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'A smile is most important.' Why chains are not currently the answer to quality concerns in the Indian retail pharmacy sector



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ABSTRACT

Chain pharmacies are expanding in many low and middle-income countries (LMICs). Historically practices of independent pharmacies in these settings have been poor, and there is a need to understand how these new organisational arrangements are affecting the functioning of pharmacies, and the implications for public health. Drawing on economics literature, we develop a set of hypotheses as to how chains could address the quality failures that typify LMIC retail pharmacy markets, and explore these hypotheses using a set of 38 in-depth interviews, conducted in Bengaluru, India between 2014 and 2015. We look specifically at how being organised in a chain affects several key behaviours: employment of qualified staff; the ability of government authorities to focus regulation on central management structures; the propensity for firms to self-regulate; and the impact of the potentially lower-powered incentives faced by chain employees compared to independent owners. In practice, few differences were identified between chain and independent organisations in these areas. Not all chains were operating with a qualified pharmacist (akin to independent shops). Drug control authorities did not take advantage of the existing chain architecture to enforce regulation. Chains did heavily self-regulate but their focus was on customer service, rather than aspects of quality relevant to health outcomes. Additionally, widespread bribery in the sector was a barrier to effective drug control. Finally, the incentives faced by chain employees were not low-powered due to rewarding sales targets and pressure to increase sales. We observed that chains exerted strong influence over their staff but the potential to exploit this to improve quality of care is not currently being realised. A shift in focus from customer satisfaction to outcomes of public health concern is unlikely without either financial incentives or strengthened external regulation.

1. Introduction

Pharmacies and drug stores are the first point of care in many low and middle-income countries (LMICs) for a range of medical conditions, including respiratory infections, fever, malaria, injury, body and dental pains, skin infections, diarrhoea and sexually transmitted infections (Igun, 1987; Kamat and Nichter, 1998; Saradamma et al., 2000; Smith, 2009b; Francis N Wafula et al., 2012). Practice in these outlets is often characterised by deficient knowledge, poor adherence to treatment guidelines, inappropriate supply of medicines, and insufficient counselling (R. Miller and Goodman, 2016; Smith, 2009b; Francis N Wafula et al., 2012). In most LMICs, pharmacy retailing has traditionally been dominated by owner-run shops, but chain pharmacies are now a growing organisational arrangement for delivering pharmacy services in these settings. Given the limited evidence-based policy options to improve pharmacy practice in LMICs (R. Miller and Goodman, 2016; Smith, 2009a; F. N. Wafula and Goodman, 2010), chain pharmacies

may have potential to address quality challenges. Despite emerging interest amongst the global health community, empirical research on pharmacy chains in LMICs is scant (Lowe and Montagu, 2009). Work from high-income countries has explored the effect of pharmacy type on various outcomes (eg Fritsch and Lamp, 1997; Kalsekar et al., 2007) but is of limited applicability to LMICs given the strength of regulatory frameworks in these settings. With either established or growing corporate pharmacy retail sector in Mexico, Brazil, South Africa, Nigeria, Kenya, Uganda, India and The Philippines (Center for Health Market Innovations, 2014; IMS consulting group, 2014; Lowe and Montagu, 2009), there is a need to understand the effects of these new organisational forms on the functioning of pharmacies and the implications for public health.

Recent years have seen the steady growth of pharmacy chains in India. There are estimated to be around 800,000 medicine retailers, with chains accounting for 4% of these but growing at a rate of 25% per annum (IMS consulting group, 2014; Northbridge Capital, 2011).

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Box 1

Classification of Prescription Only Medicines in India.

In India POMs are classified as either H, H1 or X. Under the Drugs and Cosmetic Rules 1945, Schedule H medicines should only be sold with a valid prescription from a doctor. In light of the high sales of these medicines in India without a prescription, Schedule H1 was introduced in 2013. The H1 list comprises of 46 medicines (mainly 3rd and 4th generation antibiotics and anti-tuberculosis medicines) and require that the identity of the patient, contact details of the prescriber and the name and dispensed quantity of the drug be recorded in a designated register. Schedule X comprises of a small number of narcotics and requires the pharmacy to retain the prescription for 2 years after dispensing.

The research presented in this paper comprises part of a broader mixed-methods study of Bengaluru's chain pharmacies which sought to understand the public health implications of this organisational arrangement. The quantitative component included a standardised patient (SP) study comparing the quality of management of two tracer conditions at chain and independent pharmacies (diarrhoea and suspected TB) (R. Miller and Goodman, 2017). The SP study showed that quality of care, as measured by adherence to treatment guidelines, was equally poor in chain and independent pharmacies. No shops managed the diarrhoea patient according to current guidelines and fewer than half for the tuberculosis (TB) case. However, chains sold significantly fewer harmful and prescription-only medicines (POMs) for the diarrhoea patient compared to independent shops (*ibid*). The survey also revealed that whilst overall sales of POMs were high, sales of the more restricted H1 (see [box 1](#)) subcategory were low, with chains not selling any of these medicines.

Drawing on a set of in depth interviews and insights from economics literature, the aim of this paper is to qualitatively explore how and why the organisational structure of pharmacy chains may affect the quality of service provision. Specifically, we investigate how the chain structure might influence the knowledge of pharmacy staff; the way in which they are regulated; and the profit motives faced by employees, in comparison to independent pharmacy owners.

1.1. Theoretical approach

Various bodies of theory provide insights into the study of pharmacy arrangements, such as those from neo-classical economics, industrial organisation and regulatory theory. Conventional economic analysis of pharmacy markets in LMIC typically focuses on the high likelihood of various market failures. Inappropriate prescribing of medicines can be associated with negative externalities (Laxminarayan, 2003) and information is highly imperfect (Mushkin, 1958). Further, the nature of information in health markets is asymmetric (Arrow, 1963). Within the agency relationship that results, it has been suggested that providers do not always act as perfect agents; rather they influence demand for their own self-interest, trading off income against patient welfare (McGuire, 2000; Morris et al., 2007). Fee for service (as in a pharmacy) is the provider payment system most associated with the resulting 'overserving' patients (Hennig-Schmidt et al., 2011; McGuire, 2000).

Drawing on theoretical insights, we develop a set of hypotheses as to how chains could address some of these market failures. A prior literature review of pharmacy practice in low-middle income Asian settings identified regulation, knowledge and profit motive as three key determinants of pharmacy provider behaviour (R. Miller and Goodman, 2016). [Fig. 1](#) presents a conceptual framework detailing how being organised as a chain may influence these determinants. Enforcing regulation is costly and logistically difficult due to the fragmented nature of pharmacy retail in India. Through consolidation (in chains) regulation could be improved. First, state regulation could be focussed on central management structures; essentially, the regulator could make firms take responsibility for their branches. Second, firms may self-regulate in order to preserve brand identity and image. This may, for example, lead to greater presence of qualified pharmacists at the point

of service delivery, who are currently often absent (Basak et al., 2009; Kamat and Nichter, 1998). Several authors have alluded to the potential of such 'market-based' regulatory mechanisms within pluralised, unregulated markets where traditional approaches have failed e.g. (Bloom et al., 2008; Ensor and Weinzierl, 2006). These reputation-based ways of delivering health care are argued to build trust and can, in theory, help to overcome the information asymmetry that characterises transactions in healthcare (*ibid*).

Another reason why quality may improve in a chain situation arises from the different incentive structures in place for pharmacy owners as opposed to managers. High-powered incentives exist when the profits of transactions flow directly to the parties involved (Frant, 1996). In the case of independent pharmacy owners, the potential for higher profits provides incentives to behave opportunistically. A hierarchical structure (as in a chain) can attenuate opportunism because the incentives faced by the personnel working in the pharmacy are low-powered (if salaried). While chain owners themselves will have incentives to maximise profits, these incentives may not be transmitted directly to their frontline staff. This could improve some aspects of treatment in public health terms, as a number of poor practices have been found to be linked to profit maximising strategies (which require effort), for example, the sale of medicines with high profit margins (R. Miller and Goodman, 2016). Other aspects of good practice, such as counselling, are effort intensive and these practices may worsen among employees of chain pharmacies with a tendency to shirk. Some economists suggest that incentive schemes are the key to overcoming these moral hazard problems (Harris and Raviv, 1979; Hölmstrom, 1979). Others argue that whilst incentives can improve efficiency, they do not necessarily maximise profits—the bonus required to induce high effort can be substantial and yield a lower expected profit than using a flat wage (G. J. Miller and Whitford, 2007).

2. Methods

Between 2014 and 2015 we conducted 38 in-depth interviews with pharmacy employees and other stakeholders in Bengaluru, the capital of Karnataka State, India. Bengaluru presents an appropriate setting for this research as a number of pharmacy chains are well established. We have used the interviews as a tool to explore the hypotheses laid out in the above conceptual framework, an approach advocated by Miles and Huberman (1994). The framework informed both the development of the interview guides and the analysis, although we were open to any new ideas or issues that arose.

The interviewees were selected as a sub-sample from the pharmacies in our SP survey (see R. Miller and Goodman, 2017 for more details). We used a list of all pharmacies in Bengaluru urban district, obtained from the Karnataka State Drug Control Department, as a sampling frame (validated through three neighbourhood censuses which found it to be 97% accurate). The list contained 5135 independents and 529 chain shops deriving from 13 chains. Chains were defined as organisations where two or more pharmacies were operating under the same name and the business used distinctive branding across all outlets. For the SP survey we then selected a random sample of pharmacies, stratified as either 'chain' or 'independent', including shops

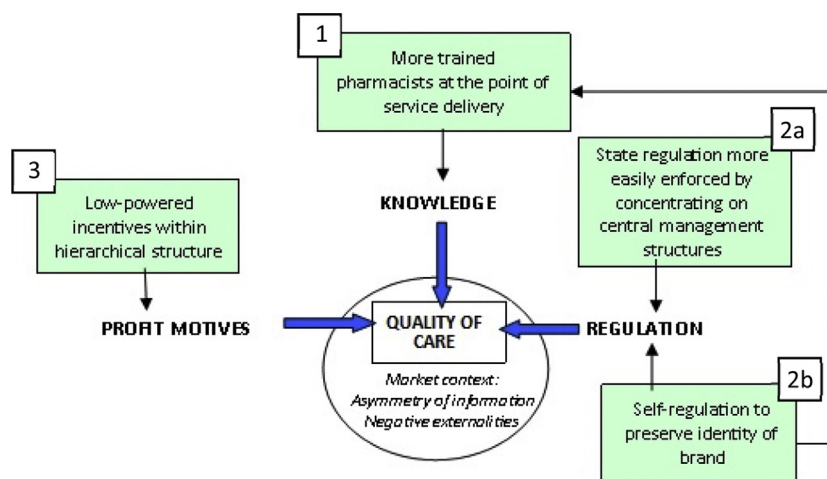


Fig. 1. Hypothesised effects of pharmacy chains on quality of care provision.

from 8 chains-the largest 7 and one chain of the 2–5 outlet size.

Our intention was to speak to chain executives at the 8 chains, and within those chains staff at the specific branches included in the SP survey. Two of the eight chains represented in the SP sample refused to participate. In two different chains, whilst a chain executive agreed to speak to us, they refused access to branch staff. This meant that we were denied access to the branch staff of four chains. However, many of the staff working in the branches of the four chains who did agree to participate in this part of the research had previously worked in the chains which denied us access. These individuals were asked about their experiences as ex-employees and through this mechanism ensured staff who had experience within all eight chains were interviewed. Two chains allowed us to choose the branches in which to interview their staff, and the other two only approved interviews with employees in specified outlets.

Through approaching head offices directly, we completed in-depth interviews with 9 chain senior executives working in/ex-employees of the 8 chains. Additionally, we interviewed 14 staff working within chain pharmacy branches, encompassing a range of pharmacy aides, pharmacists and pharmacy managers; 12 independent pharmacy owners (representing a geographical range across the city); and 3 key informants including the drug control department and pharmacy associations. Interviews were conducted by RM, with the help of a local research assistant, in English, Kannada or, Hindi, depending on the interviewee's preference.

Interviews with chain senior executives explored the underlying business model, ethos and structure of different firms, with a particular focus on staff recruitment, salaries and incentives. We also sought to understand mechanisms employed for controlling quality, performance management, and relationships with drug control bodies. The interviews with staff working in chain branches focussed on the incentives faced and motivations for working in such a setting; their relationship with head office; and factors affecting their treatment behaviour. Interviews with independent pharmacy owners served as a comparison. The three separate topic guides (executives, chain staff, independents), were all informed by the conceptual framework although they were updated as new issues arose.

Coding of the interview transcripts was completed by RM in NVivo 11 and we then conducted a thematic analysis. The hypotheses in Fig. 1 were used to generate an initial set of pre-defined coding categories. We coded the data into these categories but allowed for data-generated codes to emerge and these were added as they arose, and then the final coding frame was agreed by all authors. As some of the same topics were discussed with both chain executives and branch staff, we sought to triangulate the data collected from both sources, particularly for

those working within the same chain. Care was taken to focus on what interviewees did (ie through specific examples) rather than just broad statements about an issue; although when discussing sensitive issues it was found to be helpful to ask about how other pharmacies acted because interviewees were sometimes reluctant to admit themselves to practices that would be frowned upon.

Ethical approval was obtained from the London School of Hygiene and Tropical Medicine Ethics Committee, UK and the SOCHARA Institutional Scientific and Ethics Committee in Bengaluru, India. Verbal consent, witnessed by a fieldworker, was obtained prior to all interviews. Verbal, as opposed to written consent was obtained as providers in many drug outlets (or chain headquarters) tend to be very cautious of inspectors and suspicious of having to sign documents that may be used to identify them or their outlet/company.

3. Findings

Considering the lack of literature on pharmacy chains in LMIC, we begin this section with a description of the pharmacies studied and the context in which they operate. The findings that follow are then organised under the three main elements of the conceptual framework - knowledge, regulation and profit motive. We visit each of the hypotheses regarding how chains may affect these determinants and present the supporting or refuting evidence from our data.

3.1. Characteristics of chain and independent pharmacies

There were 13 chains operating in Bangalore city and, between them, they accounted for 529 (9%) of Bangalore's 5664 retail pharmacy outlets. Chains ranged in size from having two outlets in the city to 200 plus, and five had presence outside of Karnataka.

The organisational structure of most chains was broadly similar, consisting of some or all of the following in the senior management team: a managing director or chief executive, an operations director, human resources, purchasing and business development directors. Below this team sat the regional managers. In branches, they employed an in-charge, who may or may not be a pharmacist (despite legal requirements), 2–5 pharmacy aides (assistants who require no qualifications), and a delivery person. The individuals who owned and ran these chains, especially the larger outfits, tended to be educated to a high (university) level and often abroad. Whilst most independent stores had an open, on-the-street shop frontage, chains were often fully enclosed. Chain branches usually had air conditioning, were neatly organised, and some aimed for a more 'international' feel compared to independent shops. Salaries of staff working in chain pharmacies

reportedly ranged from 5 to 12k Rs (US \$78–187) monthly for pharmacy aides and 12–25k Rs (US \$187–390) for pharmacists.

Interviewees reported large growth in the sector over the last 10 years. During this time, chain pharmacies have amassed thousands of outlets nationally and independent pharmacies have also proliferated. One informant recalled that his pharmacy was one of only 17 in Bangalore in 1961. Competition for business between the now 5000 + pharmacies in the city was said to be intense. As a result, pharmacies compete to provide a better service than their neighbours. New trends such as extended opening hours, discounts on medicine prices and additional customer services including home delivery and health camps (these involve free screening for various health problems such as diabetes, bone mass density, eye and dental checks, and are used to stimulate business) were quick to spread.

3.2. Knowledge

Hypothesis 1. More trained pharmacists at point of service delivery?

Whilst we were not able to verify the proportion of chains and independent stores staffed by qualified pharmacists, senior management amongst all chains claimed that they employed a qualified pharmacist to work in each store. However, several of these informants later admitted that recruitment of pharmacists was a major challenge and this was not always possible. Some commented on a scarcity of qualified personnel in the labour market. Many pharmacy graduates were said to open their own store, find a position in the pharmaceutical industry, or pursue careers unrelated to pharmacy. Poor salaries and low social status reportedly drove people out of the profession.

Both chain and independent shop staff talked about renting the certificate of a qualified pharmacist, whilst the certificate holder worked elsewhere. Where a pharmacist was present, due to long opening hours, this was only for a portion of the day. Further, cover was seldom provided for pharmacist's day off and holidays.

“No, in some shops they will be there and in some shops they are not there. If the staff shortage is there, only Pharma Aide and experienced person will be there. Pharmacist will not be there.” KI#20 chain pharmacy aide

“No, we don't have [DPharm or BPharm], we have taken license of some other person...yearly we have to pay 30 thousand.” KI#31 independent owner

Many interviewees talked about ‘experience’ and saw this to some degree as a substitute for formal qualifications. In fact, individuals with several years’ experience working in independent shops were viewed by some as more knowledgeable than qualified pharmacists. A few interviewees cast doubt over the quality and appropriateness of pharmacy education. The syllabus was described as outdated, with a focus on subjects such as extemporaneous preparations that are no longer relevant to pharmacy practice today and missing others such as ‘therapeutics’. The reality was that pharmacy personnel learn on-the-job. Experience was acquired through various means, including learning from the shop seniors or pharmacist, doctors’ prescriptions and customer requests for medicine. It appears that knowledge accumulated from these avenues was not always in line with treatment guidelines but, once learned, these practices were enacted, reinforced, and passed onto the next ‘trainee’. Some chains provided training for new staff members but the focus of this was on interaction with customers and company procedures, rather than anything medicine-related (described in more detail below). As one chain in-charge said:

“Everyday some problems some problem like somebody came and say me that give me Taxim-O 200mg [3rd generation cephalosporin]. Just I don't know what is the use of it. Ask the sir [pharmacist], after customer went off, ‘Sir it's for what.’ He says it's for fever, antibiotic. Just he is explaining and we are learning from that only.” KI#8

Another employee describes how he came to learn about the medicines he sells:

Respondent: *I am zero knowledge person in the beginning. I was in checking for one year in [large pharmacy chain] for audit department. We will go morning by 8, we check cash, and total A-Z stock will be checked. Morning 8 to 6 we do that. If any shortage is there, we have to inform to manager ...*

When I started getting to know about medicine knowledge, in this audit we got to know the medicine name and what is the molecule. After that I could do in outlets. Then I worked for 2 years as normal employee. After I got promotion as in-charge and worked for 1 year.

RM: *Did you get any training while joining?*

Respondent: *No training. That audit was training.*

RM: *After auditing when you joined the pharmacy store, was there any training at that time?*

Respondent: *No. I will observe and learn.*

RM: *What did you study?*

Respondent: *B.com in computers. It's a degree. KI#19 chain pharmacy aide*

Interviewees in chains reported no legal requirement for a member of the senior management team to possess pharmacy qualifications and take responsibility for maintaining safety standards. As such, the clinical aspect of running a pharmacy within a chain was left to the pharmacist or in-charge and not a matter concerning senior management.

The overall picture we gained of staff working in chain pharmacies, and the knowledge they possessed did not appear to be any different to those working in independent pharmacies, where the narrative around qualifications and experience was similar to that in chains.

3.3. Regulation

This section examines hypotheses 2a and 2b, before turning to a data-generated theme around bribery.

Hypothesis 2a. State regulation more easily enforced by concentrating on central management structures?

We found that drug inspectors did not enforce regulation through chain headquarters. Within Karnataka state, areas are divided into ‘circles’ (geographical areas comprising of several postcode zones). Bengaluru has 6 circles with an assistant drug controller (ADC) assigned to each. Under the ADC are 2–3 drug inspectors. ADCs and drug inspectors each take responsibility for a number of postcodes within the circle and are required to inspect each pharmacy in their designated postcodes at least once a year. Staff working in shops most commonly reported that they were visited by drug control once every 6 months, although the range was from 3-monthly to annually. Several chains had shops in multiple circles and therefore interacted with numerous inspectors. The level of control in each area appeared to differ dependent on the individuals responsible for enforcement.

Most chains and the drug control department reported that there were no differences between the regulation of chain shops and independents. In contrast, one chain executive felt that drug controllers came down more harshly on chains compared to independent pharmacies in event of a violation of the rules. Chains, he described, were treated with less leniency due to the processes and operating procedures in place.

Hypothesis 2b. Self-regulation to preserve identity of brand?

A host of methods were employed by chains in order to keep constant track of day-to-day operations in each store. The main strategies

included regular shop visits from supervisors, area managers and more senior managers. Sales reports were usually sent daily, although some chains had information systems that enabled monitoring of real time sales. CCTV cameras were used to monitor the behaviour of shop staff and several chains sent mystery shoppers to their stores (and their competitors). The impression given was one of relentless monitoring. Chains that utilised CCTV claimed to watch their staff closely and staff corroborated that they were informed immediately of any sub-par performance.

The overarching theme across all chain interviews, both with management and shop staff, was that ensuring a positive customer experience was the highest priority. Key areas of concern included customer service, ambience of the pharmacy, appearance of the staff, and ensuring availability of medicines. Management went to great lengths to guarantee that in-store staff were friendly and polite to their customers. On joining a chain, staff undergo training (ranging from half a day to several weeks). The majority of this focussed on how to treat and interact with customers. Chain executives described how independent shop owners have excellent rapport with their customers and chains felt it was essential for their staff to match this, in order to attract and maintain customers. During shop visits, managers also checked that the store was neat and tidy and staff members were presentable.

Whilst there is irrefutable evidence that chains do self-regulate, the aspects of practice that they strived to control were not the same as those that concern the public health community ie sale of appropriate medicines and advice provision. One chain CEO explained what the training in his company involved:

“Yes, they need to dress well, they need to be able to communicate well so then their level of English needs to be good. Their level of Hindi needs to be good. So we employ people who can speak all the three languages because Bangalore is like a melting point right now. So you have people from all kinds of various cultures coming...Of course they need to follow the SOPs again. So that stresses on how well you treat customer, how you make the sale. How you finish the sale. So those are the things we train them before they start.” KI#24 chain executive.

Another chain executive vented his frustration regarding the lack of customer care he commonly observed on CCTV:

“Sometimes they will be seeing that Facebook and all, will be telling to them don't see that, then if the customer comes, they won't stand up and they won't greet the customers. They won't be any smile, they will be standing like a robot and they will be doing. We will be telling you have to do like this and all that. Because a smile is most important whenever a customer comes.” KI#2 chain executive.

Alongside customer interaction, chains reported stock availability as the other crucial concern. Both headquarter and in-store chain staff explained that filling all items on a customer's prescription without any 'bounce' products (items on a prescription that are not available) was essential for customer satisfaction. In instances where required items are not available, there runs a risk that the customer will go elsewhere and not patronise the store for future transactions. Due to the large number of brands in the Indian market and the illegal nature of brand substitution (a different brand with the same active ingredient cannot be dispensed in place of the brand prescribed), this was cited as a key challenge. Some chains report sending mystery shoppers with prescriptions to monitor the 'bounce ratio'.

We observed that employees often appeared to buy into the goals and mission of the chain in which they worked. In interviews with in-store employees they used a lot of the same language and talked about the same issues as being important as the headquarter staff. These comments from a chain employee echo the concerns of the management:

RM: *Why are people coming to [pharmacy chain], in what way are you*

keeping them happy?

Respondent: *Availability of medicines, and we used to welcome them with a smile, I used to check the order list of their medicines and if that medicine is not available I used to tell them will get that evening, we used to take their mobile numbers and call them after it.* KI#16 pharmacy aide.

There was little evidence of chains regulating the clinical aspects of pharmacy practice in their stores—for example, the accuracy of advice given or the appropriateness of medicines sold. A small proportion of chains did mention that they monitored sales of POMs without a prescription. One ex-staff member of a leading chain explained that staff were told explicitly not to make such sales. Another working in a smaller chain described how their head office sent mystery shoppers to purchase POMs in order to determine whether there was illegal selling in their pharmacies. However, only a minority of chains touched upon this issue and it was clear that clinical governance was not an area of interest to most chains, as shown by this conversation with one pharmacist:

RM: *Do they monitor the medicines that you are selling or the advice you are giving?*

Respondent: *Medicines?*

RM: *In the sense, if somebody comes and says can we have something for diarrhoea or fever - do they check what medicines you give?*

Respondent: *Yeah, yeah we will give common medicines for diarrhoea.*

RM: *But do head office check?*

Respondent: *No, no they won't. They don't know about this thing what to do -only I have knowledge. They don't know about that.* KI#25, chain pharmacist.

In our SP survey, we found that the more highly restricted H1 medicines were rarely sold, by either chains or independents (R. Miller and Goodman, 2017). We were keen to understand how pharmacy staff understood and interpreted these regulations and how drug control authorities had achieved success in the control of these medicines. We found that around two-thirds of both chain staff and independent interviewees were aware of the difference between H and H1 medicines. Most interviewees spoke about H1 medicines with an aura of seriousness. They did not give a great amount of detail but there was a general understanding that you simply did not sell these medicines. Several informants (from both chains and independents) confused schedule H1 and X. Interviewees reported that drug control are stricter on these restricted schedules. Regulatory authorities confirmed that they were more aggressive in the control of these schedules and that they typically would suspend or even cancel the licence of a shop found to be selling such medicines. Sale of H medicines, however, was only punishable by a fine or brief shop closure. One chain pharmacy had a list of these prohibited H1 medicines on the wall for staff to refer to and another reported that there was a SOP in place for dispensing them. Asides from these two examples we did not find any major differences between the attitudes of chains and independents towards the more regulated medicine schedules.

3.3.1. Practices of bribery undermining regulatory system

Several interviewees talked about the bribing of drug controllers. Most of these reports came from independent shop owners, who talked candidly about this. One managing director (MD) of a chain touched upon this but his comments related to the industry in general, rather than any specific practices that occurred within his organisation. The impression given by these informants was that bribery was commonplace and organised in nature. One interviewee described how all pharmacies in his area were required to give a fixed amount (4000 Rs/\$62) every 6 months and this was collected and passed onto the

authorities by a local coordinator. In another area, fixed amounts were said to be collected monthly. Shopkeepers described how pharmacies that ran without a pharmacist had to pay a higher rate than those where a pharmacist was present. Interviewees explained that if bribes were not paid then drug controllers would be sure to find something they could penalise for during their next inspection visit. Payment of the bribe would ensure inspections were uneventful.

RM: *How come so many medicines are sold without a prescription then?*

Respondent: *They get bribed. It's easy to bribe a drug controller. As long as you pay them they will not complain.*

RM: *So they don't regulate POM well?*

Respondent: *They say they do but they don't. The entire supply chain pays the drug controller. Retail market is unorganised but bribing is very organised. There is a package you keep paying them and they don't come. KI#7 chain MD*

Chain staff working in pharmacy branches did not talk about such practices. However, as employees, they would not have the status to authorise any bribes on behalf of the chain and it would likely occur at a higher level. Even if such practices were commonplace, it is unlikely that this information would be shared freely.

3.4. Profit motive

Hypothesis 3. *Low-powered incentives within hierarchical structure?*

Independent pharmacy owners appeared to be more business-oriented than chain employees; and it was evident that their livelihood was closely linked to sales. Whilst in theory, we expected chain staff to be less invested in sales and profit, in practice they were incentivised by numerous targets and relentless pressure from head office. Most chains set monthly sales targets for each of their shops and some had other specific targets. These included the sale of 'private label' products (generic medicines or toiletries that are branded for that particular chain) and number of home deliveries. Chain staff reported that they were motivated to work hard to meet these targets, because the bonuses associated with reaching them were worthwhile and it gave them job satisfaction. In addition, some chains offered a monthly award for the branch with the highest sales and employees were keen to win this for 'name and fame'. Monthly sales bonuses were reported to be between 2000 (\$31) and 20,000 (\$311) Rs, most commonly 10,000 Rs (\$156) (divided between all store staff of which there were usually 4–5). In light of staff salaries, this was relatively substantial (around 25% of pharmacy aide and 10% of pharmacist salary) and hence motivating. Private label incentives were particularly strong with the bigger chains offering staff 10–12% of sales profits. The margins on these products were said to be 200–300%, which was very high compared with usual margins on branded products (which are preferred by customers) of around 15–40%.

When scrutinising the strategies of profit maximisation identified from our data, there appeared to be some differences between chain and independent shops. Independent shop owners reported selling POMs without a prescription because they did not want to lose business. They admitted selling antibiotics because they had a good margin. Finally, they stated that they gave priority to products which they had purchased on offer e.g. on a buy X strips get Y strips free basis (these were said to commonly be antibiotics and combination cold and flu medicines). In terms of medicine sale choices amongst chain employees, there were several reports of trying to sell private label products in the first instance, which is not surprising considering the strong financial incentives associated with these products. Only one chain staff member talked about deliberately choosing items based on their profit margin. When pushed on how they achieved their sales targets, the strategies reported by chain staff tended to be more customer orientated. For example, if any prescription items were not in stock, they ensured those

items were ordered and delivered to the customer's home that same day; they made lists of regular customers and called them to see if they needed to replenish their stock; and they talked to their customers 'like family members'. This is not to say that independent staff did not also focus on their customers. In addition to offering a friendly, timely service, independent shops offered credit to customers who could not afford medicines and cut medicine strips into smaller quantities for poor clients. Both chain and independent pharmacy interviewees reported selling medicines that they knew would 'cure faster' though medicine sales based on perceived efficacy is often not in line with standard treatment guidelines.

4. Discussion

To date, research on the effect of chain pharmacies in LMICs has been limited. In addition to our SP study, two papers have investigated the sale of over-the-counter abortifacients in Mexico, and found pharmacy type was not a characteristic of selling such medicines (Billings et al., 2009; Lara et al., 2011). In Thailand, a newly developed quality indicator tool which assessed five dimensions of quality found scores in chains to be higher than those of independents (Arkaravichien et al., 2016). Finally, a study from India reported that compared to independent retailers, chain prices were 6% lower ($p = 0.02$) and pharmacopoeia compliance was 6% higher ($p = 0.46$) (Bennett and Yin, 2014).

While there has been a small but illuminating body of qualitative work on the determinants of pharmaceutical use and pharmacy practices in India (Das and Das, 2006; Kamat and Nichter, 1998; Seeberg, 2012), to our knowledge, this is the first study to employ qualitative methods to attempt to understand the practices of chains.

We found that most of the theoretical mechanisms that could lead to higher quality in chains did not hold true in practice. In summary, as in independent shops, a number of chain branches operated without a pharmacist. Drug control authorities did not regulate chains any differently, despite the possibilities of utilising the hierarchical structure in place. Further, reportedly widespread bribery undermined the drug control process. In the face of profitable sales targets and constant head office pressure to increase revenue, chain employees did not appear to face significantly lower-powered incentives than their independent pharmacy counterparts. However, differences in the profit maximising strategies of chains and independents were apparent, the former being more customer focused, and the latter more profit driven—a concern from a public health perspective because when medicine sale choices are driven by profit considerations, patient safety and clinical needs can be compromised.

We had also anticipated that chains may self-regulate to preserve brand identity and image. Whilst chains appeared to exert strong influence over behaviour of their staff, they did not attempt to control aspects of quality relating to rational medicine use. A small subset of chains took action towards monitoring the illegal sale of POMs without a prescription but as one chain boss explained, 'bringing ethical standards to corporates—that is lacking currently'. Rather, they focused on customer service and satisfaction.

This study was conducted in a single Indian city which raises questions over the extent to which the findings are generalisable to other metropolises where chains are concentrated. Whilst some of the chains studied operated only in Bengaluru, others had presence in elsewhere in South India and even nationwide. Chain staff in other cities likely face similar incentives and monitoring procedures. The regulatory controls governing the functioning of pharmacies are the same throughout India, and despite likely variation in state-level implementation, regulatory failure is reportedly widespread. Given these likely similarities, the findings are likely to have relevance beyond Bengaluru and Karnataka. Further, this work offers a starting point for further research in other LMICs where determinants of good and poor pharmacy practice have been found to be comparable and chain growth

is underway.

In their current state, it is unlikely that chains will provide a solution to the poor quality of care provided by pharmacies described in the literature. However, given the tight control and influence that chains exert over their branch staff, one could argue that chains could be a vehicle for more efficient or more effective quality improvement in the future. However, it is unlikely that a change in their priorities for self-regulation will occur without external intervention. Chains are first and foremost business entities; they concentrate their attentions on aspects of quality that customers can observe (eg friendliness of staff and availability of medicines). Chains presently have no incentive to self-regulate technical quality because, due to information asymmetries, this is not something most customers can observe.

Pay for performance (P4P) has received much attention as an innovative strategy to improve quality in LMICs (Eichler, 2006). Whilst there are no existing examples of using financial incentives to improve rational medicine use, a number of high-income countries have initiated schemes that pay pharmacies to deliver patient-centred services (Mossialos et al., 2013). Perhaps the most obvious response would be to focus efforts on strengthening the regulatory environment. While the pharmacy market has evolved, it is striking that the regulatory response has lagged behind and no modifications have been introduced in the light of new organisational arrangements, such as chains. For example, within the structure of chains, we noted that senior management teams lacked a trained pharmacist to take responsibility for patient safety and hold branch staff to account for their clinical actions. This is not currently a legal requirement, but arguably should be (as in some other countries). In some countries, regulation of medical practitioners is delegated to professional organisations. We found that the interviewees did not appear to have a strong professional identity and others have noted that professional standards are lacking in pharmacy services in India (Adepu and Nagavi, 2009). There is arguably scope for professional pharmacy bodies to take a more active role in improving pharmacy practice. For example, they could advance continuing professional development activities and issue guidelines for practice. Encouraging peer review and fostering an ethos of professionalism amongst staff within chains may go some way to improving the current situation. Additionally, given that chains already organise training for their staff, they may also be well placed to deliver clinically-based training interventions more efficiently.

Others have reflected on the disconnect between regulatory strategies and the realities of health markets in India and LMICs more generally (Bloom et al., 2008, 2014; Ensor and Weinzierl, 2007; Peters and Muraleedharan, 2008; Sheikh et al., 2013). In their study of the architecture of health regulation in two Indian states, Sheikh et al. (2013) highlighted widespread gaps in both policy design and implementation with this mixed (public and private) health system. They found that implementation shortcomings were underpinned by inadequacy of human and financial resources; ambivalence of regulatory staff regarding the roles of their agencies; and infiltration and dominance of private sector interests within regulatory institutions leading to concerns of regulatory capture.

Currently, enforcement is typified by ‘command and control’ mechanisms of universal inspection and sanction but these methods appear to be ill-suited given limited resources, overwhelming numbers of providers, and rent-seeking officials. It may be possible to streamline external regulation through utilising the hierarchical management structure of chains. Any such developments should take into account the latest thinking in regulatory design, which includes alternatives to administrative and bureaucratic approaches such as responsive and risk-based regulation (Black, 2005; Braithwaite, 2006). In addition to ‘market supply-oriented’ approaches, such as incentive schemes, Bloom and colleagues (Bloom et al., 2014) identify ‘consumer or citizen-oriented’ strategies such as consumer education and empowerment; and ‘collaboration-oriented’ efforts, for example partnerships between government, civil society actors, providers and technical experts to

agree and set locally measurable and enforceable standards for performance.

Whilst improved regulatory strategies have the potential to transform pharmacy markets, it is necessary to acknowledge the high level of corruption that is treated as normal in Karnataka. A Task Force on Health and Family Welfare of the State (Karnataka) Government reported that corruption topped a list of 12 key issues of concern for the State's health system (Sudarshan and Prashanth, 2011). Corruption in the health sector is increasingly being linked with poor outcomes in LMICs (Azfar and Gurgur, 2008).

Anti-corruption advocates call for good governance, transparency, and zero tolerance as the basis of strategies to address the problem (Jain et al., 2014). In Karnataka, a number of initiatives have been instigated which aim to increase people's participation in the planning, implementation and monitoring of health services (Sudarshan and Prashanth, 2011). Jain describes the payment of bribes and use of connections to get ‘a little ahead, a little extra, a little quicker’ as ingrained in people's attitudes (Jain et al., 2014). Empowerment of citizens has been proposed as an important step to bring about changing cultural attitudes that have long been accepting of corruption, ultimately leading to a law-based society (Johnston, 1998). However, there is obviously no overnight solution and social change is likely be incremental and slow.

5. Conclusion

Chains are expanding rapidly in India and elsewhere in Asia, South America and Africa. Going forward, there is interest in the potential of pharmacy chains in LMICs as a solution to the substandard practices that typify retail pharmacy in these settings. Up until now, there has been no empirical evidence of whether and how these chains do enable quality improvements. We have found that, in their current state, expectations for quality improvement were not in evidence. However, the existing architecture and the influence they exert over their staff offers opportunity for intervention and a potential focus for regulatory bodies, meaning that chains could prove to be a vehicle through which to affect change in the sector in future. However, a shift in focus from customer satisfaction to outcomes of public health concern is unlikely without either financial incentives or strengthened external regulation. Moreover, without good governance initiatives that aim to reduce corruption in the sector, it is likely that quality issues will persist.

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