

Optimization of Retail Pharmacy Operations: A Study of Hyderabad, Shaheed Benazirabad and Mirpurkhas Outlets

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Abstract:

In Sindh, estimated number of retail and wholesale store account for 15,000 [1] A limited number of studies have been conducted in Pakistan to evaluate the dispensing practices, storage qualities and standardization of pharmacies and drug stores. The general statistics suggests that pharmacies and retail store are operating in compromised conditions. Only 19.3% of the retail pharmacies, retail stores and distributors are licensed (Shah et al., 2016). Similar is the case with the pharmacists and managing personnel. only 12-22% were found to be sufficiently educated [2]. Therefore, this research study is aimed to analyses the existing pharmacy operations and drug rule of Sindh (1979 and 2010) law compliance in the three major urban centers of the Sindh province, i.e. Hyderabad, Shaheed Benazirabad and Mirpurkhas. Data was collected through questionnaire, entered in SPSS 20 and descriptive analysis and measured the existing condition through the distribution pattern and the frequency of responses in three cities. Results reveals that as compare to the Shaheed Benazirabad and Mirpurkhas the retail pharmacy market of Hyderabad are far better law compliant. All the cities lack behind in recruiting qualified staff, temperature maintenance, sun exposer, storage facility and cleanliness.

Keywords — Drug Rule, Retail Pharmacies, Law Compliance

I. INTRODUCTION

Medications and medical procedures are the fundamental tool to combat diseases. The usage, handling, storage and distribution formulate an integral part of the healthcare system. Mishandling of drugs turn them into life damaging tools [3]. The problem aggravates in developing countries.

Pakistan Pharmacy Act 1967 reads that pharmacy and drug stores should ensure that prescriptions and sales of medicines should be under supervision of the trained personnel, the authority to regulate pre-conditions of sales and sales of drugs is the provincial subject [4]. The Sindh Drug rule 1979, 2010 is specifically an Act to regulate the export, storage, manufacture, import, distribution, sales and purchase of drugs.

However, the previous studies suggest that pharmacies and retail store are operating in compromised conditions. Only 19.3% of the retail pharmacies, retail stores and distributors are licensed [1]. Similar is the case with the pharmacists and managing personnel. only 12-22% were found to be sufficiently educated [2]. The operations, storage, regulatory compliance and supply chain management is inadequate.

Therefore, this research study is aimed to analyses the existing pharmacy operations in the three major urban centers of the Sindh province, i.e. Hyderabad, Shaheed Benazirabad and Mirpurkhas.

Previous studies majorly conducted on the Karachi, Rawalpindi, Islamabad, Lahore and other cities of Pakistan [1]–[3], [5]–[7].

II. LITERATURE REVIEW

The prerequisite for the medicine life, efficiency and efficacy is the appropriate, hygienic condition, storage, temperature maintenance etc. in developing countries medicines are inappropriately handled and conveniently available even over the counter without prescription [3]. Retail pharmacist after qualifying certificate of five years education are able to provide general health care guidelines and ensures the correct dispensing and controlling of prescribed and non-prescribed medicines [8]. Medicines became ineffective if they are kept in the temperature higher than 25°C [8]. Literature suggests that more than 50% of medicines needs the temperature less than 25°C. Additionally, improper management, direct exposure to sun can damage the physical and chemical properties of the products [9]. Multi-vitamins, acetaminophens, antivirals, antibiotics, hydrocortisone, antidepressants, latex products and eye and ear drops are few of the example of such drugs.

In developing countries, pharmacies (chemist, retail and drug stores) not only serves as the sites of medicines sale and purchase but they are considered as the places of medical, health advice and information about common health problems and their treatment[6]. These interactions serve the interest of both buyer and seller. Previous studies and statistics show that these pharmacy personnel (shop keepers) have hardly acquired any formal education whereas the professional education and training is rare. However according to the Pakistan Pharmacy Act 1967 reads that pharmacy and drug stores should ensure that prescriptions and sales of medicines should be under supervision of the trained personnel [4]. Law further requires authorities to ensure provision of license on these grounds.

The pharmaceutical industry of Pakistan regulates under central command of Drug Regulatory Authority of Pakistan (DRAP) which operates under the Drug Act 1976 [10]. After 18th amendment health services became the provincial subject resultantly, every province also has a provincial regulatory authority. The pharmaceutical

industry and its supply chain of Sindh operates under the Sindh Drug Rules 1979 amended 27th April 2010 [11]. According to the Drug Act 1976, the authority to regulate pre-conditions of sales and sales of drugs is the provincial [4]. Sindh Drug Rules 2010 section 11 reads about the sale of drugs and section 12-18 gives a detailed account of sales licensing. Section 19 reads about the terms of cancelation of the licenses. The key requirements for the sale of drugs as described as follows:

- i. Premises size must be > 100 square feet for retail and > 200 for pharmacy and wholesale,
- ii. Proper facilities for drug storage for preserving drug quality.
- iii. Provision of Grilled door outside and glass door inside.
- iv. Drug Sales must be supervised by a registered pharmacist under Pharmacy Act 1967.
- v. Furthermore, at every drug store the original valid drug sales license should be displayed prominently in the store.

Currently, in Pakistan all medicines are easily available irrespective of their status as prescription or over the counter drugs [12], [13]. There are approximately 63,000 retail pharmacies in Pakistan and estimated 80% of the medicines are distributed through this channel to majority of population[14]. According to the pharmacy council of Pakistan, only 10% of pharmacist work in retail pharmacy [14]Whereas, Pharmacy retail operations is the process of delivering the drugs and equipment's from the stores or production facilities into the hands of consumers by logistics, retailing, marketing, and price control. It includes the resourcing, storage, management, staffing and serving customers. After rigorous literature review, we adopted record keeping, customers service, quality assurance, audits, pharmacy compliance with law, human resources management and, customer complaints resolution as the major variables of retail pharmacy operations as referred by the [15]

III. METHODOLOGY

As the research is aimed to analyse the Retail pharmacy operations of Hyderabad, Shaheed Benazirabad, and Mirpurkhas. Therefore, quantitative method of research was being used to complete the study.

Primary data was collected through questionnaire. Government of Pakistan, Drug regulatory Authority of Pakistan, and Provincial government and Provincial Drug regulatory do not provide any list of pharmacies operating in the country/Province. However, some of the data from the proceedings summer of 30th January 2019 from the Provincial Assembly of Sindh website was gathered. The data also reveals the district level number of registered pharmacies, i.e. Shaheed Benazirabad 337, Hyderabad 312 and Mirpurkhas 329[15]. Therefore, the data of pharmacies operating in three cities was acquired by the multinational and national pharmaceutical company distributors. The list includes the data of all licensed and unlicensed pharmacies visited by their representatives. The list might not be comprehensive, but it is believed that list will include majority of the operating pharmacy facilities of the three cities.

TABLE I
 NUMBER OF RETAILER AND WHOLESALER IN THE THREE CITIES

No	City Name	Total Population	Retail Pharmacies	Wholesalers
1	Hyderabad	1,850,000	582	120
2	Shaheed Benazirabad	300,000	148	22
3	Mirpurkhas	350,000	128	09

To check the reliability of the questionnaire, Cronbach's Alpha test run over the questionnaire items, as shown in table II. The results of Cronbach's Alpha of 0.859 tabulated for whole instrument. This alpha score was greater than 0.7 and similar to the previous studies. Therefore, the questionnaire is termed as reliable to measure the perceived objective of the study.

TABLE II
 CRONBACH'S ALPHA QUESTIONNAIRE RELIABILITY TEST

Cronbach's Alpha Based on Standardized	
Cronbach's Alpha ^a	Items ^a
.859	.863

The questionnaires were distributed among the targeted population using snowball sampling technique until the loop was being closed. 850 total questionnaires were distributed among the retail stores of three cities, i.e. Hyderabad 515, Shaheed Benazirabad 175 and Mirpurkhas 160. Whereas the response rate remains low in all three cities, about 40-46%. The response rate of Hyderabad was 40%, 210 stores agreed to cooperate and fill the questionnaire. Most of the retail store owners disagreed upon filling up questionnaire due to privacy concerns and dissented upon sharing any of the knowledge. To facilitate pharmacies further we remove the personal information section from the questionnaire, to give the respondent confidence that their responses will remain confidential.

TABLE III
 RESPONSES RECEIVED FROM THE RETAIL PHARMACIES

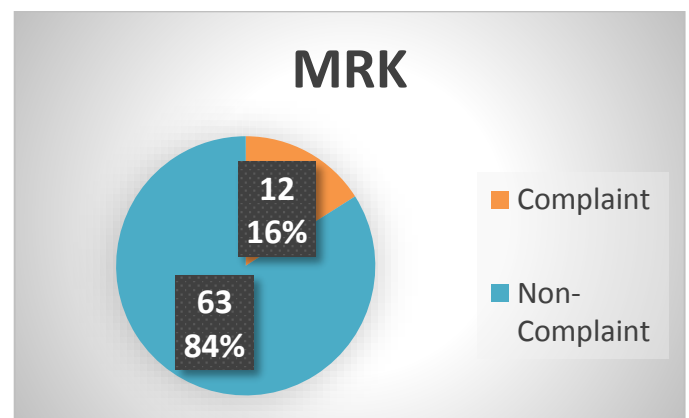
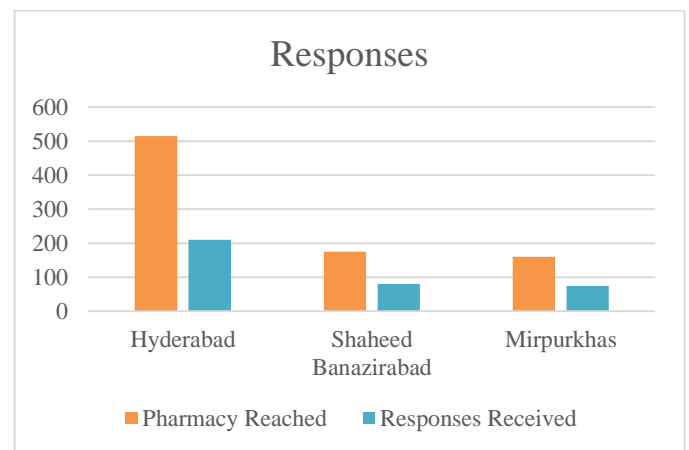


Fig. 1 Ratio of Compliance and Non-Compliant stores in Mirpurkhas, Source Author

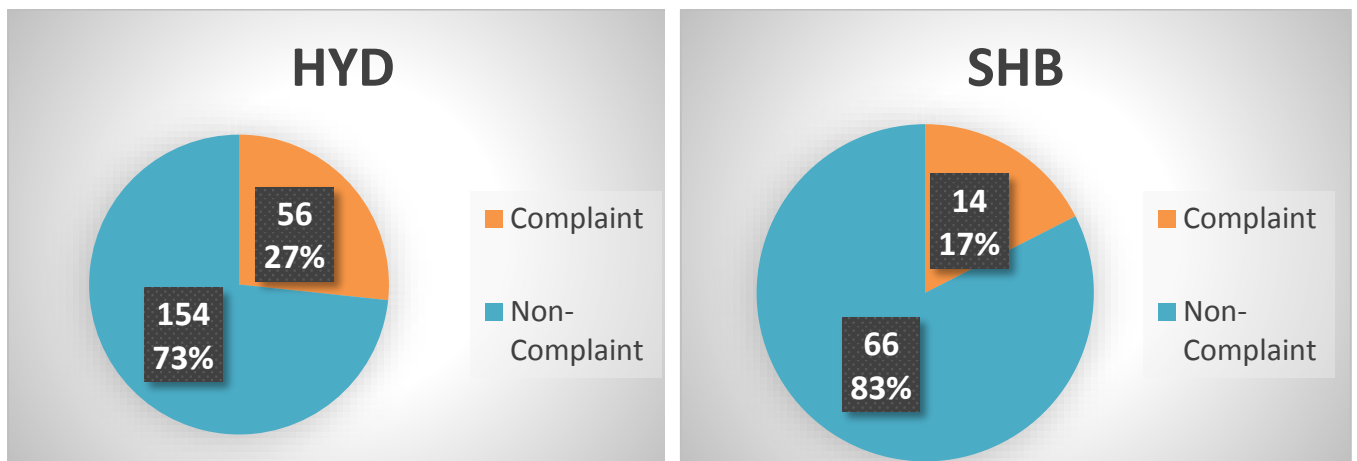


Fig. 2 Ratio of Compliance and Non-Compliant stores in Hyderabad and Shaheed Benazirabad, Source Author

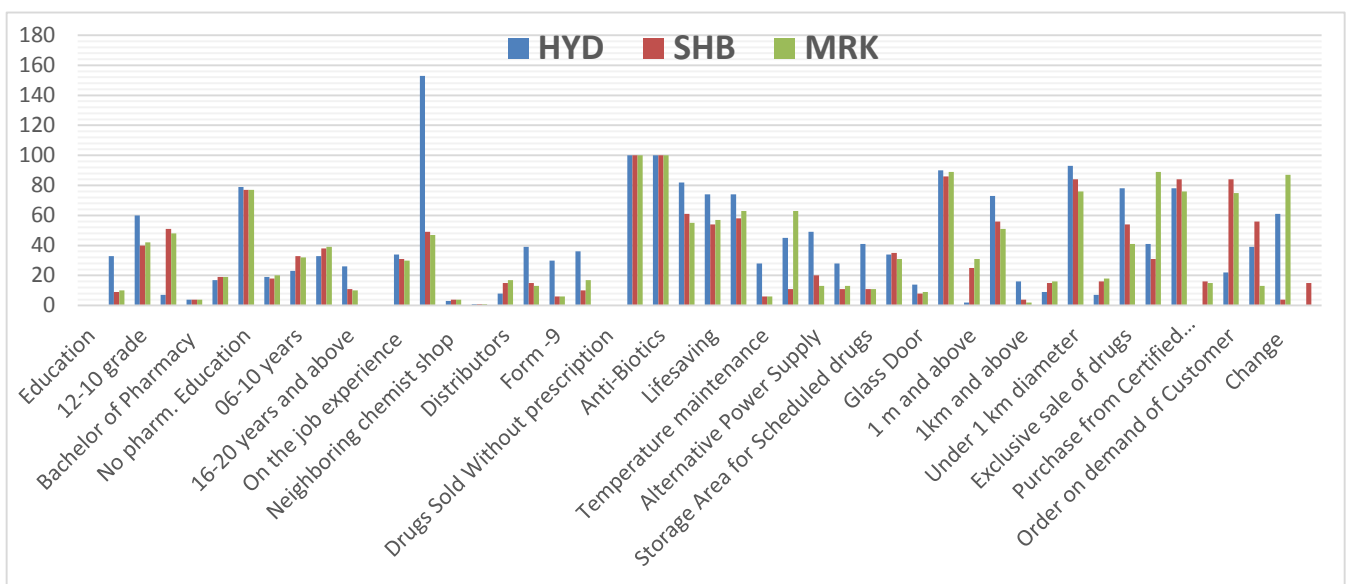


Fig. 3 Responses of three cities Retail Pharmacy stores, Source Author

IV. RESULTS

This study is in the continuation of another study in which we assess drug rule of Sindh (1979 and 2010) law compliance in three cities individually. Univariate analysis was performed to assess the association of different independent variables of the Sindh drug rule and retail operations compliance on the pharmacies that are operation by book.

Only 27% on medical stores in the HYD, 17% in SHB and 16% in MRK are found to be compliant to law partially. In total one sixth of the pharmacies were fully compliant. We considered those pharmacies law abiding which fulfill at least 50% of the licensing requirement. In figure we saw that number of qualified personnel was too low. Recruitment of the qualified pharmacist is the first and most important requirement of the licensing by government. In the literature review we witnessed

the same situation in many other developing countries[16]–[19].

Research objective of this study is to compare the Retail pharmacy operations of Hyderabad, Shaheed Benazirabad, and Mirpurkhas. Table IV and the discussion above elaborated the situation of retail pharmacy operations of the three cities

Hyderabad, Shaheed Benazirabad and Mirpurkhas. From the noncooperative behaviour of

pharmacy owners and low response rate it is evident that the pharmacy market of three cities is not functioning by book.

As mentioned in the above due to inadequate response rate maximum number of stores were reached out to achieve the numbers.

TABLE IV
CRONBACH'S ALPHA QUESTIONNAIRE RELIABILITY TEST

Variables	Indicators	Hyderabad Frequency (%)	Shaheed Benazirabad Frequency (%)	Mirpurkhas Frequency (%)
	Total Responses :365/850, n=365	210/515, n=210	80/175, n=80	75/160, n=75
Human Resource Management	Education			
	Graduation	69 (33%)	7(9%)	7(10%)
	12-10 grade	126(60%)	32(40%)	32(42%)
	9-5 grade	15(7%)	41(51%)	36(48%)
	Pharmaceutical Education			
	Bachelor of Pharmacy	8 (4%)	3(4%)	3(4%)
	Diploma in Pharmacy	36(17%)	15(19)	14(19%)
	No pharm. Education	166(79%)	62(77%)	58(77%)
	Others			
	Working experience in a pharmacy			
01-05 years	39(19%)	14(18%)	14(20%)	
06-10 years	48 (23%)	26(33%)	24(32%)	
11-15 years	69(33%)	31(38%)	29(39%)	
16-20 years and above	54(26%)	9(11%)	8(10%)	
Sources of Current Drug Information,				
On the job experience	72(34%)	25(31%)	23(30%)	
Medical representatives	112(53%)	39(49%)	35(47%)	
Neighbouring chemist shop	7(3%)	3(4%)	3(4%)	
Doctor	03(1%)	1(1%)	1(1%)	
Distributors	16(8%)	12(15%)	13(17%)	
Law Compliance	Availability of Form -6, (For Retail Operations)			
	Yes	81(39%)	12(15%)	10(13%)
	No	129(61%)	68(85%)	65(87%)
	Availability of Form -9, (For narcotics sells)			
	Yes	64(30%)	5(6%)	5(6%)
	No	146(70%)	75(74%)	70(94%)
	Visibility of License			
	Yes	81(36%)	8(10%)	13(17%)
	No	129(61%)	72(90%)	62(83%)
	Drugs Sold Without prescription			
Over the counter				
Anti-Biotics	210(100%)	80(100%)	75(100%)	
Vaccine	210(100%)	80(100%)	75(100%)	
Lifesaving	173(82%)	49(61%)	41(55%)	
	156(74%)	43(54%)	43(57%)	
Vaccine Available				
Yes	156(74%)	46(58%)	47(63%)	
No	54(26%)	34(42%)	28(37%)	
Temperature maintenance				
Yes	59(28%)	5(6%)	5(6%)	
No	151(72%)	75(74%)	70(94%)	

Law Compliance	Refrigerator			
	Yes	94(45%)	9(11%)	47(63%)
	No	116(55%)	71(89%)	28(37%)
	Alternative Power Supply			
	Yes	103(49%)	16(20%)	10(13%)
	No	107(51%)	64(80%)	65(87%)
	Air Condition			
	Yes	59(28%)	9(11%)	10(13%)
	No	151(72%)	71(89%)	65(87%)
	Storage Area for Scheduled drugs			
Yes	86(41%)	9(11%)	8(11%)	
No	124(59%)	71(89%)	67(89%)	
Floor Washable				
Yes	72(34%)	28(35%)	23(31%)	
No	138(66%)	52(65%)	52(69%)	
Glass Door				
Yes	29(14%)	6(8%)	7(9%)	
No	181(86%)	74(92%)	68(91%)	
Direct Sun Exposure				
Yes	189(90%)	69(86%)	67(89%)	
No	21(10%)	11(14%)	8(11%)	
Distance From next Pharmacy				
1 m and above	4(2%)	20(25%)	23(31%)	
Less than 1m	154(73%)	45(56%)	38(51%)	
1km and above	33(16%)	3(4%)	2(2%)	
Less than 1 km	19(9%)	12(15%)	12(16%)	
Distance from Hospital/ Health facility				
Under 1 km diameter	175(93%)	67(84%)	57(76%)	
Greater than 1 km	35(7%)	13(16%)	18(24%)	
Customer service	Exclusive sale of drugs			
	Yes	163(78%)	43(54%)	
	No	47(20%)	37(46%)	
Record Keeping	Record keeping (Sales, Purchase, Salaries, Utilities)			
	Yes	86(41%)	25(31%)	
	No	124(59%)	39(49%)	
Quality Assurance	Mechanism for Quality Assurance			
	Purchase from Certified Distributor	163(78%)	67(84%)	
	Maintain the storage Standards	-	13(16%)	
	Order on demand of Customer	41(22%)	67(84%)	
Complaint Resolution	Mechanism for Complaint Resolution			
	Return	81(39%)	45(56%)	
	Change	129(61%)	3(4%)	
	No Returns	-	12(15%)	

850 questionnaires were distributed among the medical stores of the three cities and received 365 filled questionnaires. Hyderabad 210/515, Shaheed Benazirabad 80/175, and MirpurKhas75/160 respectively. Response rate was 40%-45%. Most of the stores were owned by pharmacy manager. 81% stores were located near the health care facility.

Only 4% of the pharmacies of Hyderabad (n=8), Shaheed Benazirabad (n=3) and Mirpurkhas (n=3) have the qualified staff. The number of educated staff was however far better in three cities, HYD (n=69, 33%), SHB (n=7, 9%) MRK (n=7, 10%). On

average 34% of the staff acquired medicine knowledge through job experience.

In HYD (n=81) 39% of the stores had the pharmaceutical sells license, during our observation we found it out that except few pharmacies, that were newly established most of the stores had expired license with them. Similar was the case with SHB and MRK. Pharmacies in three cities were mostly selling narcotics with acquisition of Form-9 License, in SHB and MRK only 6% of the stores had the license of narcotics sells. It was observed that customers could buy any medicine without prescription, however the pharmacists

insisted that they do not provide any medicine without prescription except over the counter medicines and to their regular customers.

Only 28 % (n=59) stores in HYD 6% stores of SHB and MRK have the temperature maintenance devices installed in their pharmacies.

HYD (n=94) 44%, SHB (n=9) 11% MRK (n=47) 63% stores have the Refrigerator facility however, data reveals that 74% stores in Hyderabad (n=156), 58% in SHB (n=46) and 63% stores of MRK (n=46) sell vaccinations. It means that either the store owner keeps vaccinations expose to temperature or the other possibility is they put it in the nearby refrigerator of other pharmacies. 11% of pharmacies in MRK and SHB have the washable floor and in HYD its 40%, although the floor was washable in these stores, but we observed that washing would be too occasional once in year or two, or may be less than that. 90% of the stores have the direct exposure of sun, which may result into increase of temperature inside store and harm the showcase life of medicines.

To maintain the quality and standard of the store pharmacy owner buy their products from the renowned and certified producer. However, the complaint which pharmacist usually faces is regarding sales and purchase and price of medicine, 39% of store in HYD returns their medicines, 55% in SHB and 10% in MRK.

The figures above show that as compare to the Shaheed Benazirabad and Mirpurkhas the retail operations in the pharmacy market of Hyderabad are far better. All the cities lack behind in recruiting qualified staff, temperature maintenance, sun exposer, storage facility and cleanliness. All these operations are integral to maintain the health, efficacy and effectiveness of medicines, consequently for the improvement of health of general public.

V. CONCLUSIONS

To conclude, we can say that as compare to the Shaheed Benazirabad and Mirpurkhas the retail operations in the pharmacy market of Hyderabad are far better. All the cities lack behind in recruiting qualified staff, temperature maintenance, sun exposer, storage facility and cleanliness. All these

operations are integral to maintain the health, efficacy and effectiveness of medicines, consequently for the improvement of health of general public. Results reveals that retail operations are inefficient, and procedures faces delay due to idleness of the institutions, producer/distributor and buyers. The role of Sindh health department as regulator needs improvement, alongside producer/distributor and buyers needs to play an active role in the compliance of law. Retail outlets should be incentivized and rent seeking behavior should be discouraged on the institutional and individual level.

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