecting Patient Satisfaction with Pharmaceutical Care

Multivariate logistic regression revealed having assignment of particular clinical pharmacist, previous admission, number of medications per day and length of hospital stay were significantly associated with level of patient satisfaction.

Accordingly, patients who had no previous history of admission were 54.1 times less likely to be dissatisfied with PC service as those who had previous history of admission (AOR: 0.459, 95% CI: 0.244, 0.864). Patients who had no specific clinical pharmacist heir were 2.1 times more likely to

Table 2 Patient and Admission Related Characteristics of the Respondents

Items		Frequency	Percentage
History of previous Admission	Yes	113	51.6
	No	106	48.4
Presence of Comorbidities	Yes	190	86.8
	No	29	13.2
Presence of Adverse Effect	Yes	42	19.2
	No	177	80.8
Particular Clinical pharmacist heir	Yes	154	70.3
	No	65	29.7
Number of medications per day	≤ 3 drugs	143	65.3
	> 3 drugs	76	34.7
Length of hospital stay	≤ 2 Weeks	106	48.4
	3–4 Weeks	77	35.2
	>4 Weeks	36	16.4
Presence of DTP	Yes	66	30.1
	No	153	69.9

be dissatisfied than those who have a particular clinical Pharmacist heir (AOR: 2.091, 95% CI: 1.028, 4.255). Similarly, patients who took more than three drugs per day were 1.9 times more likely to be dissatisfied than those who took less than or equal to three drugs (AOR: 1.929, 95% CI: 1.996, 3.739). Moreover, patients who stayed more than four weeks or between 3–4 weeks in the hospital were 3.1 times (AOR: 3.079, 95% CI: 1.175, 8.069) and 2.2 times, respectively, more likely to be dissatisfied than those who stayed less than or equal to two weeks (AOR: 2.236, 95% CI: 1.124, 4.446) (Table 4).

Discussion

An evaluation of patient satisfaction with service provided in the health care system has been globally recognized as the measure of health care service quality.^{22–24} However, there is a lack of research findings that indicate patient satisfaction with newly implemented PC service, particularly in developing countries including Ethiopia. In addition, it has recently been suggested that the quality of PC is closely linked to patient satisfaction as it will affect therapeutic outcome and patient retentions.^{30–32} Moreover, understanding patient satisfaction with pharmacy services can be very helpful to enhance the quality and monitoring of PC services.³³

Types of Drug Therapy Problem

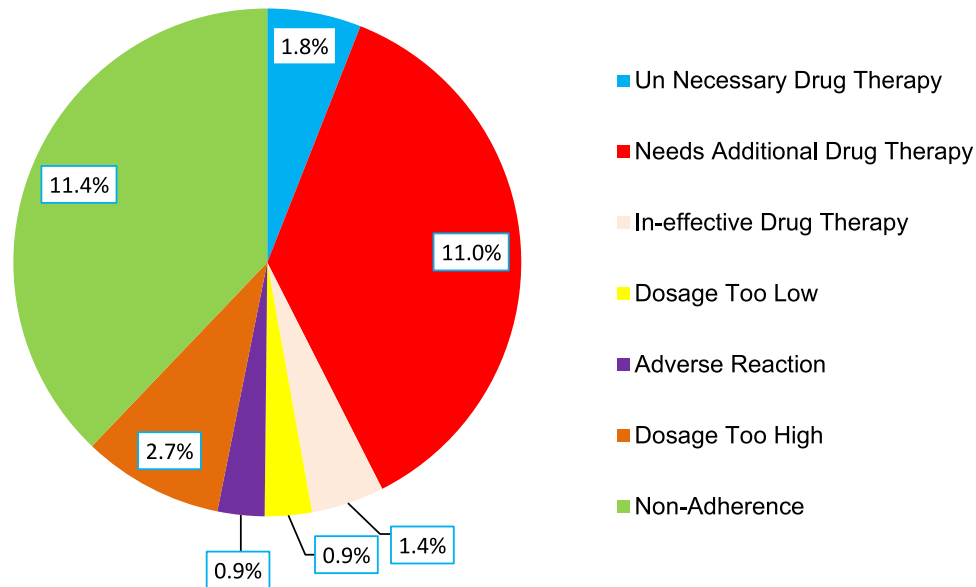


Figure 1 Types of DTPs documented.

Status of patient satisfaction

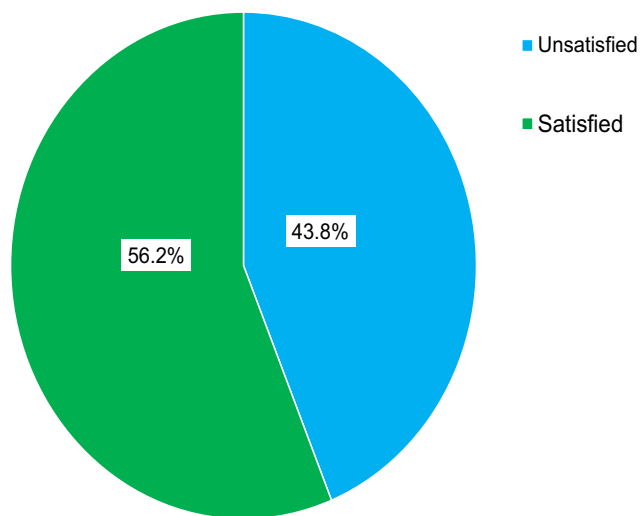


Figure 2 Status of patient satisfaction with PC services.

Thus, assessing the patient satisfaction with PC service will help to fill the gap between patients need and the services provided. In this study, more than half of the respondents (56.2%) were satisfied with the newly implemented PC service. This finding is slightly lower than a study conducted at Dessie Town Hospitals (59.4%).³⁴ However, it is higher than study carried out at Yekatit 12 Medical College Hospital (47%),³⁵ Gondar University Referral Hospital (49.6%)³⁶ and the public

hospitals of western and eastern Hararghe zone (6.19%)³⁷ in Ethiopia. This variation could be related to the difference in scope of the study, in which the current study assessed the PC in terms of pharmacist-direct contact with patients, clinical pharmacy services while comparative studies were based on usual pharmacy service, concentrating on the out-patient pharmacy services. Moreover, the present finding is lower when compared with findings in Spain (84%),³⁸ USA (69%),³⁹ and Australia (99.5%).⁴⁰ This difference may be due to economic conditions, as the developed countries have more advanced PC practice than developing country like Ethiopia. More specifically, in the present study, the majority of patients responded satisfied to very-satisfied for items like satisfaction with medication reconciliation, counselling of storage condition and instructions, and time spent with pharmacist. This finding is consistent with a study reported in Canada that patients have valued the pharmacist's initiative to meet them in the clinic, the education provided by pharmacist, and the pharmacist's accessibility throughout treatment.^{39,41-43} On the other hand, around 44% of patients were not satisfied with PC service. This patient dissatisfaction may be due to lack of particular clinical pharmacist assignment, history of previous admission, number of medications taken per day and length of hospital stay. As such, patients who had no specific

Table 3 Evaluation of the Patient Satisfaction Using a 5-Point Likert Scale

Items for Assessment of the Level of Patients Satisfaction with Pharmaceutical Care	Very Satisfied n(%)	Satisfied n (%)	Neutral n(%)	Dissatisfied n(%)	Very Dissatisfied n(%)
How much you are satisfied with medication reconciliation services (list of medication including vitamins, supplements, herbal and traditional medicines), route, indication, instructions) provided by Clinical pharmacist?	8(3.7)	79(36.1)	46(21.0)	84(38.4)	2(0.9)
How much you satisfied with Clinical pharmacist action to assess duplications or potential interactions of medication?	14(6.4)	27(12.3)	86(39.3)	91(41.6)	1(0.5)
How much you satisfied with medication changes, the reason for the change, counsel regarding new medications by Clinical pharmacist?	12(5.5)	16(7.3)	107(48.9)	80(36.5)	4(1.8)
How much you satisfied with counselling of Clinical pharmacist on storage condition of drugs and instructions to use them	26(11.9)	127(58.0)	34(15.5)	25(11.4)	7(3.2)
How much you satisfied with recommendation of Clinical pharmacist on lifestyle modification	11(5.0)	32(14.6)	79(36.1)	96(43.8)	1(0.5)
How much you satisfied with effort of Clinical pharmacist to encourage you on adherence using special tools, logs, devices, booklets, and brochures	11(5.0)	6(2.7)	15(6.8)	129(58.9)	58(26.5)
How much you satisfied with time you spent with Clinical pharmacist	38(17.4)	156(71.2)	20(9.1)	4(1.8)	1(0.5)

clinical pharmacist assignment were 2.1 times likely to be dissatisfied than those who have a particular clinical pharmacist assignment. This finding is consistent with other studies that have shown the benefits of including clinical pharmacists in the multidisciplinary health care team.^{44–46} Similarly, patients who took more than three drugs per day were 1.9 times likely to be dissatisfied than those who took less than or equal to three drugs. This particular factor agrees with results obtained from the present finding as nonadherence is the most prevalent (11.4%) drug therapy identified by clinical pharmacists. This may indicate the evidence of provision of PC service in this health care facility. Moreover, patients who stayed more than four weeks in the hospital were 3.1 times and who stayed between 3–4 weeks were 2.2 times more likely to be dissatisfied than those who stayed less than or equal to two weeks. This finding is consistent with a recent study that showed that the patient satisfaction is highly affected by length of hospital stay.^{47,48} Overall, patient satisfaction can be enhanced by assigning a particular clinical pharmacist and collaborating with a multidisciplinary team, like

physicians and nurses since history of previous admissions and length hospital stay may be due to a problem of all health professionals.

Limitation of the Study

As the current study was cross-sectional, it is difficult to observe the temporal link between patient satisfaction and its associated factors. Thus, the cautious interpretations and generation of the results are important.

Conclusion

The present study revealed that patient satisfaction towards PC was low. Lack of specific clinical pharmacist assignment, previous history of admission, number of medications taken per day and length of hospital stay are revealed as the major factors affecting the level of satisfaction. In addition, current findings implicate that clinical pharmacists collaboration with a multidisciplinary team is essential to increase patient satisfaction. Therefore, the authors recommend increasing the number of clinical pharmacy staff and collaborating with multidisciplinary team in medical wards to improve overall quality of health care

Table 4 Predictors of Patient Satisfaction with PC

Study Variables	Level of Satisfaction (%)		COR (95% CI)	AOR (95% CI)	P-value
	Unsatisfied	Satisfied			
Educational Level					
No Formal Education	60 (62.5%)	59 (48.0%)	1	1	0.039
Primary Education	23 (24.0%)	34 (27.6%)	1.555(0.820, 2.948)	0.838(0.358, 1.963)	
Secondary Education	9 (9.4%)	12 (9.8%)	1.402(0.550, 3.576)	0.283(0.075, 1.065)	
College And Above	4 (4.2%)	18 (14.6%)	4.733(1.511, 14.820)*	4.024(0.679, 23.849)	
Have clinical pharmacist heir					
Yes	75 (78.1%)	79(64.2%)	1	1	0.040
No	21(21.9%)	44(35.8%)	2.042(1.111, 3.751)*	2.091(1.028,4.255)*	
Previous admission					
Yes	41(42.7%)	72(58.5%)	1	1	0.016
No	55(57.3%)	51(41.5%)	0.549(0.320, 0.941)*	0.459(0.244, 0.864)*	
Presences of comorbidities					
Yes	90(93.8%)	100(81.3%)	1	1	0.148
No	6(6.2%)	23(18.7%)	3.524(1.373,9.043)*	2.206(0.756, 6.439)	
Presence of Adverse Effect					
Yes	19(19.8%)	23(18.7%)	1	1	0.450
No	77(80.2%)	100(81.3%)	1.048(0.533, 2.062)	1.378(0.600, 3.168)	
Number of medications per day					
≤ 3 drugs	71(74.0%)	72(58.5%)	1	1	0.048
> 3 drugs	25(26.0%)	51(41.5%)	1.896(1.066, 3.374)*	1.929(1.996, 3.739)*	
Length of hospital stay					
≤ 2 Weeks	55(57.3%)	51(41.5%)	1	1	0.018
3–4 Weeks	31(32.3%)	77(35.2%)	1.662(0.918, 3.010)*	2.236(1.124, 4.446)*	
>4 Weeks	10(10.4%)	26(21.1%)	2.912(1.279, 6.632)*	3.079(1.175, 8.069)*	

Note: *Statistically significant at 95% CI.

Abbreviations: CI, Confidence Interval; COR, Crude Odd Ratio, AOR, Adjusted Odd Ratio.

service. Moreover, further research should be undertaken on multi-domain dimensions like facility design that covers all health professionals in Ethiopia.

Abbreviations

DTP, Drug Therapy Problem; JUMC, Jimma University Medical Center; PC, Pharmaceutical Care; WHO, World Health Organization.

Data Sharing Statement

The documents supporting this study will be available upon request from the corresponding author.

Ethical Approval and Consent to Participate

The Helsinki declarations were followed for undertaking this study. Institutional review board of Jimma University,

School of Pharmacy (Reference Number, IoH/SoP/04/2021) approved the study. A letter of permission was received from the Office of Chief Executive Officer of Jimma University Medical Center. The written informed consent of the study participants was taken prior to interviews for collection of data. The withdrawal right of study participants from involvements of study at any time was assured.

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Author Contributions

Both authors contributed to data analysis, drafting or revising the article, gave final approval of the version to

be published, agreed to the submitted journal, and agree to be accountable for all aspects of the work.

Disclosure

The authors report no conflicts of interest in this work.

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