Personal protective practices and pharmacy services delivery by community pharmacists during COVID-19 pandemic: Results from a national survey

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ABSTRACT

Introduction: Coronavirus disease (COVID19) has adversely affected the delivery of various health services. Little is known about the impact of COVID19 on pharmacy services across the United Kingdom (UK). We surveyed community pharmacists across the UK to understand their protective practices, professional and general well-being, and the delivery of pharmacy services during the COVID19 pandemic.
Methods: Community pharmacists were invited to participate in a cross-sectional survey via the nationwide weekly newsletter of Pharmaceutical Services Negotiating Committee and the local pharmaceutical committees during the second week of May 2020. The survey remained open for 4 weeks.
Results: A total of 206 pharmacists responded to the survey with representations from England, Northern Ireland, Scotland, and Wales. The majority of pharmacists (>75% or above) reported an increase in customer traffic to their pharmacy and were asking relevant questions from patients with flu-like symptoms before signposting them to the appropriate care. Most pharmacists (>85%) were maintaining a safe distance of 2 m from customers and 72% were wearing an N95 protective mask and 28% were using protective gloves and apron in addition to safe distancing and protective masks. Ninety-nine percent of pharmacists reported drug shortages with 38% and 26% reported significant drug shortages and critical drug shortages causing disruptions beyond over the counter medicines. Eighty-nine percent pharmacists reported inappropriate behaviour from patients or carers with 31% and 16% reported it to be a regular or frequent problem, respectively. Fifty-three% of pharmacists were willing to offer their assistance for mass testing of COVID19 antibodies if adequate training and reimbursement are provided.
Conclusion: Community pharmacists in the UK are facing considerable challenges in terms of personal protection and the delivery of pharmacy services. Inappropriate behaviour from patients and carers towards community pharmacists require urgent attention to ensure a safe working place for all community pharmacists.

Introduction

Severe acute respiratory syndrome coronavirus 2 (SARS CoV-2) has created new norms in almost every aspect of our daily lives from social interactions with family and friends to seeking essential healthcare services. The unprecedented rate of novel coronavirus disease (COVID-19) spread has taken most public health authority by surprise as the total number of confirmed cases now stands at over 10 million.[1] The average mortality of the COVID-19 is substantially higher than the seasonal flu with over 500,000 of over 5 million cases with an outcome that is now deceased.[1] Europe is the worst affected region in the world in terms of COVID19 related mortality accounting for 43% of all deaths reported worldwide.[1] Within Europe, the mortality is hugely varied though the United Kingdom (UK), Italy, and Spain are hardest hit countries representing one-quarter of COVID19 related deaths despite representing around 1/10th of the total numbers of cases, globally.[1]

Owing to the massive increase in the newly reported cases, as well as COVID19 related mortality, the Government of the United Kingdom on the 23rd of March 2020 imposed a complete lockdown of non-essential services to protect the NHS and limit the spread of COVID-19.[2]

Significant food and medicines shortages were reported in the media and there was a general feeling of chaos and uncertainty during the earlier phase of the lockdown.[3] Community pharmacies remained open during these uncertain times and there were reports of inappropriate behaviour by the general public and patients towards community pharmacy staff.[4]

Community pharmacists play an important role in providing a range of services to the members of the public and patients in the UK. Pharmacists are the most accessible trained healthcare professionals who are the first point of contact for minor ailments and cold and flu-like symptoms in the UK,[5] and therefore, are likely to see patients with suspected COVID19. Appropriate safeguarding of community pharmacists during the COVID19 pandemic is vital for the continuity of essential pharmacy services. Given the rapid and unprecedented spread of the disease and the conflicting recommendations on personal protective equipment use,[6] little information is available on the impact of COVID19 on the practices of community pharmacists. Additionally, amid reported abuse and inappropriate behaviour towards community pharmacy personnel,[4] it was important to gauge the extent and seriousness of such behaviour. Community pharmacies in the UK vary considerably in terms of size, design, and location, and therefore, some of the community pharmacists may be at a higher risk of contracting COVID19 than others. A survey study of the UK community pharmacists is needed to assess the impact of COVID19 on their professional practice and to share innovative approaches that individual pharmacists may have been opted for during these uncertain times.

Our study aimed to gauge the impact of COVID19 on the practices and general wellbeing of the UK community pharmacists. The specific objectives were:

1. To identify the types of protective measures and innovation in service delivery that are in place to minimise the spread of COVID19 to pharmacy staff and the members of public
2. To gauge the level of anxiety amongst the UK community pharmacists due to COVID19

Methods

This was a cross-sectional study conducted among community pharmacists providing pharmacy services in communities located in England, Northern Ireland, Scotland, and Wales. Pharmacists who met the inclusion criteria including registration as a pharmacist in the UK, working in a community pharmacy and those who had provided informed consent were recruited.

Ethical approval was obtained from the School of Applied Sciences Research and Ethics Committee at the University of Huddersfield [Research ID: SAS-SREIC 05.05.20–1]. All collected data were stored in a password-protected file accessible only to the researchers. The study results are reported as de-identified data and no personal data was disclosed.

Though all registered pharmacists working in community pharmacy were invited to participate, the sample size was estimated. There are 11,700 community pharmacies in England, 532 in Northern Ireland, 1250 in Scotland, and 716 in Wales.[7–10] Over 30,000 pharmacists are working in the community pharmacies in England,[11] and though such number is not available for the other three countries, a similar ratio of Pharmacy to Pharmacist from England (i.e. 1: 2.5) will yield an approximate number of 1300, 3100 and 1800 for Northern Ireland, Scotland and Wales, respectively. Assuming a total number of over 36, 000 community pharmacists in the UK, we needed 195 responses to achieve a 95% Confidence level and 7% confidence that the observed responses are within 7% of the representative responses of all pharmacists.[12]

STRZ developed the initial pool of survey questions based on a prior study,[6] anecdotal reports of inappropriate behaviour towards pharmacists,[4] and, his own experience of community pharmacy practice. The survey was reviewed by SSH and two more pharmacy academics with experience in community pharmacy practice and research. The initial item pool was modified and forwarded to four experienced community pharmacists for testing and piloting. The tool was finalised after the feedback from the four community pharmacists and was hosted online at onlinesurveys. ac.uk from 4th-30th of May 2020. An invitation email with a QR code and a survey link were used to recruit community pharmacists via the weekly newsletter of the Pharmaceutical Services Negotiation Committee (PSNC), a national professional body representing all community pharmacies in the UK. Local Pharmaceutical Committees were also invited via individual personalised emails to distribute the tool to the community pharmacies in their catchment during the first two weeks of the survey. Twitter posts were also used to promote the survey through personal accounts of STRZ and SSH during week one and week three of the survey tagging professional pharmacy organisations such as Royal Pharmaceutical Society, and National Pharmacy Association. Our requests for a reminder were understandably denied by the PSNC and the several local pharmaceutical committees did not respond to our request presumably to minimise distractions for community pharmacists during this highly stressful period.

The data were analysed using Statistical Package for Social Sciences (SPSS) (version 24) with 0.05 as the level of significance. Descriptive statistics were used to present percentages, frequencies, mean and standard deviation. For all of the categorical data to be stated, the frequency of patients per category was analysed and recorded with the associated percentages. For the continuous data, mean and standard deviation with any associated range were analysed and recorded.

Results

A total of 206 community pharmacists from England, Northern Ireland, Scotland, and Wales participated in this survey. These included 182 participants from England (91%), six from Wales (3%), six from Scotland (3%), and six from Northern Ireland (3%) (Fig. 1). In England, highest responses were obtained from Greater London (15.5%) and North West England (15.5%)

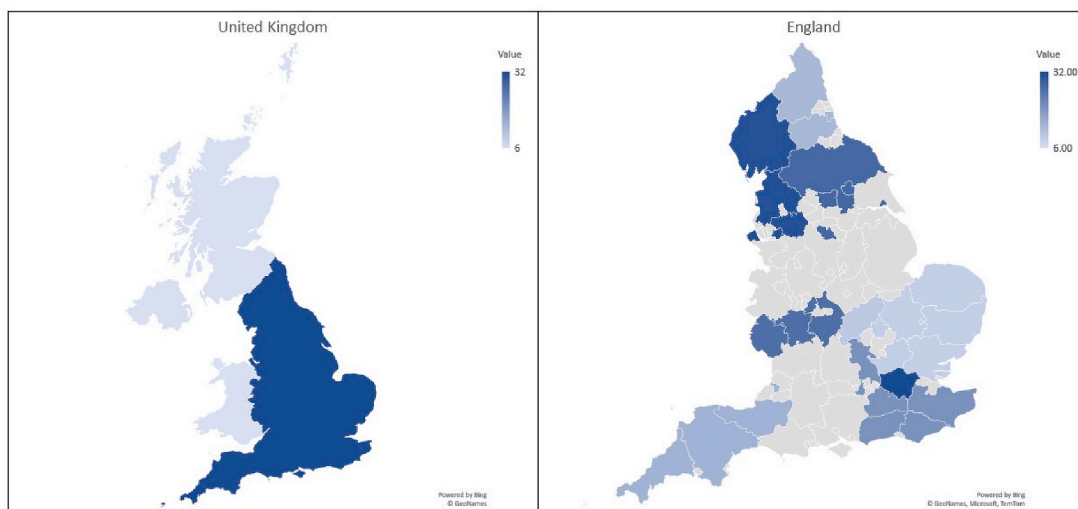### Characteristics of participating pharmacists and pharmacy

Table 1 presents the characteristics of participating pharmacists and pharmacies. The mean age of the participants was 45.6 (11.6) with similar proportions of male and female participants. The majority of the participants were working as either manager or sole pharmacist (59%). Most of the pharmacies were located at the high street (44%) and were either large-chain (40.5%) or independent pharmacy (33.3%). More than two-third community pharmacists noticed an increase in customer traffic amid COVID-19 pandemic.

Handling of medicines supply, queries, and usual behaviour amid COVID-19

In response to question about major logistic issues with regards to the supply of the medicines amid COVID-19, 37% of pharmacists reported significant drug shortages including paracetamol, over the counter cold/flu remedies, commonly used antibiotics and another 26% reported critical drug shortages creating major problems where they are unable to supply patients with their regular medicines (Fig. 2).

When asked about receiving queries from patients, customers, or members of the public concerning the potential medicines for COVID-19, the majority of the pharmacists reported hydroxychloroquine, chloroquine, and azithromycin. In response to reading or researching information about COVID-19 and the sources of information they have been using, majority of the pharmacists reported reading scientific journals (69%), followed by BBC website (64%), Social media (35%) and Newspaper (33%).

More than two-thirds of the participating community pharmacists

Fig. 1. Geographical representativeness of community pharmacies/pharmacists according to four nations in the UK and England regions. Dark areas represent areas of higher responses.

Table 1
Characteristics of participating pharmacists in the study.

Item	n	%
Age, mean (SD) in years	45.6 (11.6)	
Age, range in years	23–73	
Gender		
Female	99	51.0
Male	92	47.4
Role in community pharmacy		
Manager/Sole Pharmacist	115	59.0
Additional Pharmacists	26	13.3
Locum	27	13.8
Other	27	13.8
Location of Pharmacy		
High Street (town/suburban)	86	44.1
Supermarket	13	6.7
Shopping centre (precinct in town)	9	4.6
Rural/Village	38	19.5
Shopping Centre (out of town)	8	4.1
Attached to GP surgery	27	13.8
Other	14	7.2
Size of pharmacy/pharmacy organization		
Independent pharmacy	65	33.3
Small chain pharmacy (2–10 pharmacies)	40	20.5
Medium-chain pharmacy (11–30 pharmacies)	11	5.6
Large-chain pharmacy (More than 30 pharmacies)	79	40.5
No. of prescriptions dispensed on a typical day		
Less than 100	7	3.6
100 to 150	28	14.4
More than 150	159	82.0
Increase in customer traffic in the pharmacy amid COVID-19		
Yes, I have noticed an increase	161	80.5
No, it is same before the outbreak	8	4.0
No, I have noticed a decrease	27	13.5
Other	4	2.0
Number of pharmacist (s) working on a typical day, mean (range)	1.29 (1–3)	

experienced unusual behaviour in the pharmacy due to increased anxiety and frustration in the general public: 25% experience minor issues with some patients or their relatives/caregivers showing frustration, 30% experienced quite a few patients or their relatives/caregivers behaving inappropriately, and 15% experienced frequent inappropriate behaviour from patients or their relatives/caregivers. The common reasons for inappropriate behaviour reported were: drug shortage or item requested being unavailable (65%), time taken for them to access pharmacy due to social distancing (54%), refusal of pharmacy staff to supply the excessive quantity of medicine requested (34%) and specific precautions taken by the pharmacist or other pharmacy staff (not accepting cash, communicating at distance, etc.) (36%)

The general well-being of community pharmacists

Fig. 3 presents how pharmacists feel emotionally amid the COVID19 outbreak. About 52% of the participants reported that they feel a little or considerably anxious or worried about working in the community pharmacy during COVID19 pandemic. About 16% reported that they feel very anxious or worried about working in a community pharmacy. When asked about what measures they have taken to overcome some of their worries/anxiety, 65% considered discussing with a friend, and 47% considered listening to music as moderately or very helpful. The majority of the pharmacist considered medicines to overcome anxiety (83%), meditation and prayers (51%), and an online forum for pharmacists as not applicable.

Table 2 presents participants' anxiety or worries about working in a community pharmacy after the COVID19 outbreak. The majority of the participants raised major concerns that they will get the COVID-19 (39%), and that they will get my family or friends infected with COVID-19 (58%). About 37% of the participants showed minor concerns towards other staff in the pharmacy not taking precautions.

Precautionary measures by pharmacists

Table 3 presents the precautionary measures taken by pharmacists before consulting the patients. About handling a patient with cold/flu-like symptoms, the majority of the pharmacists (75%) reported that they ask specific questions to determine if they are potentially having COVID-19 and signpost them to 111 or their GP. Regarding what specific precautions pharmacists are taking before consulting the patient, 43% reported that they maintain a safe distance of 2 m and use a protective mask (surgical or N95). The three most commonly followed precautionary measures at a pharmacy level were the entry of limited customers in a given time to maintain social distancing rules (81%), use of protective hard plastic or glass screen (similar to the one seen in banks) being installed to shield pharmacy (76%) and use of visible poster listing do's and don'ts and clear instructions for customers are placed at the entrance of the pharmacy (75%). The majority of the participants (61%) were satisfied with the precautionary measures taken by the pharmacy they work in due to the COVID19 outbreak.
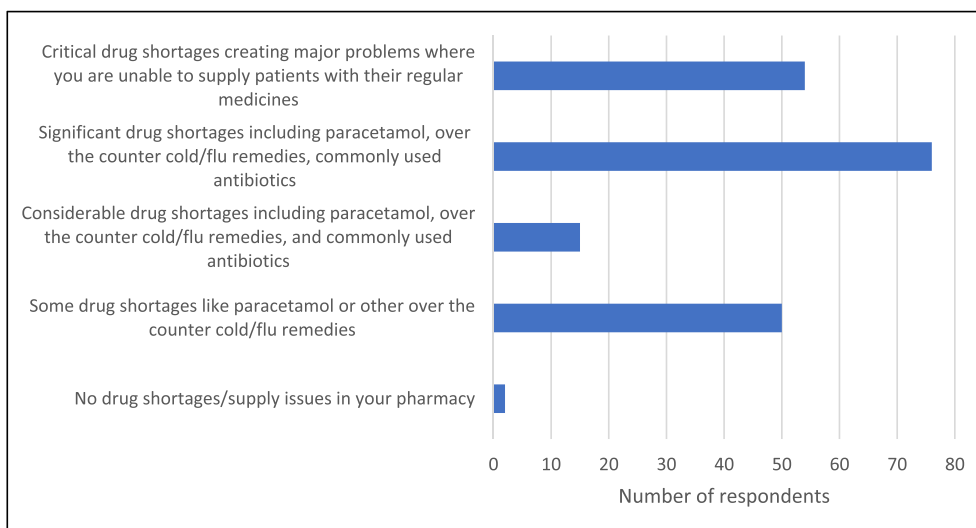
Fig. 2. Major logistic issues with regards to the supply of the medicines amid COVID-19.
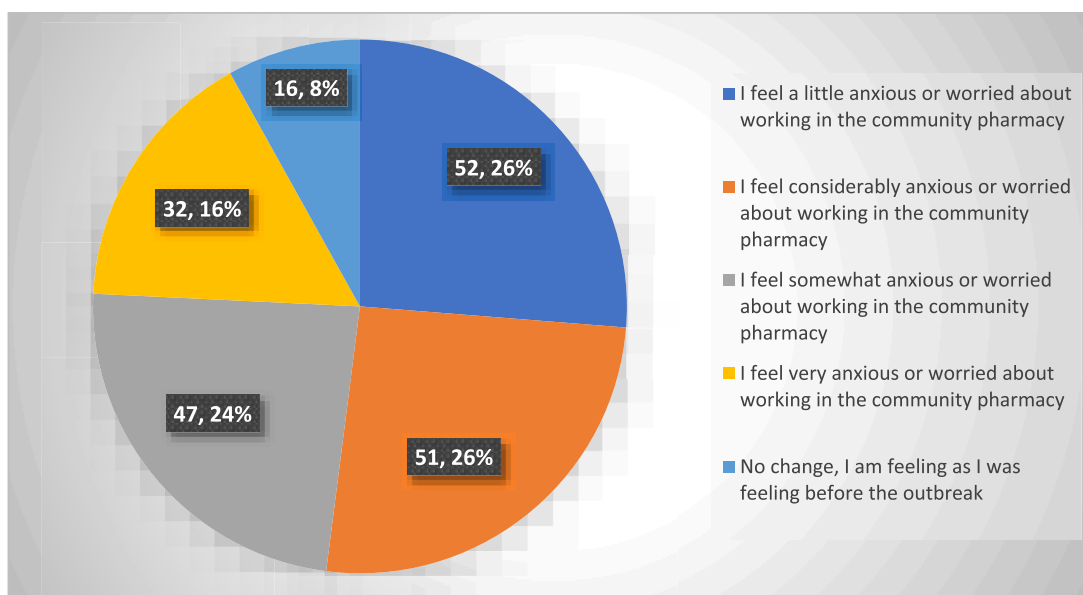

Fig. 3. How do you feel emotionally after the COVID19 outbreak.

Discussion

COVID19 has a significant impact on the ongoing operations of pharmacies and the general wellbeing of community pharmacists in the UK. Despite the unprecedented stress and logistic issues that community pharmacists are facing, we received a good response and survey completion indicating a strong desire from pharmacists to communicate their concerns. Several findings from this first survey of the UK community pharmacists are worthy of further deliberations.

Critical drug shortages to an extent where pharmacists were unable to provide patients with their regular medicines were noted by more than half of the respondents. The lack of continual care for patients on chronic medicines for primary or secondary prevention of heart disease, or management of diseases such as asthma, chronic obstructive pulmonary disease, and diabetes may have serious consequences for patients. In addition, the lack of appropriate care may cause exacerbations of chronic disease leading to a higher risk of presentations at the accident and emergency departments of local hospitals which are already under stress due to the pandemic. While short term shortages were

unavoidable due to the unprecedented nature of COVID19 pandemic, careful considerations for drug shortages should be included in any future planning with regards to community pharmacy contracts to ensure a continual supply of chronic medicines to patients.

The majority of pharmacists reported a change in customers' behaviour with nearly half (45%) found it to be more than an isolated problem. More than 60% of the pharmacists reported inappropriate behaviour of the patients and their caregivers to be either a moderate or major concern making them anxious or worried while doing their job. Anecdotal reports of inappropriate behaviour towards community pharmacists have been reported by the British Broadcasting service though our study is the first to document the issue systematically across the UK.[3] It is interesting to note that the inappropriate behaviour towards pharmacists was mainly due to drug shortages and rationing of over the counter sale to ensure equitable access to these medicines and discourage hoarding of basic medicines by panic buyers. Community pharmacies are often criticised by the public and other healthcare professionals as part of the health system that is too focused on generating profits.[13] Nevertheless, community pharmacists were facing

Table 2

Anxiety or worries about working in community pharmacy after the COVID19 outbreak.

Items	A minor concern		A moderate concern		A major concern		Not applicable to me	
	n	%	n	%	n	%	n	%
I will get the COVID19	48	23.3	63	30.6	80	38.8	2	1.0
I will get my family or friends infected with COVID19	22	10.7	47	22.8	120	58.3	6	2.9
I am unable to do my best	53	25.7	58	28.2	51	24.8	31	15.0
The inappropriate behaviour of patients and their relatives/caregivers	54	26.2	73	35.4	55	26.7	12	5.8
Other staff in pharmacy are not taking precautions	76	36.9	48	23.3	24	11.7	45	21.8
My pharmacy does not have precautionary measures in place (lack of protective screen, policy on social distancing, availability of face masks, etc.)	50	24.3	25	12.1	17	8.3	100	48.5
I have comorbid conditions putting me at a high risk of getting COVID19 (Diabetes, asthma, COPD, etc.)	32	15.5	12	5.8	28	13.6	118	57.3
The layout of my pharmacy prevents me to take necessary precautions to prevent myself from COVID19	57	27.7	41	19.9	27	13.1	68	33.0
I feel that my contribution is unrecognised by others (public, government, NHS, pharmacy owner, etc.)	33	16.0	31	15.0	110	53.4	19	9.2

Table 3

Precautionary measures pharmacists taking before consulting the patient.

Items	n	%
After the COVID-19 outbreak, if a customer approached you with cold/flu-like symptoms, how do you handle such a patient?		
No different than before the outbreak, I ask all the relevant questions and treat them accordingly including referral to	17	8.3
I ask specific questions to determine if they are potentially having COVID-19 and signpost them to 111 or their GP	155	75.2
I do not interact with them and signpost them to 111 or their GP	22	10.7
Since the COVID-19 outbreak, what specific precautions, if any, are you taking before consulting the patient?		
No specific precautions at all, I interact with the patient as I used to before the outbreak	2	1.0
I maintain a safe distance of 2 m but do not take any additional precautions	28	13.6
I maintain a safe distance of 2 m and use a protective mask (surgical or N95)	88	42.7
I maintain a safe distance of 2 m, use a protective mask (surgical or N95), and use gloves and a plastic apron	57	27.7
Since the COVID19 outbreak, please outline what precautionary measures have you taken at a pharmacy level		
There are specific policy and procedures in place and all staff are following these strictly	102	49.5
There are specific policy and procedures in place though not all staff are following these strictly	66	32.0
There is a protective hard plastic or glass screen (similar to the one seen in banks) being installed to shield pharmacy	156	75.7
Cash is not accepted as a payment method and only contactless card payments are accepted	31	15.0
Limited customers are allowed in a given time to maintain social distancing rules	166	80.6
Physical barriers are in place to ensure only limited customers are allowed at any given time to enforce social distancing	108	52.4
Hand sanitisers are placed at the entrance so all customers entering pharmacy can sanitise their hands before entering	51	24.8
Do's and Don'ts and clear instructions for customers are placed at the entrance of pharmacy using a visible poster	154	74.8
Please rate your satisfaction about the precautionary measures taken by the pharmacy you work in due to COVID19 outbreak		
Very dissatisfied	10	4.9
Dissatisfied	20	9.7
Neither satisfied nor dissatisfied	31	15.0
Satisfied	95	46.1
Very satisfied	43	20.9

inappropriate behaviour by the public for ensuring equitable access to medicines for all.

All except a small number (8%) of pharmacists were anxious about working in the pharmacy during COVID19 and 42% of them noted this as a significant concern to them. Getting COVID19 or being a cause of infection for their loved ones was a major concern for most pharmacists. This is quite understandable as many healthcare professionals in the UK have contracted COVID19 at work including over 300 NHS staff and care workers who have lost their lives to the pandemic.[14] Healthcare system transmission places healthcare workers at a much greater risk than community transmission and this is true with other countries such as China, Spain, and Italy.[15] The majority of pharmacists (90%) felt that their contribution is unrecognised by the NHS, government, public, or pharmacy owners. Community pharmacists are facing challenging times in the UK with constant cuts in their funding and an ever-changing structure of pharmacy services in the primary care.[16]

Regarding preventative measures, respondents in our study highlighted several measures that were taken at the pharmacy and individual level. The most commonly followed precautionary measures at a pharmacy level was the entry of limited customers in a given time to maintain social distancing rules. One of the major issues with community pharmacies is the limited space or staff to practically implement social distancing in their premises at all times.[6] The same issue was highlighted in a survey among pharmacists in the United Kingdom where respondents indicated that the majority of them were unable to maintain social distancing from other pharmacy personnel and patients.[17]

Public Health England (PHE) reports that there is sustained community transmission occurring across the UK.[18] This risk of community transmission exposes community pharmacists to a greater risk of interacting with COVID-19 positive patients visiting their pharmacy. Despite sustained community transmission, PHE guidance on COVID-19 PPE recommended only sessional use of a fluid-resistant surgical mask for pharmacists when working in an area with possible or confirmed case(s) or unable to maintain 2 m social distance.[18] Although the majority of the respondents in our survey stated that they maintain a safe distance of 2 m and use a protective mask (surgical or N95), many of them (34%) are unable to source continuous supplies of PPE.[17]

Few studies have surveyed community pharmacies on the impact of COVID19 around the world with different aims and objectives and outcome measures.[19–22] In a study of Kosovan community pharmacists, Hoti et al. found that half of the surveyed pharmacists were concerned about getting COVID19 [21]. The proportion of pharmacists who were worried about getting COVID19 was higher in our study where such concerns were noted by over 90% of the pharmacists. The differences are understandable because Kosova has just over 3000 cases as of 3rd of July 20[23] and this number may even be lower at the time of Hoti et al. study. On the other hand, the UK has over 200,000 confirmed cases at the time of our survey study.[1] Seventy % of our participants reported the

use of N95 masks in our study as compared to 25% of participants in Hoti et al. study[21] and 98% of participants in a survey of Italian pharmacists.[20] These differences may be explained by the significant differences in the prevalence of COVID19 in all three countries. As noted above, Kosova has experienced relatively fewer numbers of confirmed COVID19 cases compared to the UK whereas Italy was the hardest-hit country in Europe at the time of our study.[1]

There are some strengths and weaknesses associated with our study. This is the first nationwide survey assessing the impact of COVID19 on the professional and general well-being of community pharmacists, their anxiety, and protective measures across the UK. Despite achieving a reasonable sample of community pharmacists across the UK, representations from Wales, Northern Ireland and Scotland were limited. Given the significant stress community pharmacists have been under, our request for a reminder was understandably denied by the PSNC. Therefore, our sample may have a respondent bias.

Conclusion

This is the first national survey of the impact of COVID19 on pharmacy services delivery and the general and professional wellbeing of community pharmacists across the UK. The study identified genuine concerns around public behaviour towards pharmacy staff and critical drug shortages that have impacted the continuity of care for patients. Pharmacy organisations and commissioners of pharmacy services should consider our findings while developing a coordinated response to ensure the ongoing safety and wellbeing of community pharmacists.

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