



Pharmacy preparedness during phases of pandemic COVID in Odisha, India

Sonali Kar ^{1,*}, Ankita Banerjee ¹, Priyanka Lakshmi ¹, Ansuman Kar ¹, Varsha Shrivastava ¹, Suvam Swain ² and Swaroop Prakash Parida ²

¹ Department of Community Medicine, Kalinga Institute of Medical Sciences, KIIT University, Bhubaneswar, Odisha- 751024, India.

² Clinical research coordinator, COVID vaccine study, Kalinga Institute of Medical Sciences, KIIT University, Bhubaneswar, Odisha- 751024, India.

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Abstract

The COVID 19 pandemic is one of the worst pandemics that struck the world, after the Spanish flu in 1918 and stalled the entire public health care system. Initially in the absence of definite drugs, the primary mitigation priority was prevention. Its web like spread put pressure on the accessory health care systems too and the most affected were perhaps the Pharmacy. In India the pharmacy are an integral part of health services, with desperate demand for an array of supplies and drugs, affecting the Pharmacies and their functioning tremendously, they too have contributed immensely in the mitigation strategies of the government. The study assesses the pharmacies in terms of their preparedness to cope with the demands and enhancement of role of the pharmacists to provide cost effective and consumer friendly services. Online services were good and satisfactory and were offered by only the big scale pharmacy (67%) ;Pharmacists from small scale set ups were yet to be vaccinated (33.3%), preparedness was optimum in terms masks and sanitization of premises, but IEC materials were missing in the small shops(44.4%); supplies were good and surplus but small scale ones sometimes sold the cost effective one's; adjuvant drugs were in excess but drugs for moderate to severe form of COVID were limited to facility based pharmacy only. Non COVID medications, in order to prioritize COVID drugs, went missing. Stock charts were displayed by big and middle level shops. Study suggests the pharmacy role in managing a pandemic is up to date and periodic checks and regulations should be revised as per needs of the time.

Keywords: Private Pharmacy; PPE; COVID vaccines; COVID drugs; IEC material

1. Introduction

In India, public health and emergency preparedness and response (EP&R) is often limited to mainstream health care providers like doctors and nurses. This activity is often evoked as a mitigation strategy to major disasters or epidemics and the objectives are short and focused. The COVID 19 pandemic, has offered a unique extended opportunity to involve the entire gamut of health care workers including a whole lot of other frontline workers like police, the municipality, transport systems and civic workers and this has been like this over a year, since latter part March 2020 to be precise.

With the comeback of the Infectious diseases with a vengeance, the only silver lining is that the major initiative for its containment is a plethora of preventive measures like screening, vaccinations, testing, medical and pharmaceutical countermeasures, as well as ensuring medication safety and access during natural disasters and pandemics. The paramedical professionals like Pharmacy professionals are considered essential and ready partners in wake of this urgency [1,2]. In 2018, WHO statement accorded India having 8.5 medical doctors, 17 nurses, 1.8 dentists and 8.8 pharmaceutical personnel per 10,000 population[3]. As of March 2019, as per a document 1,125,222 registered

* Corresponding author: Sonali Kar

Department of Community Medicine, Kalinga Institute of Medical Sciences, KIIT University, Bhubaneswar, Odisha- 751024, India.

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pharmacists and about 650,000 registered pharmacists [4] of varied educational backgrounds reportedly working in 800,000 retail pharmacies[5] and fortunately this group unlike doctors and nurses are not limited to the accessible cities, but are spread across the expanse of the country and with basic knowledge in diseases and management.

Odisha is perhaps one of the very few states in the country which has caught the world's attention for its astute and prompt handling of unprecedented cyclones and epidemics since the debacle of the super cyclone in 1999[6]. For COVID pandemic also, one of the worst affected cities in both the phases of the pandemic was Bhubaneswar, capital of the city. This city has currently been the focus of upgraded emerging health care facilities, industrial and education hubs. Hence, this study was planned in this city to assess the preparedness of private pharmacies, to help mitigate the COVID situation in the city as well in the state, with regards to physical safeguards, availability of drugs, devices, Personal Protective Equipment's (PPE) and disseminating scientific information and playing a role in the community-based strategies to control the disease.

Objective

- To assess the preparedness of COVID appropriate norms in Pharmacies of Bhubaneswar.
- To quantify the demand driven services provided by the different tiers of pharmacy in the COVID times.

2. Methodology

2.1. Study site

Bhubaneswar city, capital to state of Odisha; also, a hot spot for COVID positive cases in both Phase 1 and Phase 2 of the pandemic.

2.2. Study period

March to June 2021.

2.3. Study universe

Private Pharmacies registered under State Drug Controller in Bhubaneswar City, Odisha.

2.4. Study design and sample

Observational point descriptive study was conducted using a semi structured checklist to assess the preparedness of randomly selected pharmacy during pandemic COVID 19, as well as have a superficial check on availability, accessibility, costing of medications and essential items in the pharmacies, adapted from a similar Qualtrics® survey software used for a pharmacy study [6,7].

2.5. Sampling

Multistage stratified random sampling used to select the pharmacy

2.6. Inclusion criteria

Private pharmacies in Bhubaneswar and those willing to participate.

2.7. Exclusion criteria

Pharmacies that are run by government were excluded as they have their stringent regulatory norms and access to data is limited, and warrants a separate institutional ethical approval, which was beyond the scope of this study.

2.8. Detailed Methods

The urban development area of this city consists of the Bhubaneswar Municipal Corporation (BMC), which divides the city of Bhubaneswar into 3 zones:

- North Zone
- South-West Zone
- South- East Zone

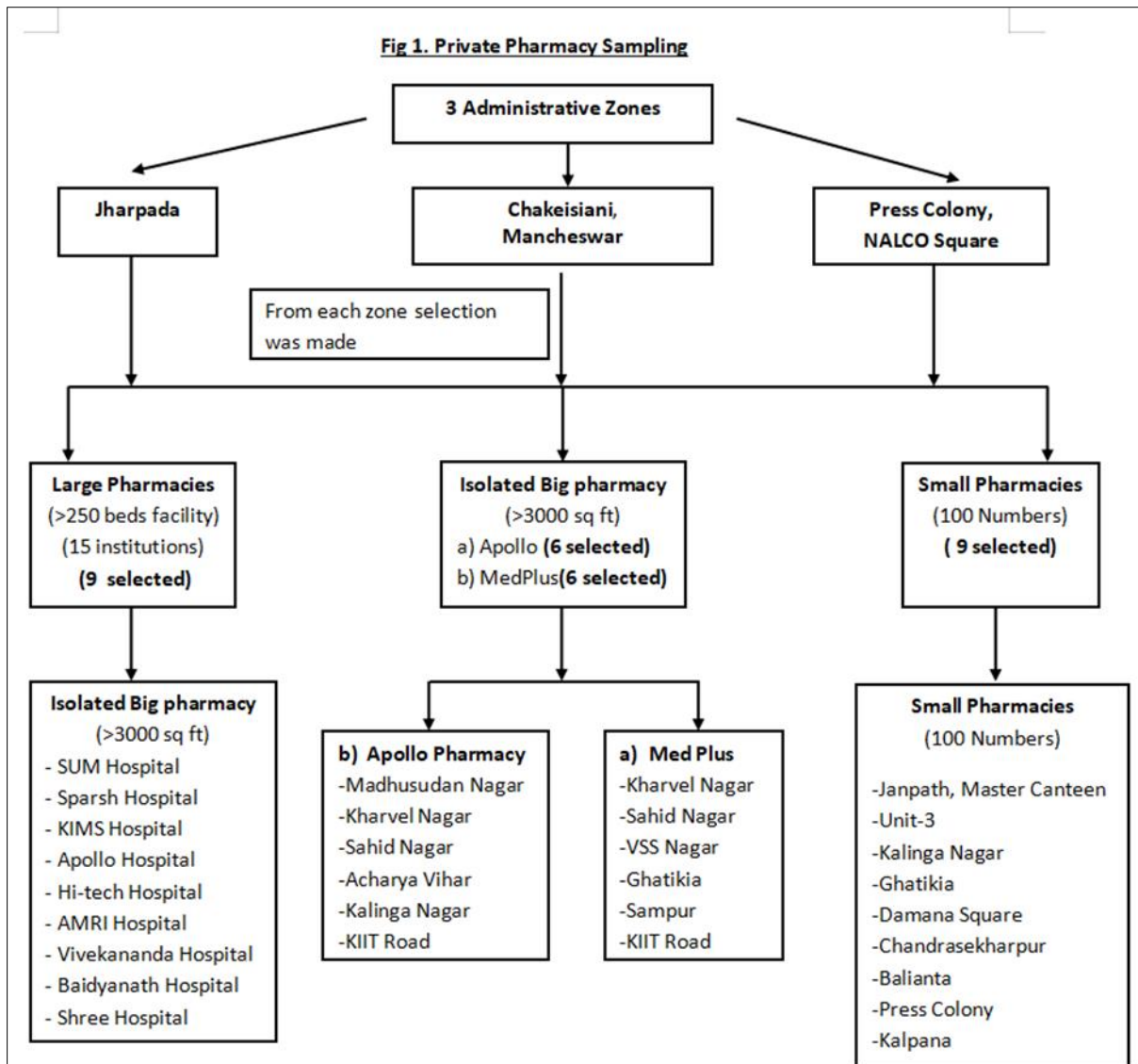


Figure 1 Private Pharmacy Sampling

Private Pharmacy are broadly categorized into 3 heads: one which are attached to a health service delivery facility like nursing home/ private hospitals, one brand run like Apollo/ Medplus and lastly independently small run units.

The Drug Controller Office of the state was approached and a list of the pharmacies running under the 3 administrative zones of Bhubaneswar was obtained for all the 3 categories. In each zone, three large pharmacies (Private facility attached to hospital or nursing home run) and 2 each from Apollo and Med-Plus brand and 3 small pharmacies (independent shops) were approached with a formal consent letter. Thus 9 large; 12 (Apollo & Medplus) and 9 small pharmacy stores consented and were included to form the final sample of 30, as depicted in figure 1. A study team was formed with investigators and pharmacy graduates and vaccine motivators staff and given specific responsibility to observe and note the various study parameters using a predesigned, pretested checklist starting from the entry point of the pharmacy. The checklist takes into consideration the COVID norms that are being reinforced in the state and the pharmacy names were kept anonymous and the data collated was analyzed as a cumulative data. The purpose is to do a surface check on the pharmacy milieu, who are a very essential stakeholder in this pandemic management and bring out their utility and efforts in pandemic control in a scientific manner.

2.9. Ethical Approval

The study was undertaken as a part of the Vaccine campaign in the city for volunteers for vaccination drive and educational initiative for awareness for COVID 19 and thus was exempted from any ethical approval. The COVID vaccination motivation campaign, comes under the routine work of the Department of Community Medicine and was

targeted to garner participation for a COVID vaccine trials, which in turn were ethically approved (KIIT/KIMS/IEC/505/2020; Dated: 07.12.2020).

2.10. Data Analysis

All questionnaires were checked for completeness at the end of data collection. Data was entered into Microsoft excel 2007 spreadsheet and analyzed using SPSS software using proportions and percentages for categorical and nominal variables. Responses from the questions were coded before entry into the computer.

3. Results and discussion

After application of the inclusion and exclusion criteria and depending upon the willingness of the pharmacy to participate in the study, 45 pharmacies at various levels were approached and eventually the study results are from 30 consenting and participating pharmacies.

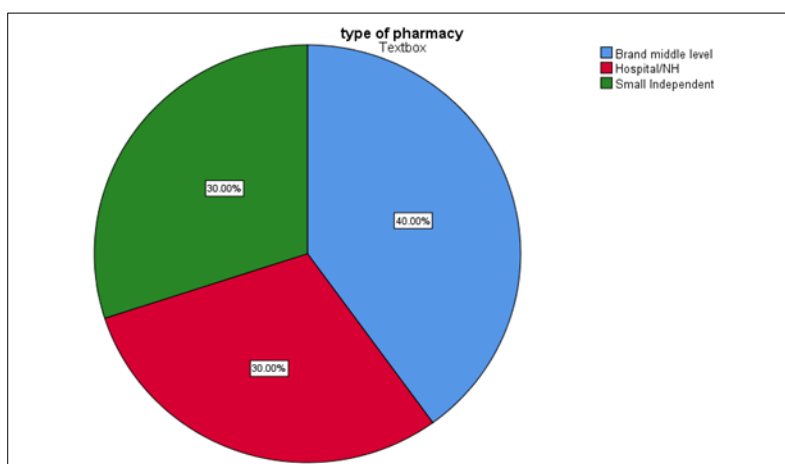


Figure 2 Pharmacy broadly taken up in the study sample

As shown in Figure 2, 9 pharmacy attached to big hospitals, 12 independents branded (Apollo 6; MedPlus 6) and 9 small shops were taken up in the study after their due consent. The small shops were either closed or mostly refused to participate in the survey. The number of staff recruited varied from 2 to 30 in number; maximum purchase reported one time was 1 lakh Rupees during study period (due to severe hospitalized COVID care) and minimum 5 Rupees INR (for headache); all hospital attached pharmacy reported a 8 hourly shift duty, while the middle level ones 12 hour shifts during pandemic and small independent ones had varied working times from 5 hours to one even reporting managing for 14 hours. The big and middle pharmacy reported working on all days of the week even during the lockdown or shutdown phase, the small ones reported closing as per inconveniences. The chain of middle level and hospital pharmacy is quite adequate and accessible, which explains how Bhubaneswar city coped with the pandemic well. Acute shortage of admission beds or drugs and supplies did not plague the city in either of the phases or more specifically in the study period, unlike Delhi, Bangalore and Mumbai [8].

Table 1 depicts the array of preparedness and services offered by the types of pharmacy. All staff in facility attached pharmacy, 91.7% of middle level and 33.3% of the small-scale pharmacy had received vaccination against COVID. This was because, the hospital attached pharmacy were prioritized under the government policy to be vaccinated on priority, due to maximal risks to exposure, and the others had to be vaccinated as per general public [9]. Income for the hospital pharmacy staff (at the supervisory level) was noted to be >20000Rs; for the middle level 83.3% got in range of 10 to 15000 Rs; but the small-scale pharmacy staff 77.8% received less than 10000 INR. For all pharmacy, the recruitment criteria were at least B. Pharm degree.

Coming to physical changes or inclusions to deal with the pandemic, physical barricades between the dispensing counter was made for 91.7% middle level pharmacy; 55.6% for the ones attached to hospitals and in 44% of small-scale pharmacy. These barricades were mostly transparent think polythelene curtains segregating the public from the cash counters. The small shops were mostly tying a rope to segregate and maintain 1 meter distance between dispensing area and public. Thermal testing for fever was done only in those attached to service facilities and less than 10% in both the other two category.

Table 1 Comparison between preparedness and services in the 3 levels of private pharmacy

Parameters		Pharmacy+ Hospital/Nursing home(n=9*)	Independent big pharmacy (n=12)	Small shops (n=9)	Total
Staff vaccinated against COVID	Yes	9(100.0)	11(91.7)	3(33.3)	23
	No	0(0)	1(8.3)	6(66.7)	7
Income of Staff	<10,000	0(0)	1(8.3)	7(77.8)	8
	10 to 15,000	6(66.7)	10(83.3)	2(22.2)	18
	15 to 20,000	1(11.1)	1(8.3)	0(0)	2
	above 20,000	2(22.2)	0(0)	0(0)	2
Barricade for general public	Yes	5(55.6)	11(91.7)	4(44.4)	20
	No	4(44.4)	1(8.3)	5(55.6)	10
Trained on COVID	Yes	9(100)	10(83.3)	2(22.2)	21
	No	0(0)	2(16.7)	7(77.8)	9
IEC for COVID	Yes	9(100.0)	12(100.0)	5(55.6)	26
	No	0(0)	0(0)	4(44.4)	4
Use of mask	Yes	8(88.9)	8(66.7)	4(44.4)	20
	No	1(11.1)	4(33.3)	5(55.6)	10
Payment precautions	sanitizer	2(22.2)	6(50)	9(100)	17
	Gloves	0(0)	1(8.3)	0(0)	1
	sanitizer and gloves	7(77.8)	5(41.7)	0(0)	12
Daily sanitization	Yes	9(100.0)	12(100.0)	8(88.9)	29
	No	0(0)	0(0)	1(11.1)	1
Staff tested for positive	Yes	7(77.8)	1(8.3)	1(11.1)	9
	No	2(22.2)	11(91.7)	8(88.9)	21
Stock chart	Yes	3(33.3)	12(100.0)	0(0)	15
	No	6(66.7)	0(0)	9(100.0)	15
Spare stock room	Yes	8(88.9)	4(33.3)	2(22.2)	14
	No	1(11.1)	8(66.7)	7(77.8)	16
Rest area	Yes	5(55.6)	3(25.0)	1(11.1)	9
	No	4(44.4)	9(75.0)	8(88.9)	21
Handwash available	Yes	9(100.0)	8(66.7)	4(44.4)	21
	No	0(0)	4(33.3)	5(55.6)	9

Any specialized training on COVID had been imparted to staff of the 3 sets in the order 100%, 83.3% and 22.2%, for institutions, medium and small-scale pharmacy. IEC charts on COVID preventions were prominently put up both in all facility based and middle level but 55.6% only for small scale. Appropriate mask use (mostly surgical/N95) seen in 88.9% of facility based; 66.7% of medium scale and only 44.4% of small-scale pharmacy. Modes of accepting payments involved use of sanitizers to clean hands after receiving money/ gloves alone/ both. Sanitizer use alone was 50% in

middle level, and 100% in small scale, but facility based used both gloves and sanitizers ie 77.2%. Daily sanitization was 100% in institution based and middle level and 88.9% in small ones. Interestingly in spite of reports of some of the best COVID appropriate behavior adherence and full vaccination coverage of all its staff 77.9% of facility-based pharmacy reported a case of COVID positive in the last 2 months; while small scale was 11.1% and middle level 8.3% of the sample. This reemphasizes the pertinence of stringent COVID appropriate norms in all levels of the pharmacy as this population are the second liners for the disease management, which too is very crucial for the disease containment.

Accessory services like stock out charts were put out meticulously for the middle level pharmacy and provisions of rest rooms and store stock spaces were best in facility-based pharmacy i.e nearly 89%. Due to restricted movement on roads and also increased recommendation of home isolation for huge number of asymptomatic, 100% of the middle level pharmacy were providing online delivery of prescriptions, with some riders attached, like within 5km radius of the address of pharmacy and some added billing more than 500Rs. The delivery persons were always in mask and gloves as reported in 89% of the cases the medications ordered online were for probable COVID medications. Besides the cost of Goods and Services tax (GST), and a nominal 10% extra for the travel cost of the delivery person, which was usually on two wheelers. Mobile application-based delivery was also available on Med Plus, which was maximally used by public, and the application had a provision of feedback and scoring of services. Usually, good scores were received and seldom there were mistakes regarding the order. These professional and quality-based approaches made it easier for general public to get these health services at affordable prices at their doorsteps, even under the restricted milieu of lockdown and fear of the disease. Similar satisfaction has been noted for such online community pharmacy services across Europe, which bore the major brunt of the pandemic in cities like Spain, France, Italy and even Saudi Arabia and 91% like in this study expressed immense satisfaction for such services [10,11,12].

As far as supplies are concerned, masks, gloves and devices like pulse oximeters were available in abundance in the big and middle level pharmacy and priced almost thrice the normal prices which was also reported from studies in Pakistan and S Arabia [11,12]. The small-scale ones sometimes sold the cost-effective ones but their quality was questionable. Drugs for severe form like Remdesivir would be mostly out of stock in close and middle level pharmacy at the peak of the pandemic and then normalize latter. Adjuvants like Vit C, Vit D, Zinc combinations, Paracetamol registered highest sales besides antibiotics Azithral, Doxycycline, blood thinners (in big pharmacy) and Ivermectin. In fact these drugs were called COVID drugs. Most pharmacy in Bhubaneswar reported shortage of anticancer and other uncommon diseases in order to prioritize for the above drugs. Very few ie only 25% of all the pharmacy, especially the big and mid-level had put up latest government updates and directives regarding drugs and management of the disease in their pharmacy. Another short coming was unlike in west, they did not offer any consultation on any prescription or any symptoms [11,12].

4. Conclusion

This simple yet pertinent study essays the indispensable role of pharmacy in managing the pandemic situation in an area. A great deal of robust preparedness was seen in all levels of pharmacy in the city of Bhubaneswar and it can be appreciated that the online smart delivery, may have surreptitiously helped in managing the pandemic, wherein in both phases a decline in cases is seen in the city within two to three weeks. Permitting COVID Vaccinations is a major gap seen in this pharmacy as the government during the period of study, had not made any decision on opening up private pharmacy to manage vaccinations, as due to the observation for half an hour component, in India, this was permitted only in health facility (PHC, big public and private hospitals and medical colleges). Monitoring of the pharmacies by regulatory authorities was deemed adequate, looking at the preparedness, though the team could not gather evidence on that and especially in case of small-scale pharmacies. Another big limitation is the lack of robust sampling, which was not possible given the lockdown situation and also hesitation to participate in the assessment. Thus, the study findings may not be dealt with complacency and think all is well, as we may have missed more significant findings among those who did not concede to the survey. However, it is strongly concluded that the pharmacy can be used as a media for disseminating positive information and services regarding a disease condition and its multitude presence can be exploited to pass on simple community health messages and behaviors. In a populace country like India, these are very strong contenders to be used as frontline workers and may be more optimally used in future, as hinted in the study, besides only being used for dispensing supplies and medicines.

Compliance with ethical standards

Acknowledgments

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Disclosure of conflict of interest

No conflict of interest.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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