

Public Health Facilities' Satisfaction on Logistics Service Provided by Bahirdar Hub Pharmaceutical Fund and Supply Agency, North West Ethiopia

Bereket Tefera^{1*} and Bekalu Kebede²

¹Department of Biosciences, Debremarkos University, Debre Markos, Ethiopia

²Department of Clinical Pharmacy, Debremarkos University, Debre Markos, Ethiopia

Abstract

Background: Logistic is the process of planning, implementing, and controlling procedures for the efficient and effective transportation and storage of goods including services, and related information from the point of origin to the point of consumption for the purpose of meeting the customer requirements. Customer satisfaction is a key measure for healthcare logistics services and it is positively related to quality of logistics service. Therefore this study aimed to assess the public health facilities satisfaction on logistics service provided by Bahirdar hub Pharmaceutical Fund and Supply Agency

Methodology: A facility based descriptive study design was employed. Two-stage sampling technique was utilized and on the first stage health facilities were selected and on the second stage respondents were selected from each selected health facilities. A total of 27 health facilities were included for this study (6 hospitals and 21 health centers). Epidata and SPSS version 20 was utilized for data entry and analysis respectively. Frequency distribution, arithmetic mean, and percentages were calculated.

Result: according to this study 64.1% of respondents reported that they were neutral while 29.7% of respondents found to be satisfied with the quality of logistics services. In addition 4.7% of the respondents stated that they are dissatisfied with the service.

Conclusion: Generally the overall perceived customer satisfaction on the quality of logistics service provided by Bahirdar PFSA hub was average, which means the overall mean score was almost similar with the mid-point of 5-liker scale.

Recommendation: This study also constructed important recommendations for Bahirdar hub Pharmaceutical Fund and Supply Agency, and researchers based on its major findings.

Keywords: Customer satisfaction • Supply agency • Logistics

Introduction

Most scholars define logistics service as one of the most essential elements that can help to achieve significant customer satisfaction; however managing the quality of logistics service is a difficult job [1]. Logistic is the process of planning, implementing, and controlling procedures for the efficient and effective transportation and storage of goods including services, and related information from the point of origin to the point of consumption for the purpose of meeting the customer requirements. Logistics management activities typically include inbound and outbound transportation management, fleet management, warehousing, materials handling, order fulfillment,

logistics network design, inventory management, and supply/demand planning [2]. Recently, the fundamental concept of logistics service management has changed in two major ways such as; an alteration from "attention to the internal consequence of performance (e.g., internal efficiency including productivity of labor and profits) to the external consequences" (e.g., customer satisfaction) and a change from "focus on structure to focus on process as a part of supply chain management" [3]. Customer relationship regarding to logistics services comprises activities that are employed for the purpose of managing customer complaints, and improving customer satisfaction [4]. Customer satisfaction is a key measure for healthcare logistics services and it is positively related to quality of logistics service [5]. Quality of logistics service dimensions that can be assessed from

*Address for correspondence: Dr. Bereket Tefera, Department of Biosciences, Debremarkos University, Debre Markos, Ethiopia, E-mail: brktbahiru@gmail.com

Copyright: © 2021 Tefera B, et al. This is an open-access article distributed under the terms of the creative commons attribution license which permits unrestricted use, distribution and reproduction in any medium, provided the original author and source are credited.

Received: February 26, 2021; **Accepted:** March 12, 2021; **Published:** March 19, 2021

customer satisfaction perspective include procedure, contact, information, discrepancies, availability, accuracy, timeliness, and condition [1]. Health logistics system is responsible to ensure every customer able to obtain and use quality health supplies [2]. In 2004 national assessment of the existing public health pharmaceutical supply system identified a number of challenges in the supply chain of health commodities. Hence Integrated Pharmaceutical Logistic System (IPLS) is the primary mechanism through which all public health facilities obtain essential and vital pharmaceuticals by fulfilling the six rights of logistics system through implementing effective, efficient and simple system [2]. The provision of complete health care necessitates the availability of safe, effective and affordable drugs and related supplies of the required quality, in adequate quantity at all times. Despite this fact, in the past, the pharmaceutical supply chain management system of the country had several problems including non-availability, unaffordability, poor storage and stock management and irrational use.

To solve these problems in public health facilities, Pharmaceuticals Fund and Supply Agency (PFSA) was established in 2007 by Proclamation No. 553/2007 based on the Pharmaceuticals Logistics Master Plan (PLMP). The Agency is mandated to avail affordable and quality pharmaceuticals sustainably to all public health facilities and ensure their rational use. So as to execute its mandate in the area of pharmaceuticals supply in an efficient and effective manner, integrated pharmaceuticals logistics system (IPLS) has been developed and implemented since 2010 [6]. Assessment of different parameters customers' satisfaction on of the quality of logistics services is essential for making continuous service improvement, satisfying all customers, and obtaining the best possible clinical outcome [7]. Therefore, this study tried to assess the status of some of the supply chain practices and challenges related to these SC practice in public health facilities found in the west Gojjam zone. It is expected that this study will offer useful document on the status of SC practice in public health facilities found in west Gojjam zone and facilitate further studies in this area.

Materials and Methods

This study employed facility based descriptive study design to assess the public health facilities' satisfaction level on logistics service providing by Bahirdar hub Pharmaceutical Fund and Supply Agency. This study was done in public health facilities found in West Gojjam Zone, which is one of the most populated zones found in Amhara Regional State, Ethiopia. The capital city of this zone is Finoteselam town, which is 174 km away from Bahirdar and 481 km far from Addis Ababa. In this zone an estimated 2.2 million populations are living there and under this Zonal Health Department, there are 94 health centers and 6 primary hospitals. The data collection was done starting from 28 April/2018 – 20 June/2018 in selected public health facilities found in West Gojjam zone.

The source populations of this study were all public health facilities and healthcare professionals working in those health facilities found in West Gojjam zone. These facilities were all health centers, primary, and general hospitals found in this area. All healthcare facilities and healthcare professionals working in those selected health facilities and who are responsible in different supply chain management related tasks were the study populations. Public health facilities started service at least six months prior data collection period and

being pharmacy head and store manager of public health facilities were the inclusion criteria. Military health facilities found in the study area and staffs started works within the last 6 month prior to the data collection period were exclude from the study.

The sampling unit of this study was health facility. All hospitals in the study area were selected purposively and the health centers included in this study were selected using lottery method from the sampling frame of all health centers, which were included in the frame based on the inclusion and exclusion criteria. The pharmacy head and store managers of each health facility were selected purposively for filling prepared questionnaire. According to USAID Delivery Project Logistics Indicators Assessment Tool (LIAT), a minimum of 15 % of health facilities in the study area is recommended for sample size determination [8]. However, for this study all hospitals and 20 % of the health centers found the West Gojjam zone were selected. In this zone, a total of 104 health centers were found, therefore a total of 21 health facilities (i.e. 6 hospitals and 26 health centers) were selected for this study on the first stage of sampling process.

After extensively reviewing several previously done literatures and other materials, checklists and questionnaire with 5-likert-scale were prepared in English. All questions included in the questionnaire were grouped and arranged based on the particular issues they were intended to address. Structured questionnaire was utilized for collecting data regarding to public health facilities' satisfaction level on logistics service provided by Bahirdar hub Pharmaceutical Fund and Supply Agency by administering and collecting the questionnaires under supervision of data collector.

The data was checked for completeness and then entered into Epi-Data software. The principal investigator performed data entry and cleaning process. Once the data cleaning process finished, the data was analyzed with Statistical Package for Social Science (SPSS) programs version 20. Frequency distribution, arithmetic mean, and percentages were calculated. Simple and multiple linear regressions between selected variables were done to establish association and make prediction between variables. All variables that were significantly associated during simple linear regression were included in multiple linear regressions. A variable with p- value less than 0.05 at corresponding 95 % confidence interval were considered as significantly associated variable and backward stepwise model building technique was utilized for constructing regression model.

The quality of the data collected was ensured by properly designing and pre-testing of questionnaires. Pre-test was done on 5% of the total sample size (i.e. 2 public health facilities) and appropriate modification of the questionnaires was done for improving the reliability and consistency of the data collection tool. In addition, the quality of the data was assured by properly categorizing and coding of questionnaires, providing training for data collectors about the data collection procedures and questionnaires, and evaluating the filled questionnaires for completeness before analysis. Pharmacy professionals who have experience on health commodities supply chain practices collected the data.

Permission to carry out the study was granted from Institutional Review Board of Debremarkos University, College of Health Science. The permission letter from Debremarkos University was submitted to West Gojjam Zonal Health Department to obtain authorization letter.

Before starting data collection, the authorization letter from ZHD was submitted to each public health facility to get permission for data collection. Verbal consent was obtained from all respondents and confidentiality of the information was assured to them.

Results

Demographic characteristics

A total of 32 public health facilities (26 health centers and 6 hospitals) were included for this study. From all public health facilities included in the study 17 (53.1%) of them were non-ART sites. The data was collected from 32 pharmaceutical store managers and 32 pharmacy head of each public health facilities (Table 1).

Type of health facility		Frequency	Percentage
Health center	ART site	9	28.12
	Non-ART site	17	53.13
Hospitals	ART site	6	18.75
	Non-ART site	0	0

Table 1: Demographic Characteristics health facilities involved in the study.

Analysis of customer satisfaction

Overall customers satisfaction on quality of logistics service:

To determine the level of satisfaction with the quality of logistics service provided by PFSA Bahirdar hub, respondents were asked to rate their overall level of satisfaction using a 5-point likert scale (1 means highly dissatisfied, 2 means dissatisfied, 3 means neutral, 4 means satisfied and 5 means highly satisfied). As it indicated in table majorities of respondents 41 (64.1%) reported that they are neutral while 29.7% of respondents found to be satisfied with the quality of logistics services. In addition 4.7% of the respondents stated that they are dissatisfied with the service (Table 2).

Liker scale	Frequency	Percent	Valid Percent	Cumulative Percent
Highly dissatisfied	1	1.6	1.6	1.6
Dissatisfied	3	4.7	4.7	6.3
Neutral	41	64.1	64.1	70.3
Satisfied	19	29.7	29.7	100
Total	64	100	100	

Table 2: Overall customer satisfaction on quality of logistics service provided by PFSA Bahirdar hub.

Perceived customers satisfaction on procedure, contact and timeliness: As indicated, three items were used to measure the perceived customer’s satisfaction on “procedure”. Therefore, “the easiness of the procedure utilized by PFSA Bahirdar hub” had the highest mean score provided by respondents with a mean score of 3.58. However, both the “effectiveness and flexibility of the procedure utilized by PFSA Bahirdar hub” had mean score of 3.45. The overall

result findings of this dimension indicate that the customers were less agreed with the quality of the procedure utilized by Bahirdar Hub PFSA.

As it indicates, from four items used to measure the perceived customer’s satisfaction on “contact quality” the perceived “overall behavior of contact logistics personnel at PFSA Bahirdar hub” had the highest mean score reported by respondents with mean value of 3.61. However, “the effort of contact logistics personnel to understand the logistics issues from their customers’ perspective” had the lowest mean score provided by respondents with mean score of 3.14.

Among three items used to measure the perceived customer’s satisfaction on “the quality of logistics information”, “the availability of logistics related information at PFSA Bahirdar hub” had the highest mean score reported by respondents with mean value of 3.42. However, “the completeness of the information provided by PFSA Bahirdar hub” had the lowest mean score reported by respondents with mean value of 3.39.

Perceived satisfaction on order discrepancy, commodity availability and delivery accuracy: As indicated, three items were used to measure perceived customers satisfaction on “order discrepancy”. Therefore according to this study “the perceived easiness and suitability of the procedure to report order discrepancy” had the highest score reported by respondents with the mean value of 3.31. On the other hand, respondent rated score for “reporting order discrepancy to customers by Bahirdar PFSA hub as fast as possible” was the lowest, with mean value of 2.89.

Five items were utilized to assess the perceived customer’s satisfaction on “availability dimension”. From all items “shorter distance between customers and Bahirdar PFSA hub” had the highest mean score reported by respondents with mean score of 3.23. Contrariwise, “availability of requested pharmaceutical products at Bahirdar PFSA hub” had the lowest mean score reported by participants, with mean value of 2.50.

As we can see three items were used to assess the perceived customer’s satisfaction on “accuracy dimension” and from all items “Bahirdar PFSA hub met the requested technical requirement of ordered products” had the highest mean score, which was 3.48. However, “Bahirdar PFSA hub rarely obsolete and expired product delivery” had the lowest mean score, which was 3.14.

Perceived customers satisfaction on timeliness and delivery condition: As we can see three items were used to measure the perceived customer’s satisfaction on “timeliness” and “the presence of short lead time by Bahirdar PFSA hub” had the lowest mean score reported by participants, with mean score of 3.17. On the other hand, “consistency of product delivery by Bahirdar PFSA hub” had the lowest mean score reported by participants with mean value of 2.92.

Among three items were used to measure the perceived customer satisfaction on “delivery condition”, “correctness of delivery documents from Bahirdar PFSA hub” had the highest mean score reported by participants with mean score of 3.83. On the contrary, “delivery of damage free product by Bahirdar PFSA hub” had the lowest mean value reported by participants with mean score of 3.63.

Overall satisfaction for each dimension: As it depicted, the degree of customers’ perceived satisfaction on product “delivery condition” was found superior to the other seven dimensions with a

mean score of 3.740. This indicates that, according to respondents of the study, Bahirdar PFSA hub was performing better on delivery condition of product to public health facilities. The logistics service dimension with the second highest mean score reported by respondents was "procedures" employed by Bahirdar PFSA hub for serving public health facilities with a mean score of 3.495, this shows that according to respondents of the study Bahirdar PFSA hub customers were relatively satisfied the flexibility and effectiveness of procedure employed for providing logistics service. According to the response provided by participants, the perceived "products availability" dimension of quality of logistics service provided by Bahirdar PFSA hub was received the least mean score that was 2.875. According to this study finding, the perceived customer satisfaction for most of dimension of quality of logistics service provided by Bahirdar PFSA hub were to some extent more than the middle score, which was 3.0.

Conclusions

This study finding reported that customer's perceived satisfaction on products delivery condition was received the highest mean score relative to the other seven dimensions followed by procedure flexibility and effectiveness, information quality, personnel contact quality, service accuracy, order discrepancy handling, timeliness, and product availability respectively. Product availability was the dimension of quality of logistics service with the least mean score by the respondents of the study. Generally the overall perceived customer satisfaction on the quality of logistics service provided by Bahirdar PFSA hub was average, with the mean score almost similar to the mid-point of 5-liker scale.

- Bahirdar PFSA hub should improve the availability of each products required by its customers
- Bahirdar PFSA hub should always refill the requested quantity of each products in full amount to customers requested
- Bahirdar PFSA hub should work on handling variety products requires by its customers
- Bahirdar PFSA hub should try to reduce lead time when they refill their customs order

- Bahirdar PFSA hub should report order discrepancy as fast as possible to customer send for refill

References

1. Politis, Yannis, Apostolos Giovanis and Spyridon Binioris. "Logistics Service Quality and its Effects on Customer Satisfaction in the Manufacturing Companies' Supply Chains: Empirical Evidence from Greece." *J Model Manag.* 9 (2014): 215-237.
2. Alemwork, Tilahun. "Assessment of Integrated Pharmaceutical Logistics System for Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome (HIV/ AIDS) and Tuberculosis (TB) Laboratory Diagnostic Commodities management in Public Health Facilities, Addis Ababa, Ethiopia." Bsc., Addis Ababa University, (2014): 1-83.
3. Turkyilmaz, Ali, ME Bulak, Selim Zaim. "Assessment of TQM Practices as a Part of Supply Chain Management in Healthcare Institutions." *Int J Supply Chain Manag.* 4 (2015): 1-9.
4. Mensah, Charles, Daniel Diyuoh and Dorcas Oppong. "Assessment Of Supply Chain Management Practices And It Effects On The Performance Of Kasapreko." *Eur J Logist Purch Supply Chain Manag.* 2 (2014): 1-16.
5. Shou, Yongyi. "Perspectives on Supply Chain Management in the Healthcare Industry." *Atl Press.* 6 (2013): 630-633.
6. Murakami, T. "Application of the Scanning Electron Microscope to the Study of the Fine Distribution of the Blood Vessels." *Arch Histol Jpn.* 32 (1971): 445-454.
7. Murakami, T. "Pliable Metacrylate Casts of Blood Vessels: Use in a Scanning Electron Microscope Study of the Microcirculation in Rat Hypophysis." *Arch Histol Jpn.* 38 (1975): 151-168.
8. Murakami, Takuro, Tatsuya Itoshima, Kusukuma Hitomi, and Aiji Ohtsuka, et al. "A Monomeric Methyl and Hydroxypropyl Methacrylate Injection Medium and its Utility in Casting Blood Capillaries and Liver Bile Canaliculi for Scanning Electron Microscopy." *Arch Histol Jpn.* 47 (1984): 223-237.

How to cite this article: Tefera, Bereket and Bekalu Kebede. "Public Health Facilities' Satisfaction on Logistics Service Provided by Bahirdar Hub Pharmaceutical Fund and Supply Agency, North West Ethiopia." *Pharmaceut Reg Affairs* 10 (2021) : 236.