Management of asthma in primary care in the changing context of the COVID-19 pandemic: a qualitative longitudinal study with patients

Santillo, Marta; Tonkin-Crine, Sarah; Wang, Kay; Butler, Christopher; Wanat, Marta

DOI: https://doi.org/10.3399/BJGP.2022.0581

To access the most recent version of this article, please click the DOI URL in the line above.

Received 23 November 2022
Revised 24 February 2023
Accepted 04 April 2023

© 2023 The Author(s). This is an Open Access article distributed under the terms of the Creative Commons Attribution 4.0 License (http://creativecommons.org/licenses/by/4.0/). Published by British Journal of General Practice. For editorial process and policies, see: https://bjgp.org/authors/bjgp-editorial-process-and-policies

When citing this article please include the DOI provided above.
Title: Management of asthma in primary care in the changing context of the COVID-19 pandemic: a qualitative longitudinal study with patients

Authors, Qualifications, Roles and Affiliations

Marta Santillo, BSc MSc PhD, Qualitative Research Fellow, Nuffield Department of Primary Care Health Sciences, University of Oxford, Radcliffe Observatory Quarter, Woodstock Road, OX2 6GG, Oxford, UK; ORCID iD: 0000-0001-6345-7612

Sarah Tonkin-Crine, BSc MSc PhD, Associate Professor and Health Psychologist (the same role for both affiliations), Nuffield Department of Primary Care Health Sciences, University of Oxford, Oxford, OX2 6GG; NIHR Health Protection Research Unit in Healthcare Associated Infections and Antimicrobial Resistance, University of Oxford, Oxford, UK. ORCID iD: 0000-0003-4470-1151

Kay Wang, MA (Cantab), BM BCh, DRCOG, DFSRH, DCH, FRCGP, DPhil, Senior Clinical Research Fellow, Nuffield Department of Primary Care Health Sciences, University of Oxford, Oxford, OX2 6GG; ORCID iD: 0000-0002-7195-1730

Christopher C. Butler, BA MBChB DCH CCH MD FRCGP FFPH(Hon) FMedSci, Professor of Primary Care, Nuffield Department of Primary Care Health Sciences, University of Oxford, Oxford, OX2 6GG; ORCID iD: 0000-0002-7195-1730

Marta Wanat, BA MRes PhD, Senior Qualitative Researcher, Nuffield Department of Primary Care Health Sciences, University of Oxford, Radcliffe Observatory Quarter, Woodstock Road, OX2 6GG, Oxford, UK, ORCID iD: 0000-0002-0163-1547

Corresponding author: Marta Wanat, Nuffield Department of Primary Care Health Sciences, University of Oxford, Radcliffe Observatory Quarter, Woodstock Road, Oxford, OX2 6GG, marta.wanat@phc.ox.ac.uk; 01865617935

Short running title: Patients’ views on asthma primary care delivery during the COVID-19 pandemic

Keywords: Asthma, primary care, longitudinal interviews, qualitative
How this fits
The COVID-19 pandemic dramatically affected monitoring of asthma in primary care but the evidence on patients’ views and experiences of managing their asthma in the community has been limited. Through longitudinal interviews with patients over 8-months, we explored how patients tried to make sense of how asthma impacted on their risk of complications from COVID-19, how they engaged with self-management strategies, and their needs and experiences in relation to routine asthma reviews. Our study highlights what asthma patients may find helpful in management of their condition in times of more limited contact with healthcare professionals and what aspects they may struggle with, highlighting the role of primary care in addressing these which may also be relevant to management of other long-term conditions.

Abstract
**Background:** The COVID-19 pandemic dramatically affected asthma monitoring in primary care. Yet, patients’ views and experiences of managing their asthma and seeking help from primary care during the pandemic have not been explored.

**Aim:** To investigate patients’ experiences of asthma management in the community during the COVID-19 pandemic.

**Design and setting:** A qualitative longitudinal study using semi-structured interviews with asthma patients usually managed in primary care.

**Method:** Interviews were audio recorded, transcribed and analysed using inductive temporal thematic analysis and trajectory approach.

**Results:** Forty-six interviews were conducted with 18 asthma patients over eight months that covered contrasting stages of the pandemic. Patients felt less vulnerable as the pandemic subsided but the process of making sense of risk was dynamic and influenced by multiple factors. Patients relied on self-management strategies but felt that routine asthma reviews should still have been conducted during the COVID-19 pandemic and highlighted limited opportunities to discuss their asthma with healthcare professionals. Patients with well-controlled symptoms felt that remote reviews were largely satisfactory but still felt that face-to-face reviews were necessary for certain aspects such as physical examination and patient-led discussion of sensitive or broader issues associated with asthma including mental health.

**Conclusions:** The dynamic nature of patients’ perception of risk throughout the pandemic highlighted the need for a greater clarity regarding patients’ personal risk. Having opportunity to discuss their asthma is important to patients even during periods when access to face-to-face consultations in primary care is more restricted than usual.
Introduction

The COVID-19 pandemic dramatically affected asthma monitoring in primary care (1). Firstly, some routine asthma reviews were postponed or conducted remotely (2), which meant that some important elements for optimal management of asthma, such as checking inhaler technique (3), or reviewing medication (4) could either not take place or became more difficult to implement. The limited access could have been particularly impactful for patients with severe asthma, some of whom go unrecognised in primary care (5). In addition, there may have been limited opportunities to review the validity of recorded diagnoses (6). While a backlog of reviews has been decreasing, additional priorities, including the COVID-19 vaccine rollout continue to impinge on asthma reviews completion (7). Secondly, self-management of asthma, defined as the tasks that individuals with asthma may do to live with this condition, including having confidence to deal with both medical and emotional management of their condition (8), improves asthma control (9). In the context of the pandemic, patients may have been uncertain about how or when to contact their GP which in turn may have led to poorer outcomes for them (1). Thirdly, there have been uncertainties whether patients with asthma are at increased risk from COVID-19 (10-12); this was evidenced in patients with severe asthma being advised to shield initially (11), and was further reflected in uncertainties related to whether asthma patients should be offered a COVID vaccine as a priority as well as additional boosters, which may have created confusion for patients. Fourthly, anxiety and depression are more commonly reported in patients with asthma and are associated with worse clinical outcomes (13, 14). The pandemic might have exacerbated these conditions (15), which in turn may have affected patients’ adherence to medication and asthma control (16), as well as limiting opportunities to review the validity of recorded diagnoses.

Previous qualitative studies focused on the experiences of primary healthcare professionals (HCPs) of delivering remote care during the pandemic, highlighting a number of challenges (2, 17, 18). In contrast, the evidence on patient experiences of managing their asthma has been limited. The studies so far have mainly focused on patients’ views and reported patterns of requesting medication during the pandemic (19), patients’ and HCPs’ beliefs about asthma and COVID-19 (16), caregiver experiences of managing childhood asthma (21, 22) and the effects of having asthma on mental health (15, 23, 24). However, patients’ views and experiences of managing their condition and seeking help from primary care during the pandemic have not been explored. As diagnosis and monitoring of asthma is mainly managed in primary care, which continues to undergo substantial changes as a result of the COVID-19 pandemic (17), understanding how patients’ experiences may change over time is crucial. Our study aimed to fill this important gap by longitudinally exploring the views and experiences of asthma monitoring in primary care during the COVID-19 pandemic, with the aim of identifying barriers and facilitators to asthma management in the context of the pandemic and beyond.

Method

Design

This was a qualitative longitudinal study using serial interviews with each patient; the study design was chosen to understand continuity and changes in patient views and how shifting context can influence care provision and subsequent patient experience (25-27).
Recruitment and sampling

Participants were recruited from four GP practices serving diverse regions across the UK with help from three Clinical Research Networks and were selected based on their geographical area, size, and deprivation and diversity indices. Each practice identified and invited approximately 50 patients aged over 18 years old, with “active asthma” (defined as a coded diagnosis of asthma and having had a prescription for at least one asthma medication in the previous year), who had a review in the previous 3 months or were due a review in the following 3 months.

We aimed to recruit a maximum variation sample based on age, sex, time since diagnosis, self-reported number of asthma exacerbations in previous 12 months, and use of asthma action plans. Interested participants contacted the study team directly and were provided with the study information.

Data collection

Longitudinal interviews were conducted at 3-month intervals over 8 months (December 2021 to July 2022). Table 1 shows brief contextual information related to timing of the interviews.

<table>
<thead>
<tr>
<th>Wave of interviews</th>
<th>Dates of interviews</th>
<th>Extent of restrictions and other key policies</th>
<th>Key events related to asthma and primary care</th>
</tr>
</thead>
<tbody>
<tr>
<td>Period 1</td>
<td>8th December 2021-31st January 2022</td>
<td>New variant (Omicron) confirmed; tighter travel restrictions brought in; “plan B” restrictions implemented (working from home; compulsory face masks); vaccine booster programme becoming a priority; 19th January-end of plan B</td>
<td>Acceleration of COVID-19 vaccine programme; QOF requirements changed; practices asked to prioritise areas of care, based on their judgment (28)</td>
</tr>
<tr>
<td>Period 2</td>
<td>7th March 2022-10th April 2022</td>
<td>Restrictions lifted; Free COVID-19 testing ends on 1st April 2022; People with COVID-19 symptoms advised to stay home (but no longer compulsory); No restrictions</td>
<td>QOF recommencing April 2022 (23)</td>
</tr>
<tr>
<td>Period 3</td>
<td>13th June 2022 to 7th July 2022</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Interviews were conducted across different time points to capture changes to asthma management influenced by external factors related to the COVID-19 pandemic.

Two expert qualitative researchers (MS and MW) shared data collection, with each researcher conducting all interviews with the same participant throughout. Semi-structured telephone interviews were conducted using a topic guide covering topics of interest while allowing individuals to express their own thoughts and to discuss topics of most importance to them. All interviews were recorded and transcribed verbatim. Informed consent was obtained verbally prior to interview and a written record retained. Participants were assured that they could withdraw from the study at any time. Patients were reimbursed for their time.
Analysis

Data collection and analysis took place concurrently. Data were analysed using an inductive temporal thematic analysis (25) and trajectory approach (29). Figure 1 provides an overview of the process.

Two researchers (MW and MS) read all transcripts from Time 1, inductively coded them and grouped them into thirteen categories. The analysis of interviews at Time 2 and 3 was guided by these categories; this meant that transcripts were deductively coded into these categories but within each category data were inductively coded to maintain familiarisation. The second phase of analysis involved focusing on temporal aspects with the aim of identifying key similarities and differences across time points and participants. To aid this, we created two frameworks summarising data across three time points: per participant and per category (25). These frameworks are helpful alongside thematic analysis to enable visualisation of findings over time (25). The participant framework was used to identify changes and continuity in views and experiences over time for each individual patient, while the category-based framework was used to identify similarities and differences in relation to each specific category across time points for all patients (25). This allowed us to group these categories into themes. The analysis was an iterative process, going back and forth between time points, and categories and themes.

We have involved four patients with asthma recruited via Asthma UK throughout the study. The ongoing analysis from each time point was discussed with them as the study progressed. The summary of the results was also shared with all interview participants. This article adheres to the Consolidated Criteria for Reporting Qualitative Research (COREQ) reporting guideline.

Results

We conducted 46 semi-structured interviews over an 8-month period with eighteen patients. Table 2 provides a summary of key characteristics of patients.
Table 2 Summary of patients' key characteristics

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Number (%), Median (range) or Mean (standard deviation)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median Interview length, minutes</td>
<td>25 (20-40)</td>
</tr>
<tr>
<td>Sex: Female</td>
<td>9 (50%)</td>
</tr>
<tr>
<td>Mean age, years</td>
<td>50 (18)</td>
</tr>
<tr>
<td>One or more self-reported number of asthma exacerbations in the previous 12 months</td>
<td>6 (33%)</td>
</tr>
<tr>
<td>Number of patients completing interviews</td>
<td></td>
</tr>
<tr>
<td>Time 1</td>
<td>18 (100%)</td>
</tr>
<tr>
<td>Time 2</td>
<td>14 (77%)</td>
</tr>
<tr>
<td>Time 3</td>
<td>14 (77%)</td>
</tr>
<tr>
<td>Timing of the last asthma review</td>
<td></td>
</tr>
<tr>
<td>Before the pandemic</td>
<td>6 (33%)</td>
</tr>
<tr>
<td>During the pandemic</td>
<td>12 (67%)</td>
</tr>
<tr>
<td>Infected with COVID-19 before and/or during the study period</td>
<td>8 (44%)</td>
</tr>
<tr>
<td>Received information from NHS advising on their risk</td>
<td>4 (22%)</td>
</tr>
</tbody>
</table>

Three themes were identified, which we present with illustrative quotes. Table 3 provides a summary of key findings at each time point.
<table>
<thead>
<tr>
<th>Theme</th>
<th>Summary of the theme</th>
<th>Key findings at Time 1</th>
<th>Key findings at Time 2</th>
<th>Key findings at Time 3</th>
</tr>
</thead>
</table>
| Making sense of one’s vulnerability to COVID | Participants tried to make sense of their risk related to having asthma and suffering with consequences from COVID-19. | • Participants feeling at higher risk of developing severe illness or complications compared to people without asthma  
  • Perceptions of risk affected by external factors (e.g. letters from the NHS) or internal factors (based on perceived asthma severity or symptom control)  
  • Levels of activity (e.g. going out) affected by perception of risk | • Participants continuing to feel at higher risk compared to people without asthma but perceptions of risk dynamically changing depending on individual circumstances  
  • Participant continuing with some levels of restriction but to a lesser extent than at Time 1 | • Participants feeling less at risk than before, including patients who felt significantly vulnerable  
  • Participants reporting resuming their previous activities including previously avoided ones (e.g. taking a holiday) |
| Views on asthma reviews during the pandemic | Participants shared their views and experiences of having and not having access to asthma reviews | • Participants differing in their acceptance of lack of reviews based on perceived asthma control, symptoms severity and a relationship with their GP practice  
  • Patients seeing telephone reviews as convenient but more rigid in contrast to face-to-face reviews which were deemed a “gold standard” | • Participants highlighting the need for a review linked to their worries of not having had a check-up for a long time | • Participants, including patients with well controlled asthma, expressing concerns about not having had a review  
  • Patients who had been offered asthma reviews highlighting the need for and expectations of a more comprehensive review after a long time of not having had one |
| The role of self-management strategies during the pandemic | Participants discussed which self-management strategies they used during the pandemic and what helped them to manage their asthma. | • Participants relying on known self-management strategies and highlighting their importance during the pandemic  
  • Participants highlighting worries about problems with accessing inhalers and managing their mental health | • Participants continuing with their self-management strategies  
  • Patients with experience of infections seeking help from their general practice | • Participants continuing with their self-management strategies, highlighting the need to prioritise their mental health |
Theme 1: Making sense of one’s vulnerability to COVID

Participants tried to make sense of their risk related to having asthma and suffering with consequences from COVID-19.

Time 1

Overall, patients perceived they were at higher risk of developing severe illness or complications from COVID-19 or experiencing more severe illness from COVID-19 compared to people without asthma. For some patients, their perception of their risk was triggered by letters and communication from the NHS, informing them that they were in a higher risk category, or clinically vulnerable. However, receiving information or being reassured by their GP practice that they did not need to receive the COVID-19 vaccine earlier than others in their age group was interpreted by patients as confirmation of a low risk status. Patients highlighted that they were not sure what the letters meant, with a minority seeking further information on government and other websites.

I wondered how they knew how fatal it would be if I got it because the letter was written in a way that if I get it, I would die and [...] I had questions of [...] how do I keep myself as safe [...] I relied heavily on Asthma UK’s website and they had a lot of advice on there for people that were shielding. (P16, 20y, not well controlled)

In contrast, the majority of patients, who had not received letters, tried to make sense of the risk themselves. The extent of risk seemed to be linked especially to their perceived asthma severity or symptom control, with patients who considered their asthma severe more concerned about the risk that COVID-19 might make them more severely unwell than people who were otherwise healthy.

If I look at the stats, COVID is pretty mild for most people but on top of something else like severe asthma, that can be the thing that gets you. (P5, 61y, well controlled)

Consequently, the more patients felt at risk, the more they seemed to restrict their activities and incorporate infection control behaviours such as wearing a mask or not going out.

Time 2

At Time 2, overall patients seemed to continue to see their risk as higher compared to people without asthma but patient individual experiences seemed to be affected by a variety of often dynamically changing factors. Factors contributing to lower sense of risk included stepping-up medication, perceived good asthma control, or contracting COVID and experiencing little impact on their asthma. In contrast, controlled symptoms, knowing people without asthma suffering with severe consequences of COVID, worries about new variants emerging, looking after an older relative, or living in an area where cases were still high seemed to increase patient’s sense of risk. Thus, a number of these patients felt that restrictions were lifted prematurely.

Consequently, patients continued with some infection control prevention (IPC) measures, which went beyond what the rules were at the time but in general were less strict than at the Time 1.

However, patients also often highlighted the difficulty of knowing how at risk they were, with the lack of information about the risk still being of importance, which made it difficult for patients to know if they should engage in certain activities (e.g. seeing a large group of people).

They obviously thought I was vulnerable in the first place because I had asthma; [...] Well, I’m not too sure what scale of vulnerable [laughs] I’m on between nought and a hundred. If it’s 48%, therefore it’s not quite as vulnerable as it could be, that’s still pretty vulnerable! (P3, 73y, not well controlled).
Time 3
By the time of the third interview, the majority of patients felt overall less at risk than before and even participants who felt at substantial risk previously, saw themselves as less vulnerable. This seemed to be closely linked to wanting to return to feeling normal, seeing the current variant as causing milder symptoms, feeling reassured by having an additional booster, or experiencing mild symptoms when contracting COVID-19. In contrast, worrying about high numbers of cases locally or getting a letter inviting them for an extra booster because of being vulnerable, seemed to act as a reminder that they may still be at risk.

As time's gone on, I've not felt as at risk but when I got the message to go for the fourth one [vaccine], I thought well I'm still on that vulnerable list and you do realise then you are vulnerable. (P6, 69y, not well controlled).

Participants also described reducing use of face masks or taking a “big risk” such as going on holiday for the first time. The majority of patients also reported waiting for the official guidance on whether to have the second booster and some patients wondered whether lack of information about the next booster meant they were not at risk.

Theme 2: Views on asthma reviews during the pandemic
Participants described their views on access to asthma reviews, while some reflected on their experience of having reviews during the pandemic.

Time 1
Overall, patients expressed uncertainty of what kind of support they could expect from general practice given the pandemic. Among patients who had not had a review, there seemed to be variation in the extent to which they accepted it; patients with more severe or poorly controlled asthma, and patients with more recently diagnosed asthma highlighted the lack of reviews more as they were keen to receive advice, have their medication checked or get reassurance.

I would like to have it [review] soon just because I’ve been on this medication for quite a while and I’d just like to see if my asthma’s improved since my last review, if I’ve got worse then I need to be upping it.(P16, 20y, not well controlled)

In contrast, patients who reported having a good relationship with their GP practice seemed to accept the lack of review as they felt confident that they would know who to contact if their asthma got worse. Of note is that a minority of patients received more frequent reviews and felt that they had received extra care, which made them feel that they were “taken seriously”, and valued this support.

Patients also had mixed views on the mode of delivery of asthma reviews. Patients whose symptoms were well controlled seemed to favour a telephone review for its flexibility and convenience, whereas patients with less controlled symptoms, wanting to discuss the feeling of being at risk and mental health concerns related to having asthma, would have preferred a face-to-face review. The telephone review was seen as more rigid, not allowing unscripted topics to be discussed.

It was very detached and it was very much ticking the box situation, [...] they just go through a number of standard questions. It is nice if we could see a face, and [...] I say, if I go back to feeling a little bit vulnerable during this COVID business and some reassurance in certain
areas about this would have been a bit more helpful if it was forthcoming. (P2, 69y, well controlled)

In addition, patients often saw face-to-face reviews as the “gold standard” as they enabled checking inhaler technique, discussions of medication and doing peak flows.

Time 2

Similar to Time 1, some patients continued to have confidence that the practice would respond if patients showed evidence of worsening asthma symptoms. They seemed to expect that reviews would happen if there were major changes to their condition, rather than as part of routine care. However, overall, there was more of an expectation that a review should have been offered by this point, and some highlighted that not having their medication reviewed for such a long time was worrying.

Maybe that the dose I’m taking is not appropriate. It maybe that the medication is not appropriate. [...] My peak flow was 240 this week, which isn’t great, but nobody knows that. It’s just like you’re doing it on your own really. [...] I would be pleased to go and be checked. She might examine my chest. She might discuss how I am or whatever, I don’t know but it would be reassuring really. (P7, 76y, well controlled)

Time 3

By the time of the third interview, patients who had not been called for a routine review expressed their concerns about this, even if their symptoms were well controlled. This was particularly evident in patients who had some changes in their condition. Among patients who had telephone or face to face reviews, some expressed the benefits of having a discussion about their asthma, while some also expressed dissatisfaction with their reviews, as it seemed that they had expectations of a more comprehensive discussion, if they had not had a review for a while, which were not always met.

Yes, it [review] was a bit of an anti-climax [...] I forgot to take my action plan, ’cause I couldn’t find it, [...] but I wasn’t asked for it. And the nurse who carried it out basically just said, how have you been? Have you had any problems to which I said, no but I also asked if she’d check my blood pressure, which she did, and then she just said, oh well, that’s fine then. And I said, could I possibly check my peak flow? And she said, oh no, we’re not using them at the moment because of COVID. (P9, 50y, controlled)

Theme 3: The role of self-management strategies during the pandemic

Participants discussed which self-management strategies they used during the pandemic and what helped them to manage their asthma.

Time 1

Due to often limited access to reviews, patients described relying on known self-management strategies that would help them pre-pandemic, such as avoiding their usual triggers, adjusting their medications if they needed it, keeping fit, or trying to improve their general health. However, they often highlighted their particular importance in the context of the pandemic, and some noted that they have been more diligent with their medication. When patients were concerned about their asthma, they tried to make sense of any worrying changes by keeping a symptom diary or monitoring peak flow measurements, if they had them at home. Some patients were unsure how to monitor their condition and the minority highlighted poor access to inhalers in the initial stages of the pandemic, which had a negative impact on them.
There was quite a large period of having to go without my inhaler because I couldn’t get an appointment. [...] It’s quite terrifying to be fair. You need medical support, whether it be by drugs or inhaler or whatever (P12, 39y, not well controlled).

Patients also reported pandemic-specific triggers, especially related to stress and anxiety caused by the pandemic, including their uncertainties around their levels of risk. Consequently, they highlighted that they tried to use both new and previously used strategies to manage their mental health such as breathing exercises, going for a walk, or generally looking after themselves, but they also highlighted that the pandemic had been a particularly stressful time for them.

It [the pandemic] plays on my mind and it’s stressful, and I’m absolutely convinced that this series of lockdowns and working from home and everything has really made people like me more sick than we should be. It’s not like, is there a correlation? No, this is bad for us. (P5, 61y, well controlled)

In contrast, one patient noted that the pandemic has been a springboard for prioritising his health and making positive changes to his lifestyle which in turn had positive impact on this asthma.

Time 2

Patients continued described using the same strategies that had helped them during previous winters, including adjusting their medication, avoiding being exposed to cold air and infection prevention control.

Compared to Time 1, patients had various types of upper respiratory tract infections. Their first action often included increasing their medication to deal with symptoms such as being out of breath. Some felt unable to deal with their symptoms themselves and consequently, some patients were considering or had got in touch with their practice to seek advice. For one person this resulted in “emergency” reviews, with multiple follow-up appointments from an asthma nurse to make changes in their medication.

Time 3

Patients continued using their self-management strategies, while waiting to be offered their review. When experiencing changes to their condition, some patients continued increasing or changing their medication based on discussions with their health care professionals and based on their own knowledge of their asthma.

Yes, it’s something that I did based on how I feel. I’ve always kind of associated a cough with asthma, so I’ve always tried to treat it by increasing the number of puffs that I use (P4, 57y well controlled)

Patients also highlighted continued importance of looking after their mental and physical health, which came to the forefront during the pandemic. Feeling generally healthier, and using infection control was perceived as one of the main ways to be ready in case of asthma exacerbations, and to prevent infections which could then ultimately affect their breathing.

Discussion

Summary

This longitudinal qualitative interview study identified the dynamic nature of patients’ sense or risk, which was impacted by multiple factors highlighting the need for a greater clarity regarding patients’
personal risk. Patients felt that routine asthma reviews should still have been conducted during the COVID-19 pandemic. As the pandemic progressed, they highlighted concern about limited access to opportunities to discuss their asthma with health care professionals. Patients with well controlled symptoms felt that remote reviews were largely satisfactory but still felt that face to face reviews were necessary for certain aspects such as physical examination and patient-led discussion of sensitive or broader issues associated with asthma including mental health.

**Strengths and limitations**

This is the first study which explored in-depth experiences of asthma patients in primary care over time in the context of the COVID-19 pandemic. The longitudinal design enabled gathering of unique insights into changing views, needs, experiences and expectations related to asthma management from the perspective of patients. Conducting serial interviews also allowed researchers to build rapport with patients over time (30), providing rich data. Finally, the study benefited from extensive discussions with patient representatives who were able to shape the study through providing feedback on interview questions, making sense of data and suggesting clinical implications. However, involving patients in the design of the study could have further enhanced the partnership with patient representatives (31, 32). Also, despite a large number of interviews overall and a varied age and sex profile among the sample, the study would have benefitted from speaking to more patients whose symptoms were less controlled, as their experiences indicated some differences.

**Comparison with existing literature**

The Time 1 results are in line with other studies highlighting that patients were often unsure how much they were at risk, what being at risk meant in relation to their asthma, and why they would be classed as vulnerable while also showing how, in the context of lack of official classification, patients tried to understand the status themselves and often saw themselves as being at high risk (33-35). However, interviews conducted at later time points found that patients’ perception of risk was dynamic as they continuously assessed their risk, taking into account numerous factors such as their asthma control, local incidence levels, their beliefs about the risk, severity of COVID symptoms they or their close contacts have experienced, or being offered a booster vaccine. In addition, patients also highlighted lack of information available about the risk and seeking information themselves from online groups or charities.

In line with others (2, 36,37, 38, 39) the study showed that choosing whether asthma reviews should be delivered remotely or face to face, is complex; while remote care may offer convenience (40,41), improve access (39), increase attendance (41), and be safe and acceptable alternative to face-to-face (41), it may not be suitable or preferable by all patients (36-38). In our study, patients whose symptoms were not well controlled, who wanted to discuss their mental health or feelings of vulnerability or who had not had contact with their GP practice for a long time, felt face-to-face reviews would be preferable. In addition, face-to-face reviews were perceived as “gold standard” as they also allowed checking of inhaler technique and conducting of measurements such as peak flow. Incorporating these components remotely may be difficult for both patients and clinicians, with recent studies suggesting that clinicians may not feel able to or feel knowledgeable about educating patients about inhaler technique (3, 42). Also, remote reviews were seen as more rigid, and inadvertently facilitating the scripted delivery of asthma reviews, rather than being patient-led. Others also highlighted that appropriately trained multidisciplinary teams are essential to deliver high quality asthma care and thus improve patient outcomes, which is challenging with increasing GP workloads and shortage of staff (43). Our study also highlighted patients’ increasing concern about the scarcity of routine asthma reviews as the pandemic progressed.
As highlighted by others, achieving asthma control is multi-faceted and requires patients to engage in self-care behaviours, monitor symptoms and actively engage with HCPs (44). Given reports of limited primary care asthma reviews, patients seemed to rely on self-management. In line with others (45), we found that patients relied on pre-existing self-management strategies, but newly diagnosed patients felt less confident in doing so, and some patients had experienced difficulties in accessing inhalers. In addition, some patients introduced new strategies, especially related to their mental health, as also highlighted by others (46). However, self-management strategies need to be discussed and updated through asthma reviews and action plans, which were not always available. Having regular discussions between patients and healthcare professionals is crucial to understand patients’ perspectives (47, 48) and potential barriers to using their medications (47, 48), which may be different to the clinicians’ perceptions (49).

Implications for research and practice

The study highlighted that patients’ perception of risk throughout the pandemic was dynamic, and not necessarily in line with the official guidance related to shielding, restrictions or booster vaccinations. Specifically, some patients who were initially deemed as clinically vulnerable felt at continued risk despite restrictions being lifted and advice on shielding being withdrawn, whereas patients who were not deemed at risk continued with strict social distancing. While evidence on whether asthma patients are at higher risk of infection or more severe outcomes was unclear, discussions around patients views on their risk could be an important part of reviews.

Asthma reviews can be considered complex interventions composed of multiple components (1). While some components including checking inhaler technique, and discussing medication are key, in the context of the pandemic, broadening or tailoring the scope of asthma reviews to take into account features which are particularly relevant during a healthcare emergency are crucial. These can include discussions around dealing with stress and uncertainty, making sense of personal risk and self-management strategies. While it may not be possible to always offer face-to-face review which patients believed facilitated discussing these issues, actively inviting discussion of this issues may be a way forward. Given limited contact with healthcare professionals for some patients, the first review after the pandemic may be of a greater importance to patients than prior to the pandemic, with patients expecting healthcare professionals to make space for broader discussions around asthma, “taking stock” of how they have been. This may be the case for other long-term conditions, where annual reviews play a key part in managing these conditions in primary care. This may mean using the templates and protocols as a starting point but complementing these by proactively enquiring about any areas patients would like to discuss. This is particularly important in the context of increasing use of remote consultations, with recent data suggesting that nearly one-third of appointments in general practice still take place remotely (50).

Conclusions

Asthma reviews are important to patients even during periods when access to face to face consultations in primary care is more restricted than usual. These reviews, even if conducted remotely, should not only include monitoring of the patient’s asthma, but should also allow opportunities to address wider related issues including mental health. Where possible, patients also need clearer guidance on their own personal risk of severe illness or complications from COVID-19 to inform their decisions about when and how to seek an asthma review, and contradictory messages should be avoided. Future research should explore ways of adapting asthma reviews as well as for
other chronic conditions during future pandemics which are feasible and allow appropriate precautions to be taken and but still meet patients’ needs and expectations.

Funding: This study was funded by the National Institute for Health Research School for Primary Care Research (NIHR SPCR); Grant reference number 527. The views expressed are those of the author(s) and not necessarily those of the NIHR or the Department of Health and Social Care. The study was also supported by the Clinician Research Networks.

Ethical approval: Ethical approval for the project was granted by the London – Riverside Research Ethics Committee (RE Ref No: 21/LO/0701).

Competing interests: The authors declare no competing interests.

Acknowledgements: The authors would like to express their gratitude to all patients who took the time to participate in this study and to patient representatives who supported this study.

References


19. Ow NL, Sadek Attalla S, Davies G, Griffiths C, De Simoni A. Experiences and behaviours of patients with asthma requesting prescriptions from primary care during medication shortages linked to the COVID-19-lockdown: insights from a qualitative analysis of a UK asthma online community. 2022; *BJGP*; 6(4).


27. Wanat M, Boylan AM, Borek AJ. Value, challenges and practical considerations when designing, conducting and analysing a longitudinal qualitative study in family medicine. *Fam Med Community Health*. 2021;9 (Suppl 1).


40. Bradford NK, Caffery LJ, Smith AC. Telehealth services in rural and remote Australia: a systematic review of models of care and factors influencing success and sustainability. Rural Remote Health 2016; 16 (4)


42. Karle E, Patel TP, Zweig J, Krivac A. Understanding the knowledge gap and assessing comfort level among healthcare professionals who provide inhaler education. COPD: J Chronic Obstr Pulm Dis 2020 ;17(2):197-204.


