Analyzing the Costs of Home Pharmacy Diabetes Patient Care Program in Pharmacy

Ali Mohmmed Asiri[1]*, Ali Hassan Alasmari[2], Abdullah Mubarak Alsubaie[3], Mohammed Abdulrahman AlShehri[4], Abdulaziz Ahmed Asiri[5]

[1] Pharmacist, Prince Sultan Military Medical City, Riyadh KSA

[2,3,4,5] Pharmacy Technician, Prince Sultan Military Medical City, Riyadh KSA

Abstract - The pharmaceutical care service provided by a home pharmacy is predicted to decrease the occurrence of medication interactions and adverse effects, improve the efficacy of treatment, and boost patient compliance with drug use. This study examined how the diabetic home pharmacy care program affects pharmacies financially. The present study examined diabetic home pharmacy treatment costs. As Saudi Arabia's home pharmacy network manager, the pharmacist was here. A purposeful sample of pharmacists was questioned after informed consent. The number of patients who must be treated in order to break even after covering costs with revenue was determined. ABC was used to determine cost breakdown. Without home pharmacy care, Rp.17,000 to Rp.31,000 is the range. Average home pharmaceutical care cost Rp.9,963, but brought in Rp.22,000. The home pharmaceutical care program benefits pharmacies, although pricing has not been established.

Keywords - pharmacy care, ABC, diabetic patients, drugs.

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1.   INTRODUCTION

Millions of people all around the globe are affected by diabetes, making it a serious public health problem. Medication treatment, lifestyle adjustments, and regular monitoring are all common components of an interdisciplinary approach to diabetes care. Home Pharmacy Diabetes Patient management Programs have been implemented by several pharmacies to assist with these facets of diabetes management. [1-2]The goal of these programs is to provide patients with all the information and tools they need to take control of their diabetes from the convenience of their own homes. While there is no doubt that these programs have the potential to improve patient outcomes and provide more convenience, it is important to investigate the costs involved with launching and sustaining them in pharmacy settings.[3]

Medication management, education, glucose monitoring, and counseling are just few of the many services included in the Home Pharmacy Diabetes Patient Care Program. More effective illness management and significant savings on healthcare costs may result from the individualized treatment that program participants get from pharmacists and other healthcare experts. However, pharmacists need to carefully assess the inherent cost consequences of implementing and maintaining these initiatives.[4-5]

The purpose of this paper is to investigate the many pharmacy-related expenses that come with starting and sustaining a Home Pharmacy Diabetes Patient Care Program.[6-7] By looking at the numbers, we can learn about the programs' potential, longevity, and overall effect on patients and the pharmaceutical sector. Several crucial areas of the expenses of the program will be investigated to achieve this goal.[8-9]

There is an up-front cost associated with establishing a Home Pharmacy Diabetes Patient Care Program in terms of both resources and manpower. [10] It might include getting glucose monitoring equipment, setting up telemedicine networks, and recruiting or training specialists to offer care for people with diabetes.[11]

The dialogue between pharmacists and patients is a vital part of treatment programs for people with diabetes. It may be expensive to hire pharmacists with experience in diabetes treatment or to retrain current employees to focus on this issue. Additionally, there are recurrent costs associated with training and education to maintain competency in diabetes treatment.[12]

2.   METHODOLOGY

Purposive samples of Saudi pharmacists in charge of dispensing home pharmacy care services

between 2017 and 2021 were collected for this study. In order to participate in the research, pharmacists needed to be both a Responsible Pharmacist and those who provide home pharmacy care services, as well as willing to sign an informed consent form. Five pharmacists who fit the requirements were acquired notwithstanding the removal of those who quit during the study and the research procedure.

By breaking down the many tasks and supplies needed to provide care in the home, ABC (Activity Based Costing) analysis was used to arrive at a price for the service. Also determined was the overall cost of activities divided by the total number of services rendered. To determine when pharmacies break even between profits and losses, a Break Even Point (BEP) was determined.

Cost data was collected from pharmacists or based on normative pricing if respondents did not know or could not recollect home pharmacy care expenditures. According to the origin of the data, costs were broken down into a few distinct categories. "Information gathered from several sources shows the prices of various items, such as advertisements, promotional materials, electronic equipment, medical devices (devices for monitoring blood sugar), device maintenance, and diabetic medications." Information was gathered from several sources and integrated with estimates for things like prescription reading and consultation fees. "Electricity, credit/internet, and administrative (etiquette, packing, informed permission, and paperwork) costs are all derived from normative assumptions about the cost of doing business. Since the majority of information gathered concerns the monthly expenses of pharmacies in general rather than only home pharmacy care services, it was required to combine this information with these assumptions." The only reasonable conclusion is that this money was spent on home pharmacy care services. Monthly pharmaceutical expenses were divided by monthly service volume to arrive at the assumed figure. Because there was no information from the source, it was necessary to make certain assumptions using normative data on the costs associated with this service. However, these expenditures were already accounted for in the price of providing home pharmacy care services.

The purpose of this research was to determine the BEP in order to establish the level of service that would result in financial parity between PHC revenues and expenditures. This BEP computation included PHC in two different cases: one with and one without the expense of drugs. In this analysis, the BEP formula looked like this.

$$BEP = \frac{total\ fixed\ cost}{(selling\ price\ per\ unit - variable\ cost\ per\ unit\ of\ PHC)}$$

3. RESULT

Fewer than 10 participants were getting PHC services each month, hence the research was underpowered. There was also a lack of transparency about the application or collection of patient-specific expenses associated with providing PHC services.

Patients only had to pay for the pharmacist's time when they reviewed their prescriptions and provided advice during consultations. "Consulting services, blood sugar checks, in-home transportation, power, financing, investments in communication and blood sugar monitoring technology, and pharmaceuticals were all part of the overall cost of providing home pharmacy care."

Monthly pharmacy charges for home pharmaceutical care services might vary widely from one drugstore to the next. It was due to the fact that each drugstores provided unique products and services. To put that in perspective, whereas Al Nahdi Pharmacy spent Rp.917,790 and Rp.1,206,410, Al barqi Pharmacy spent Rp.13,419 and Rp.16,630. The parallel was striking, even when compared to the other three drugstores. "Al Nahdi supplied 80 home pharmacy care services per month whereas Apotek As-single Al barqi provided just one, therefore their respective monthly expenses would naturally vary greatly."

Table 1. Prices for Advice and Books on Prescription

Pharmacy name	Al batha	Al Nahdi	Al barqi	Abdullah hamdan	Al Ameera
Prescription reading services	5,000	0	0	2,500	1,000
Concsulting services	5,000	1,000	2,500	2,500	2,500
Total	10,000	1,000	2,500	5,000	3,500

They charge between Rp.2,500 and Rp.10,000 for their advisory services and prescription readings. Prices for services vary because each pharmacies establish those prices differently. The pharmacy's policy is shaped by the demographics of the area. Thus, some drugstores charge exorbitant prices for their services while others charge much less.

"In order to offer context for the costs of services and the possible economic advantages of PHC, it was required to present an overview of the cost of PHC per patient." PHC comprised prescription reading, glucose monitoring, administration, and medication. Patients were not required to contribute to the operational expenses of the facility, including those for lighting, internet access, marketing, capital expenditures, or repairs. Only the Al Ameera pharmacy does not charge a fee for the pharmacist consultation service, however the other four out of five pharmacies do.

"Based on the data presented, it seems that Abdullah hamdan was the most profitable pharmacy despite having the smallest initial investment:

Ali Mohmmed Asiri[1]*, Ali Hassan Alasmari[2], Abdullah Mubarak Alsubaie[3], Mohammed Abdulrahman AlShehri[4], Abdulaziz Ahmed Asiri[5]

Rp.12,270 (including medication) and a profit of Rp.19,730." The patient was charged Rp.32,000 for home pharmacy services, but the entire cost of care without medication was just Rp.10,345. Apotek Abdullah hamdan made Rp.15,655 in revenue from glucose monitoring, medicine sales, prescription reading, and therapy sessions. Al Nahdi, Al barqi, and Al Ameera pharmacies all had the same price for a blood sugar test. However, the Abdullah hamdan Pharmacy had already adopted service charges for prescription reading and advising, resulting in substantial earnings from pharmaceuticals."BEP is also computed to establish the number of patients who must be provided such that revenue and expenditures are in balance in PHC practice based on the identified cost components."

According to the BEP calculations, Al batha had two drugs and one drug; Al Nahdi had 32 drugs and two drugs ; and Apotek Al barqi, Abdullah hamdan, and Al Ameera had the lowest BEP with drugs and without drug respectively. It was anticipated that if the pharmacy could treat as many patients at home as BEP did in one month, it would recoup its initial investment and make a profit.

Table 2. Break Even Point

Pharmacy Name	Al batha	Al Nahdi	Al barqi	Abdullah hamdan	Al Ameera
BEP With Drugs	2	32	1	1	1
BEP Without Drugs	1	2	1	1	1

Analysis of costs showed that offering home pharmacy care resulted in an increase in revenue for pharmacies. But the pharmacist said that the patient and the drugstore paid for the whole home pharmacy care service. Due to the fact that neither BPJS nor JKN provide coverage for this service, the majority of consumers are still hesitant to choose for it. "Nakagawa and Kume's study shows, however, that Indonesia has much to gain from Japan's model of national health insurance covering the cost of pharmacists providing home pharmacy treatment." To further support community pharmacists in their pursuit of service recognition for their work caring for patients in their homes and other community settings, a new policy was implemented in 2016. The Japanese government acknowledges that pharmacists have the potential to contribute to more effective health spending by addressing the issue of non-compliance with medication usage.[13-14]

The healthcare cost-effectiveness of pharmacy care plans has been calculated in previous research. The findings of this research are consistent with those of the cited study, which indicate that pharmacy care plan services may enhance patients' health while simultaneously reducing the overall cost of their care.

People with long-term health issues like diabetes may get some much-needed help from the drugstore's home pharmacy care service. Patient acceptance, better health outcomes, and cost savings of up to 10% have all been shown in previous research. How well home pharmacy care is managed may also be impacted by the rapport established between patients and pharmacists. According to research interactions with community pharmacists are not as productive as they may be.[15] It would seem that community pharmacists' skills are being put to waste. As a result of this weak connection, health promotion efforts are less likely to be successful . Previous studies in Central Java have shown that home pharmacy treatment is uncommon in Cilacap. Although it has the backing of medical professionals and patients alike, its implementation should be carefully considered.

Table 3. Information on Monthly Pharmacy Costs and Patient Fees

Services	Cost Type	Pharmacy Name					$\bar{x}$
		Al batha	Al Nahdi	Al barqi	Abdullah hamdan	Al Ameera	(Average)
No. of patients		7	8	1	2	1	4
		Once every month	every three days	Once every month	Once every month	Once every month	
Pharmacy Fee Data / Month (Rp)							
P.R Service**	Capital	35,000	0	0	5,000	1,000	13,667
	Charge	70,000	0	0	10,000	2,000	27,333
Consulting Services**	Capital	35,000	80,000	2,500	5,000	2,500	25,000
	Charge	70,000	160,000	5,000	10,000	0	49,000
Blood Glucose Check*	Capital	22,400	240,000	3,000	6,000	3,000	54,880
	Charge	70,000	1,200,000	15,000	30,000	15,000	266,000
Transportation*	Capital	5,872	23,490	85	240	221	5,982
	Charge	0	0	0	0	0	0
Electricity***	Capital	2,632	30,180	376	752	376	6,843
	Charge	0	0	0	0	0	0
Credit/internet***	Capital	4,200	47,000	610	1,300	600	10,920
	Charge	0	0	0	0	0	0
Administration***	Capital	7,000	0	2,000	2,000	1,000	2,400
	Charge	7,000	0	2,000	2,000	1,000	2,400
Advertisement/ promotion*	Capital	0	3,680	0	0	91	1,886
	Charge	0	0	0	0	0	0
Electronic devices*	Capital	1,596	10,400	7	456	96	2,511
	Charge	0	0	0	0	0	0
Medical device*	Capital	91	1,040	13	42	13	240
	Charge	0	0	0	0	0	0
Maintenance*	Capital	0	5,520	0	0	208	2,864
	Charge	0	0	0	0	208	208
Drugs*	Capital	12,659	611,380	1,789	3,850	1,925	126,321
	Charge	45,500	900,000	5,000	12,000	3,000	193,100
Totally with drugs	Capital	126,450	1,053,590	10,370	24,540	11,030	245,196
	Charge	262,500	2,260,000	27,000	64,000	21,208	526,942
SD	Capital	13,108	178,171	1,128	2,275	1,019	
	Charge	31,733	410,096	4,454	9,079	4,281	

Ali Mohmmed Asiri[1]*, Ali Hassan Alasmari[2], Abdullah Mubarak Alsubaie[3], Mohammed Abdulrahman AlShehri[4], Abdulaziz Ahmed Asiri[5]

Totally without drugs	Capital	113,791	442,210	8,581	20,690	9,105	118,875
	Charge	217,000	1,360,000	22,000	52,000	18,208	333,842
SD	Capital	13,730	70,807	1,143	2,310	1,016	
	Charge	32,355	360,202	4,583	9,264	4,471	
Cost Data Per Patient (Rp)							
Prescription Reading Service**	Capital	5,000	0	0	2,500	1,000	2,833
	Charge	10,000	0	0	5,000	2,000	5,667

Consulting Services**	Capital	5,000	1,000	2,500	2,500	2,500	2,700
	Charge	10,000	2,000	5,000	5,000	0	4,400
Blood Glucose Check*	Capital	3,200	3,200	3,200	3,200	3,000	3,040
	Charge	10,000	15,000	15,000	15,000	15,000	14,000
Transportation*	Capital	838	294	85	120	221	312
	Charge	0	0	0	0	0	0
Electricity***	Capital	375	375	375	375	375	375
	Charge	0	0	0	0	0	0
Credit/internet***	Capital	600	600	600	600	600	600
	Charge	0	0	0	0	0	0
Administration***	Capital	1,100	0	2,000	1,000	1,000	1,250
	Charge	1,000	0	2,000	1,000	1,000	1,250

Advertisement/ promotion*	Capital	0	46	0	0	91	69
	Charge	0	0	0	0	0	0
Electronic devices*	Capital	227	130	7	227	97	137
	Charge	0	0	0	0	0	0
Medical device*	Capital	13	13	13	22	13	15
	Charge	0	0	0	0	0	0
Maintenance*	Capital	0	69	0	0	207	138
	Charge	0	0	0	0	0	0
Drugs*	Capital	1,818	7,632	1,779	1,915	1,925	3,018
	Charge	6,500	11,250	5,000	6,000	3,000	6,350
Totally with drugs	Capital	18,063	13,170	10370	12,270	11,030	12,981
	Charge	37,500	28,250	27,000	32,000	21,000	29,150
SD	Capital	1,873	2,227	1,128	1,137	1,019	
	Charge	4,533	5,126	4,454	4,539	4,288	

Totally without drugs	Capital	16,255	5,528	8,581	10,345	9,105	9,963
	Charge	31,000	17,000	22,000	26,000	18,000	22,800
SD	Capital	4,622	4,503	4,583	4,632	4,478	
	Charge	1,589	2,307	1,148	1,088	1,069	

Services supervised by pharmacists have a beneficial financial impact. Increased pharmacy involvement in patient care has the potential to improve health outcomes. Cost-effectiveness analysis shows that home pharmacy treatment is preferable than hospital care, according to a randomized controlled trial conducted in Jordan . Patients with type 2 diabetes may benefit greatly from a cost-effective strategy called   HMR-CP. The average overall cost per participant, however, is greater .

This study's cost analysis, conducted using the ABC technique, has the benefit that its findings are grounded in actual work processes. "Respondents' (APJ) cost data includes both the direct and indirect expenses associated with providing home pharmacy care services." In order to calculate the price tag of home pharmacy care services, researchers need to reprocess the acquired cost data. More research utilizing experimental methods is needed to get reliable results.

4.   CONCLUSION

This study's research of home pharmacy care prices suggests that no respondents charge standard rates for this service. Costs for home pharmacy care services, including both the drugstore's and the patient's share, may range widely based on factors including the pharmacy's or pharmacist's policy and the patient's condition. However, it is still reasonably priced, falling. By maintaining this home pharmacy care service, the pharmacy may still earn a profit. The downside is that the profits are almost identical to those of a traditional pharmacy that doesn't provide home delivery services. Because there is no standard fee for providing pharmaceutical services to customers in their homes. Given the size of the potential customer base for home pharmacy care services, it is crucial to establish transparent regulations about the costs associated with these offerings.

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Corresponding Author

Ali Mohmmed Asiri*

Pharmacist, Prince Sultan Military Medical City, Riyadh KSA

Ali Mohmmed Asiri[1]*, Ali Hassan Alasmari[2], Abdullah Mubarak Alsubaie[3], Mohammed Abdulrahman AlShehri[4], Abdulaziz Ahmed Asiri[5]