A comparison of pharmacies of comprehensive healthcare centers: Public vs. outsourced

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ABSTRACT

Introduction: Pharmaceutical services are one of the essential components in primary health care settings. In recent years, the provision of some of these services has been left to the private sector with the aim of increasing quality, patient satisfaction, innovative ideas through interactions with other sectors and organizations, and cost reduction. The aim of this study was to compare the performance of outsourced and public pharmacies of comprehensive healthcare centers of Ahvaz Jundishapur University of Medical Sciences (AJUMS). Methods: This is a descriptive-analytic observational study conducted in 2018. The study population consisted of 122 active pharmacies (70 outsourced and 52 public) in healthcare centers offering family physician services and rural insurance programs in the university's affiliated cities. A researcher-made questionnaire was used to collect the data. The questionnaire included demographic variables (12 items) and 5 functional dimensions (34 items). The reliability of this questionnaire was 0.92. Data were analyzed using independent t-test, ANOVA and Pearson correlation coefficient. Results: There was no significant difference between the average scores of public and outsourced pharmacies in rural and urban comprehensive healthcare centers (p = 0.97). The average score of all quality dimensions of public and outsourced pharmacies as well as the working hours (between 3 and 4) was estimated to be relatively appropriate. The highest average scores were related to stakeholders' satisfaction ($3.47 \pm .68$) in public pharmacies while the lowest average scores were related to the service delivery process ($3.00 \pm .93$) in outsourced pharmacies of urban and rural comprehensive healthcare centers. The distance of the health center from the city's health center was significantly and inversely correlated with the satisfaction of the stakeholders (r = -.321, p = .000). Conclusion: Despite the fact that outsourcing is considered as a mechanism for achieving optimal performance and improving the quality of services, it seems that managers and authorities should consider the type of services offered by outsourced units and the way outsourcing is implemented. Also, continuous evaluation and monitoring of outsourced units as another influential factor should be taken into account.

Keywords: pharmacy, outsourcing, comprehensive healthcare center, family physician

Introduction

Pharmaceutical services are a critical component of primary health care. The provision of these services by Iran's Health Care System has been planned by designing structures such as pharmacies and drugstores in healthcare facilities (1). Due to their critical role in human health, the efficacy of pharmaceutical organizations has been considered as an unconditionally essential necessity which has always been demanded by the public and authorities. The concept of efficacy in drug organizations means offering pharmaceutical services with minimal cost by measuring the revenues and expenses of the pharmacy, the number of employees and their level of

education, the time the pharmacy director spends on pharmacy affairs, and the number of prescriptions dispensed (2).

Outsourcing in drug organizations means the handing over of pharmaceutical practices to a private pharmaceutical enterprise through a contract (3). Outsourcing is a motivational strategy, and creating competitive environment is one of the major benefits of this strategy, since it is in such an environment that organizations achieve excellence. What is of paramount importance in outsourcing is that the goals (i.e., efficiency, quality, adequacy, justice and accountability) should be considered (4). In recent years, the outsourcing strategy in the field of pharmaceutical services of health centers has been prominently aimed at increasing the quality of health services, increasing patient satisfaction, obtaining more innovative ideas through interactions with other departments and organizations, and reducing service costs, leading the government to leave a part of the care to the private sector (5).

Mortazavi and Hajebi's research showed that the current system of pharmacy services and pharmacy management has many defects and drawbacks that bring about a loss of financial and human resources and significantly reduce the efficacy and safety of the pharmaceutical system and distribution of drugs in healthcare centers, which requires to be deeply and fundamentally revisited (6). Other studies in the world point to the ineffectiveness of drug management by public organizations and the efficacy of private sectors. Also, outsourcing has been reported to improve the performance of health services, by increasing patient satisfaction, providing effective services and matching them with the local needs and conditions, and integrating those local needs and demands (8 and 7). The main concerns of the authorities and policy-making bodies in this regard involve assessing the success of organizations in utilizing available facilities, comparing their performance with each other, identifying inefficient organizations and identifying inefficient sources, examining strengths and weaknesses and analyzing them, and providing a suitable solution for improving the situation (9). In addition, the quality of services as one of the most important determinants of the success of organizations and companies in today's competitive environment has been the focus of serious attention (10). In this regard, in recent years, Iran's health system reforms have aimed at increasing the quality of health services, increasing patient satisfaction and reducing costs, and leaving part of the care to the private sector such as outsourcing of pharmaceutical services to private enterprises (1). However, no study has ever been carried out regarding the outcomes of these plans. Therefore, the aim of this study was to compare the performance of outsourced and public pharmacies of comprehensive healthcare centers of Ahvaz Jundishapur University of Medical Sciences.

Methods:

The present study is a descriptive-analytic observational one conducted in 2018. The study population consisted of 122 active pharmacies (70 outsourced and 52 public) in health centers offering family physician services and rural insurance programs in the university's affiliated cities. Since the census method was used to select the samples, the number of samples corresponded to the number of active units. To collect the data, a researcher-made questionnaire was used. The first section of the questionnaire which included 12 items dealt with the type of health center, type of pharmacy, working hours, population, number of insured individuals, number of covered walk-in clinics, number of villages covered, number of health teams, pharmacy area, number of physicians, the distance from the center to the city's health center (in minutes), and the average distance between the walk-in clinics and the health center (in minutes). The second section of the questionnaire consisted of 5 functional dimensions including 34 questions dealing with the pharmacy design and layout (questions 13 to 23), the registration system (questions 24-28), stakeholder satisfaction (questions 29 to 32), the process of providing pharmaceutical services (questions 33 to 38), support and logistics (Questions 39 to 42), and turnover status (Questions 43 to 46). Likert scale was used for Questions 13-42 (very good: 5, good: 4, medium: 3, weak: 2, Very poor: 1) and from questions 43 to 46 (very high: 5, high: 4, medium: 3, low: 2, very low: 1). To interpret the average results of the health centers offering family physician services and rural insurance, the scores between 4 and 5 were considered appropriate, between 3 and 4 relatively appropriate, between 2 and 3 relatively inappropriate, and between 1 and 2 inappropriate (interpretation of questions 44, 45, and 46 was just the opposite). It should be noted that the content and face validities of the questionnaire were calculated consulting the views of professors, and expert judges. The reliability of this questionnaire was 0.92.

After the study was approved by the Ethics Committee, initially a briefing session was organized for health center authorities in the university's Deputy for Health and then, based on the research information form, guidelines were offered on the goals of the study and its benefits and the way questionnaires should be completed. After completing the questionnaires by each comprehensive healthcare center, the questionnaires were collected. It should be noted that in order to investigate the general status of pharmacies, questions dealing with facilities such as fire extinguishers, anti-fogging, anti-fire, fire alarm, cooling system, heating system, refrigerator, thermometer and computer were initially used in a questionnaire, but since none of these questions showed a significant relationship with the whole questionnaire, they were excluded from analysis. Descriptive statistical methods such as tables, frequencies, mean and standard deviation were used. Independent t-test, ANOVA and Pearson correlation coefficient were used, all of which was done with SPSS 24. Also, the significance level of inferential tests was 0.05.

Results:

There were 122 pharmacies in the comprehensive healthcare centers of Ahvaz Jundishapur University of Medical Sciences, of which 70 (57.4%) were outsourced and 52 (42.6%) were public. Seventy pharmacies (57.4%) were located in rural centers and 52 (42.6%) were in urban-rural centers. In terms of working hours, 52 (42.6%) were round the clock, 17 (13.9%) night-shift, and 53 (43.4%) were single-shift. Table 1 provides the mean value, standard deviation and p-value of the functional dimensions of pharmacies of comprehensive health centers of rural and urban health services in terms of being public or outsourced.

Table 1: Mean and standard deviation of public and outsourced pharmacies' functional dimensions

Functional dimensions	Pharmacy								p-value
	Rural-Urban				Rural				
	Outsourced		Public		Outsourced		Public		
	SD	M	SD	M	SD	M	SD	M	
Design and layout	3.12± .77		3.24± .57		3.11± .72		3.18± .69		.86
Data Registering System	3.14± .57		3.23± .66		3.15± .90		3.08± .90		.67
Stakeholders' satisfaction	3.13± .87		3.47± .68		3.27± .76		3.30± .76		.81
Service Delivery Process	3.00± .93		3.21± .54		3.16± .84		3.03± .87		.87
Support and logistics	3.09± .69		3.31± .64		3.17± .93		3.11± .93		.86
Turnover	3.13± .92		3.16± .79		3.16± .80		3.37± .72		.41
Total	3.10± .57		3.26± .36		3.16± .62		3.17± .65		.97

Table 1 indicates that there is no significant difference between the average scores of pharmacies in rural and urban health centers in terms of being public or outsourced (p = 0.97). The average score of all functional dimensions in the public and outsourced pharmacies studied is estimated to be relatively appropriate (between 3 and 4). The highest and lowest scores in rural centers were respectively related to turnover (3.72 ± 72.7) and service delivery (3.33 ± 0.83) for public pharmacies, and to stakeholders' satisfaction (3.27 ± 76.7) and design and layout (72 ± 3.11) for outsourced pharmacies. As far as rural urban centers were concerned, the highest and lowest points were respectively obtained in relation to stakeholders' satisfaction (3.47± 0.68) and turnover (3.16±0.79) for public pharmacies, and to data registration system (3.14±0.57) and service delivery process (3.00±0.93) for outsourced pharmacies. Overall, the highest and lowest average scores were respectively related to stakeholder satisfaction (3.47±0.68) in public pharmacies and the service delivery process (3.00±0.93) in outsourced pharmacies of comprehensive urban-rural health centers.

Table 2 shows the correlation between demographic variables and functional dimensions.

Table 2. The correlation between demographic variables and functional dimensions

Demographic Variables	statistical Indicator	Design and layout	Data Registering System	Stakeholders' satisfaction	Service Delivery Process	Support and logistics	Turnover	Total
Population	Spearman corr.	r=-.044	r= .002	r= -.066	r= -.022	r= .021	r= -.088	r= -.044
	p value.	p= .631	p=.985	p= .469	p= .810	p= .817	p= .335	p= .632
No. of insured individuals	Spearman corr.	r= -.044	r= .000	r= -.067	r= -.024	r= .020	r= -.088	r= -.045
	p value.	p= .627	p= .996	p= .464	p= .790	p= .826	p= .338	p= .622
No. of Walk-in clinics	Spearman corr.	r= -.071	r= .095	r= -.052	r= .014	r= .093	r= -.104	r= -.015
	p value.	p= .438	p= .297	p= .571	p= .876	p= .306	p= .254	p= .870
No. of Rural areas covered	Spearman corr.	r= -.137	r= -.003	r= -.030	r= -.059	r= -.001	r= -.136	r= -.096
	p value.	p= .132	p= .978	p= .741	p= .517	p= .994	p= .134	p= .291
No. of Health teams	Spearman corr.	r= -.082	r= .123	r= .006	r= -.003	r= .111	r= -.147	r= -.013
	p value.	p= .369	p= 178	p= .945	p= .971	p= .224	p= .106	p= .885
Pharmacy area	Spearman corr.	**r= .216***	r=.100	r= .053	r= .033	r= .090	r= .165	r= .163
	p value.	**p= .017**	p= .275	p= .562	p= .715	p= .326	p= .070	p= .073

No. of physicians	Spearman corr. p value.	r= -.088 p= .337	r= .080 p= .383	r= -.104 p= .254	r= -.050 p=.582	r= .061 p= .503	r= -.097 p= .288	r= -.053 p= .559
Distance from the center to the City's health center	Spearman corr. p value.	**r= -.220*** **p= .015**	r= -.119 p= .193	**r= -.321**** **p= .000**	**r= -.225*** **p= .013**	r= -.111 p=.223	r= -.082 p=.369	**r= -.249**** **p= .006**
Average distance from Walk-in clinics to Comprehensive Health Centers	Spearman corr. p value.	r= -.065 p= .474	r= -.159 p= .080	r= -.160 p= .079	r= -.147 p= .107	r= -.180* p= .047	r= .051 p= .574	**r= -.189*** **p= .037**

**P<0.01
*P<0.05

According to Table 2, among demographic variables, pharmacy area had a significant correlation with pharmacy design and layout (r = .210, p = .017). Although the correlation is poor, pharmacy area has a direct effect on its design and layout. A significant inverse correlation was found between the distance from the center to the city's health center and pharmacy design and layout (r = -.220, p = .015). That is, the greater this distance, the poorer the pharmacy design and layout. The distance from the center to the city's health center was significantly correlated with stakeholders' satisfaction (r = -.321, p = .000). This correlation was also inverse. That is, the greater the distance, the less satisfaction of the stakeholders. In addition, the service delivery process had a significant inverse correlation with the distance from the center to the city's health center (r = -255, p = .013), meaning that the greater the distance from the center to the city's health center, the poorer the service delivery process. The average distance from walk-in clinics to the comprehensive health center had a significant inverse correlation with support and logistics (r = -.180, p = .047). The longer the distance, the weaker the support and logistics.

Discussion:

We studied 122 pharmacies in comprehensive health centers of Ahvaz Jundishapur University of Medical Sciences. According to our results, no significant difference was found among the average score of all dimensions studied in terms of pharmacies of rural and urban health centers (public vs. outsourced), and working hours (round-the-clock, night-shift, and single-shift). Overall, the average score of all dimensions was relatively appropriate (between 3 and 4).

No significant relationship was found between the average score of pharmacies in rural and rural-urban centers in terms of public and outsourced pharmacies (p = 0.97). Khooban et al (2013) evaluated drug delivery at centers offering family physician services in Khorasan Razavi province, and they found that the efficacy and effectiveness of drug delivery services are improved, which shows the success of outsourcing of pharmaceutical activities to the nongovernmental sector (11).

The ineffectiveness of pharmacy outsourcing is due to reasons all of which are more or less rooted in the weakness of the public administration system. In fact, upon entering the public sector, the strength and efficiency of the private sector are potentially constrained by obstacles inherent in public administration systems. In order to achieve better outcomes in outsourcing, consideration should be given to the evolution of the public administration system prior to or simultaneously with the assignment of activities (12).

The average score of all functional dimensions in pharmacies of the studied centers in terms of being outsourced or public is estimated to be relatively appropriate (between 3 and 4). Barati et al from Shiraz University of Medical Sciences showed that as far as quality indicators for pharmacy services are concerned, after outsourcing, in 60% of pharmacies, patient satisfaction was at a good level while in 40%, it was moderate. It was also shown that the number of clients for all pharmacies increased (13). The proper implementation and oversight of the pharmacy outsourcing in rural health centers affect the pharmacy environment, proper facilities and equipment at the pharmacy, pharmacy performance in compliance with obligations, the safe and relaxed feeling of clients when dealing with pharmacy staff, increased employee competence, and increased the patients' trust in employees in meeting their needs (14).

Our findings showed that the highest average score for stakeholder satisfaction (3.48 ± 0.68) was found in public pharmacies of urban-rural comprehensive health centers. The results of Danel and La Forgia (2005) in the United States showed that patients were more satisfied with health packages provided by the private sector in rural areas than those offered by public centers, which did not conform to the results of the current study (15). Insufficient consultation, as the most important cause of patient dissatisfaction, depends directly on the poor performance of the workforce employed in the pharmacies, who dispense prescriptions, and ultimately deliver the medications to the clients. Therefore, one of the most important reasons for this discrepancy in outsourced pharmacies vis-à-vis public ones is attributed to the lack of counseling skills in the private-sector pharmacies (16). A study in Saudi Arabia (2004) found that the most important factor reported by patients about dissatisfaction with pharmacy services was the long waiting time for receiving medications (17).

The present study showed that the lowest average score for the service delivery process (3.00 ± 0.93) was in outsourced pharmacies of urban-rural centers, which was estimated to be relatively appropriate (between 3 and 4). The results of Amani and Sadeghieh Ahari (2015) at Ardebil University were consistent with those of the present study. They found that the maintenance and delivery of pharmaceutical services in

pharmacies of health networks and health centers were at an acceptable level, and only less than 5% of the pharmacies were at a low level (18). One of the reasons for the low level of services offered at outsourced pharmacies is related to the inadequate design, regulation, contract supervision, intervention in the contractor's affairs, and lack of familiarity with the methods of assigning responsibilities to the private sector (19).

As far as working hours were concerned, the highest and lowest scores were related to the turnover in night-shift centers (3.32± 0.93) and the service delivery in round-the-clock centers (3.08±0.82). Amiri et al (2008) analyzed the costs of urban and rural health centers in Guilan province and showed that the current expenses of urban health centers (medications, vaccines, consumables, employee salaries and building maintenance) were 386 million Rials while in rural centers it was 214 million Rials. Finally, they concluded that managers should pay more attention to private sector services (20).

Among demographic variables, the pharmacy area had a significant relationship with the design and layout of the pharmacy. Factors that can turn pharmacies into standardized institutions with a fully healthy environment include providing continuous training (i.e., general and specialized instruction in form of educational brochures), holding workshops for pharmacy managers and personnel for improving the conditions, providing facilities for equipping pharmacies, optimizing their space, arranging and preserving medications, employing an adequate number of personnel, and monitoring the process of work and activities of the pharmacy (21). There was a significant inverse correlation between the distance from the center to the city's health center and stakeholder satisfaction. The quality of services provided to clients of pharmacies and their satisfaction is an indication of the overall status of service delivery, and organizations are strongly investing in the improvement of the activities that bring about customer satisfaction. Therefore, given the limited resources and facilities as well as the importance and priority of determining factors, it is necessary to improve the status of public and outsourced pharmacies under the family physician plan and rural insurance program (22 and 23).

There was a significant correlation between the average distance from walk-in clinics to the comprehensive health service center and support and logistics. The greater the distance, the poorer the support and logistics. Of the most important underlying problems affecting the manufacture, procurement, distribution, maintenance and support system of medications, are the culture of drug use, the general policies of healthcare, the number of staff (especially the number of pharmacists) and their efficiency. Measures to advance such systems require large and long-term nationwide planning (24).

One of the most important limitations of this research was that some health centers refused to complete the questionnaires. Moreover, lack of domestic and international scientific resources due to the unique structure of pharmaceutical affairs in comprehensive healthcare centers in Iran's health system was another shortcoming of this study.

Conclusion:

Among the demographic variables, the distance from the center to the city's health center, the average distance between the walk-in clinics and the comprehensive healthcare centers, and the pharmacy area had the highest effect on the functional dimensions of the pharmacies. Authorities and policy-making bodies in this area should consider these variables in designing the process of service delivery and outsourcing. According to the results of our study, the ineffectiveness of the outsourcing mechanism of pharmacies is due to a number of factors including administrative instability, inadequate familiarity of managers with the methods of assigning duties to the private sector, limited authority of executive directors, the interference in the duties of managers, the slow decision-making processes, and in some cases, the non-commitment of managers at different levels (top-level, middle-level, low-level) in engaging the private sector. Despite the fact that outsourcing is considered as a mechanism to achieve optimal performance and improve service quality, it seems that outsourcing is heavily affected by the type of service to be offered and how it is implemented, which calls for continuous evaluation and monitoring of the outsourced units. These should be regarded by managers and authorities as effective factors. Given the different conditions of provinces and cities of Iran in terms of health-clinical, geographic and economic factors, it is recommended that more research be carried out paying particular attention to the variables mentioned.

Acknowledgements:

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