Pharmacists’ experiences of consumer stockpiling: insights from COVID-19

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Abstract

Background: Consumer stockpiling from pharmacies has been reported by media outlets throughout the course of COVID-19.

Aim: This study evaluated pharmacists’ perceptions of consumer stockpiling from pharmacies, the impact of stockpiling, aggressive or hostile behaviour from customers and preparedness for COVID-19 and future pandemics.

Method: A self-administered survey was disseminated between September and November of 2020. The survey comprised four major sections: demographic information, experiences of consumer stockpiling, impact of consumer stockpiling and preparedness for COVID-19 and future pandemics. Survey results were analysed in Microsoft Excel using descriptive statistics.

Results: Of the 56 responses analysed, most pharmacists observed consumer stockpiling of over-the-counter products (98.2%), schedule 2 and schedule 3 medications (92.8%) and prescription only medications (94.6%). The most commonly stockpiled items included face masks, hand-sanitisers and wipes, alcohol wipes and antiseptic solutions, thermometers, paracetamol and salbutamol inhalers. Patients also requested the dispensing of several months’ supply of regular prescription medications. Customer aggression was observed by 53.6% of pharmacists, with 63% of pharmacists agreeing that hostile behaviour impeded their practice. Only 36.7% of pharmacists felt adequately prepared to cope with the challenges of COVID-19.

Conclusion: Consumer stockpiling from pharmacies was observed throughout COVID-19. Stockpiling as well as aggressive and hostile behaviour from customers affected pharmacists, their staff, business and other pharmacy customers. Additional studies are needed to investigate the severity of these issues and to inform policy changes to help mitigate consumer stockpiling and prepare the pharmacy profession for future pandemics.

Keywords: stockpiling, shortages, COVID-19, pandemic, pharmacy.

INTRODUCTION

The global threat of COVID-19 sparked significant changes in Australian pharmacy practice. Media reports and the Australian Therapeutics Goods Administration have attributed unexpected increases in demand for pharmacy products to the substantial stock shortages during 2020.¹⁻⁴ Specifically, there have been reports of increased prescriptions for – as well as requests for and subsequent difficulties sourcing – essential medications such as hydroxychloroquine, paracetamol, salbutamol and insulin. Shortages have also been reported of hand sanitisers, antiseptic solutions, thermometers and personal protective equipment (PPE), with rural pharmacies reported to be particularly affected.¹⁻⁵

The rhetoric of some media reports has portrayed heightened panic in the community, with consumers flocking to supermarkets and pharmacies to purchase excessive quantities of products, called stockpiling, during the COVID-19 pandemic.¹⁻² Other reports have been less alarming, suggesting that product shortages reported throughout 2020 are a culmination of preparatory measures. Specifically, because of the rapid progression of the pandemic, many consumers have sought to purchase more supplies than needed to sustain themselves through the potential lockdown periods.³⁻⁶ In turn, these purchases have caused widespread shortages
of products as supply chains struggled to meet consumer demand.4

Stockpiling from pharmacies and subsequent medication shortages are associated with inferior economic, clinical and humanistic outcomes for patients, providers and health care systems.4 The consequences of stockpiling include an increase in medication errors, patient harm and mortality from improper or inadequate drug substitutions, increased patient out-of-pocket expenses, increased institutional labour and commodity expenditure, and a decreased quality of life for patients who face marked anxiety about their continuity of care.7–9 Additionally, patients who amass excessive quantities of medications from stockpiling are at risk of these medications expiring or being consumed by children, pets, or other unintended individuals, becoming confused about which medications they are supposed to be consuming, or risking significant financial loss if their medication requirements change, rendering their current stockpile useless.7,8

In the absence of any published evidence to date, research must characterise the effects of COVID-19 on consumer panic buying from pharmacies and subsequent stock shortages of pharmaceutical products. The aim of this study was to conduct a scoping analysis of pharmacists’ experiences throughout the COVID-19 pandemic, to determine if pharmacists observed consumer stockpiling and/or increased customer aggression and hostility in their pharmacies between January 2020 and November 2020, in addition to identifying the types of products observed to have been stockpiled, the perceived impact of these behaviours, and whether any strategies were employed to mitigate attempts to stockpile and address stock shortages. This exploratory research will attempt to generate a framework upon which more comprehensive, quantitative studies may be conducted. This research will help to inform recommendations and policy for pharmacists and other key stakeholders on how to best prepare and utilise the pharmacy profession in future pandemics.

METHODS

Study design, participant recruitment and selection
The survey was targeted at community pharmacists, with selection criteria determining that participants were either a registered pharmacist or intern pharmacist, had been working in a community pharmacy for at least 1 year prior to the global COVID-19 outbreak (January 2020 – time of survey) and had been working in a community pharmacy in some capacity throughout the COVID-19 pandemic (January 2020 – time of survey). Because past researchers have not developed a pre-existing, validated survey tool to characterise pharmacists’ experience of customer stockpiling, this questionnaire was piloted with a sample of registered pharmacists, following the procedure outlined by Tsang et al. (2017), to confirm face validity.10

The final validated survey was imported into Qualtrics to disseminate the survey electronically. The survey link and advertisement were posted to the Pharmaceutical Society of Australia (PSA) Early Career Pharmacist Facebook Page on 21 September 2020. This society is a private group which, at the time of writing, comprised over 10 700 members. Members are either pharmacy students, interns or registered pharmacists. Additional means of dissemination included emailing the survey to local pharmacies through professional networks. The survey was closed on 17 November 2020.

Measures

1. Section A sought demographic information including participants’ gender, years of experience as a pharmacist, in addition to the location and situation of the participant’s primary community pharmacy of work.
2. Section B assessed pharmacists’ experiences of customer stockpiling of over-the-counter, schedule 2 (pharmacy only), schedule 3 (pharmacist only) and schedule 4 (Prescription only) items, in addition to experiences and observations of customer hostility and aggression. Ratings from strongly disagree, disagree, neither agree nor disagree, agree and strongly agree were selected using Likert scale style questions. Multiple choice options of products that were observed to be stockpiled could be selected and free text questions enabled participants to list any additional items observed to have been stockpiled.
3. Section C measured the potential impact of customer stockpiling, aggression and hostile behaviour on pharmacists, non-pharmacist staff, the pharmacy business and on other customers. Again, participants specified the extent to which they agree or disagree with the items. Free text questions allowed for additional details regarding the impact of customer stockpiling to be provided.
4. Section D assessed pharmacists’ perception of their preparedness for the challenges brought by COVID-19, and by future pandemics to their own personal practice and that of the pharmacy business overall, using the Likert scale model. Free

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text questions enabled pharmacists to provide feedback on what measures are needed to help better prepare pharmacists for customer stockpiling and the broader challenges posed to pharmacy practice as a result of a pandemic.

Data analysis

The survey results were exported from Qualtrics into Microsoft Excel, where descriptive statistics were calculated. Results were expressed as proportions and as a percentage of Likert scale responses, displayed in 100% stacked bar graphs.

RESULTS

Participant variables

Of the 70 pharmacists who responded to the survey, 14 responses were excluded because of missing data, reducing the sample size to 56 participants. Participants with less than 5 years of experience as a pharmacist comprised 28.6% (n = 16) of responses, followed by participants with 11–20 years of experience (26.8%; n = 16), participants with 6–10 years of experience (19.6% n = 11), participants with 21–30 years of experience (14.3% n = 8) and participants with over 40 years of experience (1.8%; n = 1). There were no participants with 31–40 years of experience. The location of pharmacies at which the surveyed pharmacists worked were primarily in metropolitan regions (57.1% n = 32), followed by regional pharmacies (32.1%; n = 18) and rural or remote areas (10.7%; n = 6). The situation of the community pharmacy was most commonly listed as a street shopping strip (64.3%; n = 36), followed by shopping malls (26.8%; n = 15) and miscellaneous locations including medical centres, residential areas and main roads (8.9%; n = 5).

Experiences of stockpiling, customer aggression and hostility

Figure 1 represents the proportion of respondents’ perceptions of customer stockpiling from the period of January 2020 to the time of the survey. On whether they observed customer aggression or hostile behaviour, 37.5%; (n = 21) of pharmacists strongly agreed or agreed with the statement, whereas 16.1% (n = 9) were neutral, 8.9% (n = 5) disagreed and (0%; n = 0) strongly disagreed. On assessment of whether they observed customers stockpiling prescription only items, 57.1% (n = 32) of pharmacists strongly agreed, 37.5% (n = 21) agreed, 3.6% (n = 2) neither agreed nor disagreed, 1.8%; (n = 1) disagreed and 0% (n = 0) strongly disagreed. In response to whether they observed customer stockpiling of schedule 2 or schedule 3 products, 48.2% (n = 27) of pharmacists strongly agreed with the statement, 44.6% (n = 25) agreed, 3.6% (n = 2) were neutral, 3.6% (n = 2) disagreed and 0%; (n = 0) strongly disagreed. On assessment of whether they observed stockpiling of unscheduled/over-the-counter products from their pharmacy, 55.3% (n = 31) of pharmacists strongly agreed with the statement, 42.9% (n = 24) agreed, 1.8% (n = 1) were neutral and 0% (n = 0) of pharmacists disagreed or strongly disagreed.

The over-the-counter/unscheduled products pharmacists observed to have been stockpiled by customers included face masks (78.8%; n = 44), hand-sanitiser (92.3%; n = 52), hand-soap (75.0%; n = 42), hand-wipes (55.8%; n = 31), alcohol wipes (76.9%; n = 43), antiseptic solutions (75.0%; n = 42) and thermometers (61.5%; n = 34). Of schedule 2 and schedule 3 items, paracetamol for children (82.7%; n = 46), paracetamol for adults (63.5%; n = 36) and salbutamol inhalers (76.9%; n = 43) were the items most commonly observed to have been stockpiled. Of the prescription items, many pharmacists reported patients requesting several months’ supplies of their regular medications for the management of chronic conditions. Some participants reported that patients had presented old antibiotic and anti-viral prescriptions to be dispensed.

Impacts of stockpiling, customer aggression and hostility

Figure 2 represents the proportion of respondents’ perceptions of the impact of customer stockpiling from the period of January 2020 to the time of the survey. On the question of whether customer stockpiling affected non-pharmacist staff and other customers in the pharmacy, 46.1% (n = 26) of pharmacists strongly agreed with the statements, 38.5% (n = 22) agreed, 9.6% (n = 5) were neutral, 5.8% (n = 3) disagreed and 0% (n = 0) strongly disagreed. On assessment of whether customer stockpiling impeded the pharmacy business, including the businesses finances and reputation, 23.1% (n = 13) of pharmacists strongly agreed with the statement, 44.2% (n = 25) agreed, 23.1% (n = 13) were neutral, 7.7% (n = 4) disagreed and 1.9% (n = 1) strongly disagreed. On assessment of whether customer stockpiling impeded their practice as a pharmacist, 34.6% (n = 19) of pharmacists strongly agreed with the statement, 46.2% (n = 26) agreed, 13.5% (n = 8) were neutral, 3.8% (n = 2) disagreed and 1.8% (n = 1) strongly disagreed.

Figure 3 represents the proportion of respondents’ perceptions of the impact of customer aggression and
hostility in community pharmacies since January 2020. On assessment of whether customer aggression affected other customers in the pharmacy, 13.5% (n = 8) of pharmacists strongly agreed with the statement, 48.1% (n = 27) agreed, 19.2% (n = 11) were neutral, 17.3% (n = 10) disagreed and 1.9% (n = 1) strongly disagreed. On assessment of whether customer aggression impacted non-pharmacist staff in the pharmacy, 36.5% (n = 20) of pharmacists strongly agreed with the statement, 38.5% (n = 22) agreed, 11.5% (n = 6) were neutral, 11.6% (n = 6) disagreed and 1.9% (n = 1) strongly disagreed. On assessment of whether customer aggression affected the pharmacy business, 19.2% (n = 11) of pharmacists strongly agreed, 28.8% (n = 16) agreed, 28.9% (n = 16) were neutral, 17.3% (n = 10) disagreed and 5.8% (n = 3) strongly disagreed. On assessment of whether customer aggression impeded their practice as a pharmacist, 26.9% (n = 15) of pharmacists strongly agreed with the statement, 36.5% (n = 20) agreed, 11.6% (n = 6) were neutral, 19.2% (n = 11) disagreed and 5.8% (n = 3) strongly disagreed.

Preparedness for COVID-19 and future pandemics

Figure 4 represents the proportion of surveyed pharmacists who indicated that they either strongly agreed, agreed, neither agreed nor disagreed, disagreed or strongly disagreed with the statements regarding their experiences of consumer stockpiling from pharmacies.

DISCUSSION

This study provides insight into Australian pharmacists’ perceptions of consumer stockpiling from community pharmacies during the COVID-19 pandemic. Most surveyed pharmacists observed customer stockpiling of over-the-counter, schedule 2, schedule 3 and prescription only items throughout the course of COVID-19.
This coincided with an increase in the number of drug shortages reported by the Therapeutics Good Administration. Pharmacists also observed an increase in customer aggression and hostility in community pharmacies since January 2020 to the time of the study. These results are consistent with media reports of consumer panic buying and of reported stock shortages, in addition to reports of consumer stockpiling in previous pandemics. A 2018 case comparative narrative study of the SARS and H7N9 epidemics in China revealed that stockpiling of anti-viral drugs, face masks, Banlangen/Radix isatidis, a traditional Chinese medicine herb and vinegar were observed in the SARS epidemic. Additional evidence of customer stockpiling of

Figure 2 Percentages of surveyed pharmacists who indicated that they either strongly agreed, agreed, neither agreed nor disagreed, disagreed or strongly disagreed with the statements regarding the impacts of consumer stockpiling.

Figure 3 Percentages of surveyed pharmacists who indicated that they either strongly agreed, agreed, neither agreed nor disagreed, disagreed or strongly disagreed with the statements regarding the impacts of customer aggression and/or hostility.
pharmaceuticals is found in media reports from the H1N1 pandemic of 2009, where some pharmacists reported customer stockpiling of face masks and the anti-viral medications oseltamivir (Tamiflu) and Relenza in US pharmacies.13

The most common over-the-counter, schedule 2 and schedule 3 items which pharmacists observed customers stockpiling included face masks, hand-sanitiser, hand-soap, hand-wipes, thermometers, paracetamol and salbutamol inhalers. These items correspond with the health advice about COVID-19 prevention, including increasing hand hygiene by washing hands with soap and water or alcohol-based hand-sanitiser and preventing droplet transmission by wearing face masks.14 Moreover, the stockpiling of thermometers adheres with COVID-19 screening procedures including measuring of temperature and an elevated temperature being a common, albeit if non-specific, a sign of COVID-19 infection.14,15 Misinformation about the possibility that paracetamol and salbutamol could prevent or treat COVID-19 may also explain why these medications were preferentially stockpiled.16

Although no specific prescription medications were reported to have been stockpiled, reports of customers requesting several months’ supply of their regular medications is indicative of stockpiling proclivities.17 Customers fearing that medicine supply chains would be affected by COVID-19 and thus wanting to procure their medications before widespread shortages is a possible reason for the observed stockpiling.1,3,17–20 Other possible triggers include customers fearing that they would not be able to access their local pharmacy because of lockdown restrictions or quarantining measures, or wanting to access a continuous supply of medications to reduce their time spent out in public places.1–4,6 Studies emerging from previous pandemics have reported similar increases in consumer panic and associated behavioural changes intended to prevent disease transmission and infection.21–23 A cross-sectional study of 1397 Hong Kong residents revealed a strong fear of contracting H1N1 Influenza A ‘Swine Flu’ because of exposure in a public place in 48% of participants, whereas 85% of participants reported wearing face masks at the peak of the SARS epidemic.20 A survey of 503 Hong Kong residents revealed that up to 74% of participants had worn face masks during the H5N1 ‘Bird Flu’ epidemic and, in a survey of 550 Hong Kong residents, 48% of respondents reported that they would wear face masks in the H1N1 influenza pandemic if they exhibited flu-like symptoms.22,23

Pharmacists’ perceptions of the impact of customer stockpiling on their own practice, health and wellbeing and that of their staff, other customers and the pharmacy business overall were varied. Some participants reported a severe increase in workload, exhaustion and stress amongst pharmacy team members because of an increase in the number of prescriptions to be dispensed and adherence to measures designed to prevent COVID-19, such as hourly cleaning of the dispensary area, managing the number of customers in the store and

Figure 4 Percentages of surveyed pharmacists who indicated that they either strongly agreed, agreed, neither agreed nor disagreed, disagreed or strongly disagreed with the statements regarding their preparedness for COVID-19 and future pandemics.

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directing the flow of traffic to adhere to social distancing requirements. Other demands included trying to source medications that were in shortage, counselling patients on their options if the medication or product they need is scarce, mediating the abuse of staff and other customers and attempting to curtail customer stockpiling. The observation that some pharmacies were not functioning at their full capacity because they had split their workforce to diminish the possible spread of COVID-19 may have exacerbated these demands. Similarly, many staff members may have been unable or unwilling to work because of self-isolation requirements, vulnerable family members or impaired immunity as a consequence of advanced age or medical conditions. Additional training for pharmacy staff to cope with customer aggression, mental health support for health care workers and recognition of pharmacists as frontline health care workers with a need for PPE provision were identified as areas for improvement. Participants had the perception that large pharmacy groups may have been purchasing excessive quantities of stock and therefore advocated for better regulation of wholesalers, as this intervention may reduce the impact of shortages in smaller pharmacy groups.

Pharmacists’ feedback on the measures they believe should be implemented to help better prepare pharmacies for the challenges posed by a future pandemic included the need for legislative measures enforceable guidelines to limit the supply of medications to customers, and awareness programs to educate customers about medicines safety, supply regulations and the role of pharmacists as health care professionals rather than vendors. Notably, the Australian Government, Pharmacy Guild of Australia and the Pharmaceutical Society of Australia introduced 1 unit or 1-month supply limits on the dispensing and sales of most over-the-counter and prescription medicines on 19 March 2020, at the early peak of the first wave of Australian COVID-19 cases. Children’s paracetamol was required to be placed behind the pharmacy counter to assist with equitable supply and salbutamol sales were subject to pharmacists confirming the patient’s diagnosis and therapeutic need. However, these interventions may have been not extensive or timely enough, with surveyed pharmacists reporting the need for earlier dissemination of consistent information to pharmacies and the general population to diffuse the panic and confusion that promotes stockpiling behaviours.

Future research is necessary to overcome the limitations of this study. A larger sample would have enabled significance tests to be conducted to more accurately assess the validity of the reported results. Moreover, this study’s reliance on self-reporting and personal biases – such as the tendency of individuals to overestimate their agency and contributions – may have skewed the results. Additional quantitative studies investigating the sales data of a large nationwide sample of pharmacies may be warranted to assess the severity and impact of stockpiling from pharmacies and to inform policy changes that are needed.

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CONFLICTS OF INTEREST STATEMENT

The authors declare no conflict of interest.

AUTHORSHIP STATEMENT

All listed authors comply with the journal’s authorship policy. Ms Eliza Cameron: Investigation, Methodology, Software, Data curation, Writing- Original draft preparation, Data analysis, A/Prof Simon Moss: Conceptualisation, Methodology, Mr Samuel Keitaanpaa: validation Dr Mary-Jessimine Bushell: Conceptualisation, Methodology, Reviewing and Editing, Supervision.

ETHICS STATEMENT

This study was approved by the University of Canberra Human Research Ethics Committee (approval number HREC 4593). Individual consent was obtained from each participant to record their anonymous responses prior to starting the survey.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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