

# Healthcare experience of adults with COPD during the COVID-19 pandemic: a rapid review of international literature

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## ABSTRACT

**Background** People living with chronic obstructive pulmonary disease (COPD) are a group who may be particularly vulnerable to COVID-19. This vulnerability has been associated with increased anxiety or fear about exposure to the virus, which may also impact upon experience in healthcare settings.

**Aim/objectives** The aim of this narrative mixed-methods review was to systematically scope, identify and synthesise findings from peer-reviewed qualitative, quantitative and mixed-methods studies published in academic journals describing the healthcare experiences of adults living with COPD independently in the community, following the emergence of COVID-19 in December 2019–June 2022.

**Methods** Databases including Ovid MEDLINE, PsychINFO, Ovid Emcare and CINAHL Plus were searched. Studies were uploaded to Covidence to support selection and appraisal of studies. Studies were appraised for quality using the Mixed Methods Appraisal Tool. A narrative synthesis of these themes was provided, and qualitative and quantitative findings are interpreted together in the discussion.

**Findings** The quality and experience of care for patients with COPD was impacted through the COVID-19 pandemic. Innovations and adoption of technologies such as telehealth and telerehabilitation were well received and mitigated the potential implications of severe disruption to care access to some extent. Patients feared feeling forgotten and experienced isolation and anxiety; however, telerehabilitation and exercise through modalities such as Zoom classes help support social connection and physical activity.

**Implications** These innovations are likely to be useful to be offered to patients on an ongoing basis, and education and standardised protocols around their use will benefit healthcare providers and patients alike.

**PROSPERO registration number** CRD42022341168.

## BACKGROUND

The onset of the coronavirus pandemic occurred due to COVID-19, caused by the infectious SARS-CoV-2, and was declared to be of international and public concern by the WHO in early 2020.<sup>1</sup> People living with chronic obstructive pulmonary disease (COPD) are a group who may be particularly vulnerable to

### WHAT IS ALREADY KNOWN ON THIS TOPIC

⇒ People living with chronic obstructive pulmonary disease have reported feeling anxious about COVID-19 because of feeling afraid of being denied care.

### WHAT THIS STUDY ADDS

⇒ The rapid review found patients feared feeling forgotten and experienced isolation and anxiety; however, telerehabilitation and exercise through modalities such as Zoom classes help support social connection and physical activity. Adoption of telehealth and telerehabilitation was well received and mitigated the potential implications of severe disruption to care access to some extent.

### HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY

⇒ These innovations are likely to be useful to be offered to patients on an ongoing basis, and education and standardised protocols around their use will benefit healthcare providers and patients alike. There is a need for future research to more thoroughly investigate key patient issues highlighted in this review and their impact on self-management and health outcomes.

COVID-19. This vulnerability has been associated with increased anxiety or fear about exposure to the virus, which may also impact upon experience in healthcare settings.<sup>2</sup> Further to this, smoking as a major cause of COPD was identified in early evidence as a further risk factor for contracting COVID-19 and one study found patients with COPD who are smokers were more likely to have adverse outcomes after contracting COVID-19.<sup>3</sup>

Studies of the lived experiences of patients with COPD prior to the emergence of COVID-19 had highlighted important concerns about interactions with healthcare professionals and experience of care which may impact upon health outcomes.<sup>4–10</sup> Understanding experience of care from the perspective of patients is essential to provision of high-quality, evidence-based care that

is patient centred.<sup>11 12</sup> Changes in healthcare provision introduced in response to the COVID-19 pandemic may have impacted the healthcare experience of adults with chronic respiratory illness.

Patient experience describes the range of interactions and relationships between patients and different components of the healthcare system.<sup>13 14</sup> During the COVID-19 pandemic, changes in healthcare services and community measures were implemented impacting the healthcare experience of adults.<sup>15</sup> This is concerning as positive healthcare experiences such as having regular contact with health services can positively impact the health outcomes of patients living with chronic conditions such as COPD.<sup>16</sup> The implementation of lockdown restrictions in several jurisdictions, quarantine policies and social distancing measures may have limited access to health services, leaving many individuals unable to access their healthcare needs.<sup>15</sup>

People living with COPD have reported feeling anxious about COVID-19, feeling afraid of being denied care<sup>17</sup> and have faced difficulties accessing medications.<sup>18</sup> A qualitative study found accessing timely healthcare services was a major concern stemming from long waiting times to see a general practitioner (GP) and for ambulances to arrive.<sup>19</sup> In contrast, changes in care delivery, such as greater use of telehealth, and widespread use of information communications technology to deliver healthcare services as a substitute for face-to-face care during the COVID-19 pandemic<sup>20–22</sup> may have increased access to healthcare services and satisfaction with care<sup>21</sup> and may be particularly valuable for patients with COPD in overcoming access issues relating to physical health barriers arising from symptoms of COPD.

### Aim(s) and objectives

The aim of this study was to systematically scope, identify and synthesise findings from peer-reviewed qualitative, quantitative and mixed-methods studies published in academic journals describing the healthcare experiences of adults living with COPD independently in the community, following the emergence of COVID-19 in December 2019 to the present time. Specifically, we aim to (1) identify the scope (number) of articles investigating patient experience among patients with COPD; (2) compare and contrast the patient experiences of adults with COPD in different healthcare settings; (3) synthesise descriptions of the impact of changes to healthcare experience on patient well-being and health outcomes.

### METHOD

A rapid review was undertaken to systematically identify and then synthesise evidence from peer-reviewed research published between January 2020 and June 2022, which described healthcare experiences of patients living with COPD independently in the community during the COVID-19 pandemic. Rapid review methodology was used due to the rapidly changing nature of the healthcare

environment, short time frame that changes have been in place and the need to identify strategies that support positive healthcare experience, but are compliant with emergency public health orders and minimise risk of infection to patients and healthcare staff. As we progress to a 'COVID-19 normal' environment, there is a need for rapid synthesis of the evidence to support the provision of healthcare for this particularly vulnerable group to protect them from the continuing pandemic.

A rapid review seeks to be rigorous and systematic, but the breadth or depth of the processes are limited to shorten the time scale needed to complete the review.<sup>23</sup> A systematic search of the literature was undertaken; however, this was limited in time frame (36 months) and we have not attempted to undertake meta-analysis or meta-synthesis of findings. A narrative, mixed-methods synthesis of key findings from identified literature was reported instead. The methodology was registered on PROSPERO (ID: CRD42022341168).

### PATIENT AND PUBLIC INVOLVEMENT

Evidence from 'lived experience' qualitative research and pilot work by supervisor (CB) suggested a need for exploration of these issues.

### Selection of articles

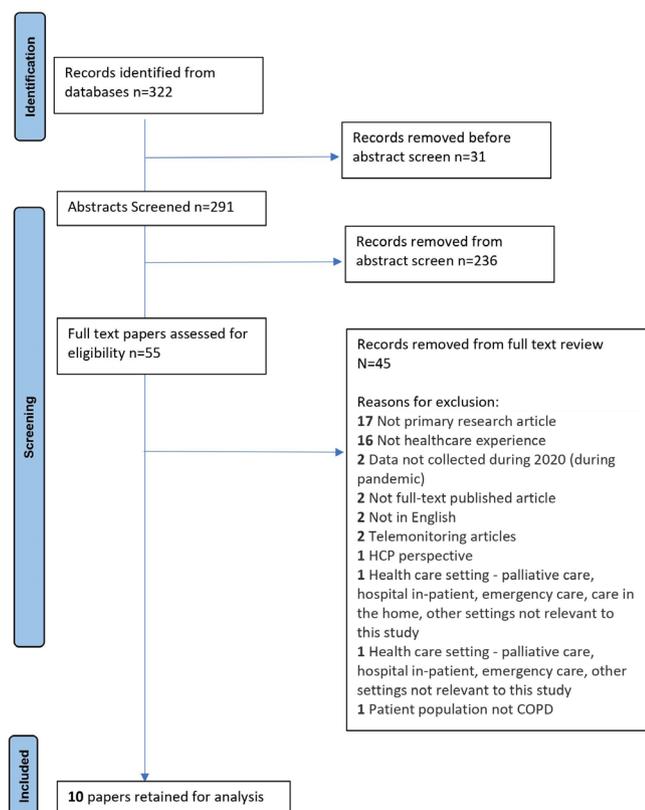
#### Eligibility criteria

Peer-reviewed qualitative, quantitative and mixed-methods studies published in academic journals or reports, drawing upon experiences of care of patients living with COPD, were included during the COVID-19 pandemic. Our definition of experience of care draws upon that described by Wong and Haggerty<sup>14</sup> and encompasses six domains of experience (see online supplemental table 1).

All peer-reviewed quantitative, qualitative and mixed-methods studies published in academic journals or reports written in English on the healthcare experience for adults with chronic lung disease (COPD, emphysema, chronic bronchitis) were included. Studies where data were collected before 2020 (not during pandemic) and experiences on lung cancer, pulmonary fibrosis and asthma were excluded.

#### Information sources

We searched the following databases for literature published between January 2020 and June 2022: Ovid Medline, PsychINFO, Emcare and CINAHL. A preliminary, broad-based search of PubMed was used to help define the scope of literature to be included in the review and refine the research question. The final search strategy was then developed with the guidance of a university subject librarian. We incorporated searches for illness conditions (COPD, chronic bronchitis, emphysema), patient experience of care<sup>14</sup> and COVID-19 (see online supplemental appendix 1).<sup>24</sup>



**Figure 1** Preferred Reporting Items for Systematic Reviews and Meta-Analyses flow diagram showing selection of papers for inclusion. COPD, chronic obstructive pulmonary disease; HCP, healthcare provider.

The title and abstracts of papers identified from these searches were uploaded to Covidence to support selection and appraisal of studies for inclusion. Initially, duplicates were removed and then two reviewers screened titles and abstracts to exclude studies that were out of scope or did not meet inclusion criteria (SM and AQ). The full text of remaining studies was downloaded and reviewed by the lead author (SM) and a second reviewer to determine if it met inclusion criteria. Any disagreements were resolved through discussion with CB.

Additional hand searching of reference lists of included studies was used to identify any further papers not identified in our electronic search. Steps in selection and inclusion or exclusion of studies are presented in the Preferred Reporting Items for Systematic Reviews and Meta-Analyses flow chart (see [figure 1](#)).

### Data extraction and synthesis

This review follows recommendations for conducting and reporting a review and independent syntheses of qualitative and quantitative studies, where qualitative and quantitative findings are interpreted together in the discussion.<sup>25</sup>

Studies were appraised for quality using the Mixed Methods Appraisal Tool (MMAT) by two independent reviewers (SM and JYL) (see online supplemental

appendix 2 for results)<sup>26</sup> and disagreements were resolved through discussion.

The data extracted from the full text of included studies were relevant extracts of text reporting on experiences of care. We developed a custom data extraction form to support this process (see online supplemental appendix 3). Extracted data were examined for common characteristics and themes within the six domains of experience of care described by Wong and Haggerty<sup>14</sup> (see online supplemental table 1). A narrative synthesis of these themes is provided.<sup>25</sup>

### RESULTS

The initial search identified 10 papers meeting inclusion criteria (see online supplemental table 2 for study details). Papers were published from predominantly high-income countries including the UK (n=4), Canada (n=2), Denmark (n=1), Italy (n=1) and Spain (n=1). One study was published from China. Studies were published between 2020 and 2022 and presented data collected during the pandemic from January 2020 onwards (see online supplemental table 2). Studies included between n=13 and n=963 participants diagnosed with COPD. One study<sup>27</sup> reported findings from 68 032 404 participants, the highest number, but it was not mentioned how many were adults with COPD. Four studies used qualitative methods,<sup>2 19 28 29</sup> four quantitative<sup>18 27 30 31</sup> and two used mixed methods<sup>22 32</sup> (see online supplemental table 2). Based on MMAT scoring, there were no concerns about the quality of papers and a sensitivity analysis was not undertaken.

We synthesised findings of healthcare experiences within the dimensions described by Wong and Haggerty (see online supplemental table 1). Several studies addressed issues associated with barriers to access to care and fewer addressed other aspects of the care experience such as interpersonal communication, continuity, coordination, comprehensiveness and trust. The findings of our synthesis of these papers are reported in online supplemental table 1.

There was considerable disruption to care which caused concern to patients. Concerns about the ability of health services to function during the COVID-19 pandemic were common, and trust between doctor and patient was undermined if patients felt COVID-19 protective measures were taken lightly. Despite this, the majority of studies reported their participants' general health and self-management of their lung condition was similar or better during the pandemic and through any regional lockdown.

A key feature of the healthcare experience was the rapid adoption of telehealth and telerehabilitation across many healthcare settings. These were generally well received by patients with COPD. The virtual format allowed patients to discuss health matters with their healthcare provider (doctor, nurse or physiotherapist) without the risk of being exposed to COVID-19, which was a significant

source of fear for patients. Telehealth also provided continuity of care in an environment safe from COVID-19, a factor which was particularly important to people with COPD who were especially vulnerable to contracting COVID-19 infection.

... I found a lot of availability at my pulmonologist, who continued to follow us by phone. Getting out of the house was tiring ...<sup>29</sup>

Patients were accepting of having instructors guide them through online exercise classes and felt encouraged being able to see some of the same people when they were otherwise highly socially isolated or shielding. Despite the value of telehealth, disruptions to healthcare access were a common problem and cancelled appointments were a major concern for participants with COPD. However, access to medication did not seem to be a major issue impacting those with COPD.

Participants have reported difficult emotions including feeling forgotten, when facing difficulties accessing a GP due to the pandemic and restrictions.

The doctor wouldn't see me [...] I just got a text message saying that my appointment was cancelled [...] the general practitioner was only dealing with life-threatening conditions.<sup>2</sup>

Participants reported that being unable to have informal support from family members during the consultation presented challenges with communicating for the patient with COPD. However, comparatively, the positive approach and support received from the healthcare staff at the rehabilitation programme were perceived as motivational influence.<sup>28</sup>

Despite these challenges, patients with COPD tended to be able to self-manage their lung condition well throughout the pandemic and benefited from reductions in viral infections which are triggers for COPD exacerbation. Interventions to reduce spread of COVID-19 in the community were beneficial to those with COPD.<sup>30</sup>

More than half (65%) of respondents in the study from Philip *et al*<sup>18</sup> reported interest in accessing more information about managing their lung condition in regard to COVID-19, decision-making awaiting a COVID-19 infection (49%) and concerns about maintaining mental well-being (31%).<sup>18</sup> Both online and telephone services were used to obtain information about COVID-19 (National Health Service (NHS) website and NHS telephone, UK study); however, comparatively, only a minor percentage of respondents reported using the online website (3%–9% of people over 60 years old compared with 23%–25% of those under 40 years old).

## DISCUSSION

We conducted a rapid review to explore the patient experience of adults with COPD during the COVID-19 pandemic. Considering the healthcare needs of this group, changes that occurred in health service provision

due to the COVID-19 pandemic may have had particularly high impact on this vulnerable group. Adults with COPD in lockdown-impacted regions reported difficulties accessing GPs due to the pandemic and restrictions, thus leaving patients feeling forgotten by the healthcare system in general. Accessing telehealth has been crucial to receiving healthcare services and this is an innovation which contributed to positive healthcare experiences for many patients with COPD.

Broadly, similar concerns have been reported by patients in studies reporting experiences from chronic illnesses including diabetes and chronic heart conditions.<sup>33–35</sup> These include difficulty in accessing services during the pandemic, the usefulness of telehealth to a certain extent and the need for continuity of care.

Patients were satisfied with the usefulness of rehabilitation programmes delivered via telehealth and also expressed the need for greater education to provide more knowledge about self-management of COPD especially during the early stages of the pandemic. Similarly, pulmonary rehabilitation services were able to be successfully adapted using technology platforms such as Zoom and were found to be particularly useful<sup>28</sup>; however, managing the technology was a challenge reported by some patients in this setting. Importantly, participants appeared to be more willing to attend a greater number of sessions per week when classes were held via video.

Patients with chronic health conditions like COPD often experience better health outcomes when patient-centred care approaches such as good communication<sup>19 22 28</sup> and adequate time can be spent with a trusted healthcare provider.<sup>2</sup> Having direct telephone access for urgent questions was an important activity for remote specialist care consultations.<sup>32</sup> Patients appreciated the availability of a pulmonologist and the continuity of follow-up, and this was described as a positive patient experience by participants.<sup>29</sup> In contrast, cancelled appointments posed a major concern and presented as disruptions to care for participants,<sup>18 32</sup> while difficulties accessing healthcare services such as GPs and rehabilitation therapy left patients fearing disability.<sup>2</sup>

These experiences left adults with COPD feeling 'forgotten' and not adequately involved in the decision-making between themselves and healthcare providers. These feelings only appeared to be worsened by feelings of uncertainty brought about by the pandemic.<sup>19</sup> Studies prior to the pandemic have raised concerns about the difficulties adults with COPD can face accessing timely care,<sup>4</sup> feeling as though they are not heard, finding difficulties with being referred to a comprehensive range of services,<sup>5</sup> and these experiences and sense of feeling forgotten are likely to have been exacerbated through the pandemic and impacted negatively upon the experience of care during this time. Importantly, in cases where participants relied on a close family member to assist in communicating with the doctor, this was described as a major difficulty when consultations were limited to just the patient.

Several issues were reported regarding the comprehensiveness of services and care provided to adults with COPD during the pandemic due to the over-riding COVID-19 cases. Participants reported being denied care,<sup>29</sup> and fear of being denied care was a source of anxiety and stress for patients.<sup>19</sup> There were reports of reduced treatment options from respiratory specialists; however, there has been relatively little information published on continuity of care during the pandemic and papers had only explored this in the specialist care setting. Similarly, impacts on coordination of care were only reported in the context of pulmonary rehabilitation setting.<sup>28</sup> Further research involving patients treated principally in primary care and community settings is needed to understand how coordination of care was impacted through the pandemic and the impact this may have on longer-term health outcomes and disease control.

There has been relatively little published on trust in health professionals through the pandemic among patients with COPD. Trust is an important component contributing to the doctor–patient relationship<sup>2</sup>; it will be important to understand the impact of rapidly changing health policy settings had on trust, particularly in the context of rapidly developed, but essential, vaccine treatment for COVID-19. Feeling safe, comfortable and calm when talking to a healthcare professional about risks of being infected with coronavirus were important emotions to manage for participants.<sup>2</sup> Further research investigating the impact of experiences of stigma relevant to the COVID-19 context such as wearing a mask or having a mask exemption can be further explored.

Patients' need for knowledge regarding their health and management of their condition was well reported. Patients with COPD seemed to adopt health behaviours that positively impacted their health status and adhere to social distancing advice.<sup>29</sup> The vast majority of patients also adhered to their therapy regimens as strictly as, or even more than before the lockdown occurred, indicating good self-management of COPD.<sup>29</sup> This careful behaviour expressed by patients could be linked to fears regarding poor health outcomes such as death if they were to be infected with COVID-19.<sup>2</sup> Access to medication did not appear as a major concern in the reports included in this review despite some patients expressing feelings of being forgotten by the health system.<sup>2</sup>

A majority of the included studies were published in 2020 and reflect experiences during the early stages of the COVID-19 pandemic, prior to the development of vaccines to protect against COVID-19. Hence, non-pharmacological interventions were the primary protective measures and the patient experience may be reflective of this situation at the time the studies were conducted. As vaccination rates have increased and better protective measures and antivirals have been introduced throughout 2021 and 2022, the patient experience may differ.

There are a number of strengths and limitations to the use of rapid review methodology. This approach allowed

the authors to investigate the experience of care for those with COPD with urgency as required of the topic, and use of systematic search methods guided by a subject librarian, and undertaking quality appraisal of included studies added to the methodological rigour of this paper. The review was limited by the inclusion of moderate-quality papers; however, this was anticipated given the need for researchers to collect and report data quickly, and this limitation was taken into account in the weighting applied to different findings in the synthesis and interpretation. There is a need for future research to more thoroughly investigate key patient issues highlighted in this review and their impact on self-management and health outcomes.

## CONCLUSIONS

The quality and experience of care for patients with COPD was impacted through the COVID-19 pandemic. Innovations and adoption of technologies such as telehealth and telerehabilitation were well received and mitigated the potential implications of severe disruption to care access to some extent. Patients feared feeling forgotten and experienced isolation and anxiety; however, telerehabilitation and exercise through modalities such as Zoom classes help support social connection and physical activity. These innovations are likely to be useful to be offered to patients on an ongoing basis, and education and standardised protocols around their use will benefit healthcare providers and patients alike.

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**Table 1. Definition of Wong and Haggerty's patient experience domains [14] and summary of key themes emerging from the synthesis of research findings.**

	Papers referencing	<u>Synthesis</u>
<p><b>Access:</b> Access can be broadly defined as the ease and ability for consumers and community groups to access a provider, service or an institution</p>	<p>(Mansfield et al., 2021)</p> <p>(Mousing &amp; Sorensen, 2021)</p> <p>(Oliveira et al., 2021)</p> <p>(Philip, Cumella, Farrington-Douglas, Laffan, &amp; Hopkinson, 2020)</p> <p>(Philip, Lonergan, et al., 2020)</p>	<ul style="list-style-type: none"> <li>• There was considerable disruption to care which caused concern to patients. Many patients had concerns about attending health services for fear of contracting COVID and others reported prescriptions for medications were restricted or taking longer to access.</li> <li>• Telehealth was able to be rapidly adopted for both primary, specialist and pulmonary rehabilitation care allowing physicians to maintain adequate levels of care for those with COPD during the pandemic</li> <li>• Telehealth and telerehabilitation/exercise was generally well accepted and viewed positively as a short-term solution. However, there were some concerns about quality of Wifi and ability to use technology</li> <li>• Concerns about unmet need to be monitored and investigated specifically for those with COPD</li> </ul>

	<p>(Pleguezuelos et al., 2020)</p> <p>(Stamenova et al., 2022)</p> <p>(Volpato et al., 2021)</p> <p>(Wu et al., 2021)</p>	
<p><b>Interpersonal Communication:</b> The extent to which patients are involved in making decisions about their treatment</p>	<p>(Philip, Lonergan, et al., 2020)</p> <p>(Oliveira et al., 2021)</p> <p>(Wu et al., 2021)</p>	<ul style="list-style-type: none"> <li>• Some patients doubted that remote communication was as desirable as face to face. However, the majority of patients tended to report remote communication was helpful or quite helpful. A cheerful attitude, feeling listened to and being able to participate in shared decision making remained important to patients</li> <li>• Restrictions on informal carers attending appointments may have impacted on communication for some patients</li> <li>• Almost all aspects of care could be achieved by video, however there were few procedures in place</li> </ul>

		<p>for remote communication and telehealth highlighting a need to develop education and resources on how to best deliver remote consultations</p>
<p><b>Continuity and Coordination:</b> Continuity is the patients' experience of care over time. Coordination is the provision and organisation of health services and information to meet a patient's health needs</p>	<p>(Liang et al., 2020) (Oliveira et al., 2021) (Wu et al., 2021) (Stamenova et al., 2022)</p>	<ul style="list-style-type: none"> <li>• The rapid adoption of telehealth aided continuity of care. Most people were able to maintain their pharmacological treatment and access pulmonary rehabilitation.</li> <li>• Ongoing care coordination is essential particularly in the face of COVID related disruptions to care among different care settings and the changing nature of health services and how these are accessed</li> <li>• Patients who accessed virtual care generally used the healthcare system more before the pandemic indicating that virtual care provided continued access to care for patients who needed it</li> </ul>

<p><b>Comprehensiveness of services:</b></p> <p>Comprehensiveness of services is the provision, either directly or indirectly, of a full range of services to meet patients' or clients' healthcare needs.</p>	<p>(Mousing &amp; Sorensen, 2021)</p> <p>(Oliveira et al., 2021)</p> <p>(Philip, Lonergan, et al., 2020)</p> <p>(Volpato et al., 2021)</p>	<ul style="list-style-type: none"> <li>• Concerns about the ability of health services to function during the COVID pandemic were common and patients were concerned about being denied care and reduced treatment options led to feelings of fear and hopelessness.</li> <li>• This seemed to relate mainly to access to emergency care and hospitalisation</li> <li>• This is a group with high levels of vulnerability and of anxiety raising the need for implementing multilevel services that integrate psychological support programs. The importance of social connection and addressing mental health as part of pulmonary rehabilitation programs is important</li> </ul>
<p><b>Trust:</b> The expectation that the other person will behave in a way that is beneficial and that allows for risks to be taken based on this expectation and the expectation that the other person will behave in a way that is beneficial and that allows for risks to be taken based on this expectation</p>	<p>(Mousing &amp; Sorensen, 2021)</p>	<ul style="list-style-type: none"> <li>• Patients that found healthcare staff that did not use PPE and did not adhere to social distancing felt that restrictions were taken lightly and 'forgot' that patients with COPD should be considered vulnerable to COVID-19, undermining the trust between doctor and patient</li> </ul>

<p><b>Patient Reported Impacts:</b> Patients' or clients' ability or readiness to engage in health behaviours that will maintain or improve their health status</p>	<p>(Liang et al., 2020)</p> <p>(Mousing &amp; Sorensen, 2021)</p> <p>(Philip, Cumella, et al., 2020)</p> <p>(Pleguezuelos et al., 2020)</p> <p>(Volpato et al., 2021)</p> <p>(Wu et al., 2021)</p>	<ul style="list-style-type: none"><li>• Majority of participants reported their general health and managing the lung condition was similar or better during the pandemic lockdown. Many patients had used this as an opportunity to attempt to quit smoking</li><li>• They experienced high levels of distress and fear of not being heard or being able to access services or medications. A lack of information from healthcare professionals was a major concern</li><li>• Patients were generally positive about being able to access healthcare remotely or by telehealth and the continuity of care that this allowed. Many usual healthcare needs of COPD patients could be met through online consultations</li><li>• Participants expressed feeling unable to survive if they were to contract COVID-19 and relied on family and staying at home as coping strategies</li></ul>
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Table 2. Characteristics of studies

Authors (year of publication)	Country	Sample (number of participants, chronic illness (comorbidities), current or ex-smoker)	Participant recruitment	Time period data collected (during COVID pandemic)	Health care setting	Data Collection method	Type of Methodology
Liang (2021)	China	n = 153 COPD patients who are 40 years of age or older.  Median age = 71, 85% of patients were male.  29.7% of patients were current smokers, 49.7% were ex-smokers, and 20.9% had never smoked before.	Patients selected randomly from the COPD database at the Pekin University Third Hospital through the following inclusion criteria: 1) 40 years of age or older; 2) a history of at least 3 months of diagnosed COPD according to the GOLD report.	January 25 to April 25 2020.	Specialised healthcare, general hospitals.	Telephone interviews	Single centre, cross-sectional

Mansfield (2021)	UK	<p>n = 9,863,903 (Jan 1 2017) -&gt; n = 10,226,939 (Jan 1 2020).</p> <p>Individuals aged 11 years or older who had at least 1 year of registration with practices contributing to CPRD Aurum.</p> <p>Population demographics include primary care contacts for selected acute physical and mental health conditions: anxiety, depression, self-harm, severe mental illness, eating disorder, OCD, acute alcohol-related events, asthma exacerbation, COPD, cardiovascular events, diabetic emergency.</p>	Participant information collected from de-identified electronic health records from the Clinical Research Practice Datalink Aurum between 2017 and 2020 and after March 29 2020.	March 29 to July 18 2020	Primary healthcare	Utilised de-identified electronic health records and primary care data from the Clinical Research Practice Datalink Aurum between 2017 and 2020 and after March 29 2020.	Quantitative
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		COPD patients were 41 years old or older with evidence of a smoking history.					
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Mousing (2021)	Denmark	n = 13 COPD patients, 4 males and 9 females.  Smoking status was not collected.	Participants recruited through advertisements on Facebook as a convenience sample for semi-structured individual interviews.	June to September 2020	Specialist healthcare, primary healthcare	Individual semi-structured interviews	Qualitative exploratory study design
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Oliveira (2021)	Canada	n = 16 (3 COPD patients, 10 healthcare professionals, 3 policymakers)  Smoking status not collected.	COPD patients - eligible if they had a confirmed diagnosis of COPD according to GOLD criteria, had previously attended pulmonary rehabilitation and experienced at least one hospitalisation in for acute exacerbation COPD in the past year. These patients were recruited over the phone by a research coordinator not involved in their care.  HCPs (e.g. respirologists, physiotherapists, nurses) who had cared for patients with or up to 3 weeks following an AECOPD were invited to participate via email.  Policymakers (e.g.	September to December 2020	Specialised healthcare (creation of a rapid access rehabilitation program)	Semi-structured interviews via Zoom.	Qualitative
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			program coordinators, executive directors, and board directors) were recruited via email.				
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Philip (2020) - Respiratory patient	UK	<p>n = 9515 participants with long-term respiratory conditions</p> <p>81% female, age ranges from 17 years and under to 80 years and above.</p> <p>Asthma (83%), COPD (10%), bronchiectasis (4%), interstitial lung disease (2%), 'other' (&lt;1%, lung cancer, pulmonary endometriosis)</p> <p>13.93% of participants with chronic respiratory disease (n = 1541) were current smokers.</p>	<p>Patients and members of the public were not specifically involved in the design, conduct or reporting of this research.</p> <p>Data collected from an online survey conducted by the Asthma UK and British Lung Foundation Partnership.</p>	April 1-8 2020	Specialised healthcare (pulmonary rehabilitation), hospital settings (appointments), primary healthcare (GP appointments)	Data analysed from an online survey conducted by the Asthma UK and British Lung Foundation Partnership.	Cross-sectional study design
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Philip (2020) - COVID-19 related concerns	UK	n = 7039 responses, respondents from under 17 to over 80. 82.7% female, 17.2% male.  Asthma (80%), COPD (9%), bronchiectasis (4%), interstitial lung disease (2%), 'other' (1%, lung cancer)  Smoking status not collected.	The survey was distributed via the AUK-BLF partnership's mailing lists and websites, advertised through social media including Facebook, Twitter, Instagram and LinkedIn  Participants in surveys consented to the use of their responses for analysis and publication.	April 1-8 2020 (3rd week of national social distancing measures and advice)	Primary care (GP access), hospital settings, specialised healthcare	Data used from an online survey conducted by the Asthma UK and British Lung Foundation (AUK-BLF) partnership.	Qualitative, thematic analysis
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Pleguezuelos (2020)	Spain	n = 100 COPD patients, 24% women  Differentiation between current and former smokers not made.	Patients were recruited from the list of out-patient clinics of two general hospitals in the area of Barcelona. Inclusion criteria: age older than 40 years, smokers or former smokers of at least 10 pack-years, FEV1/FVC < 0.7, FEV1 (% predicted) <70%. Exclusion criteria: severe neurological disease, active oncological disease, inability to understand the questions to the survey	May 2 - 18, 2020	Specialised healthcare (pulmonary rehabilitation, telerehabilitation), primary healthcare	Telephone interviews	Cross-sectional, observational study
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Stamenova (2022)	Canada	<p>Considered virtual and in-person ambulatory care visits, 215 million between Jan 1 2018 and Jan 15 2021 (73,460,386 in 2018, 73,629,600 in 2019, 68,032,404 in 2020)</p> <p>Stratifications completed to examine patients with COPD, heart failure, asthma, hypertension, diabetes, mental illness, angina.</p> <p>Smoking status not collected.</p>	<p>Patient data collected from administrative databases (outlined in 'Data Collection method'</p> <p>All data was de-identified at ICES and individual patient consent was waived</p>	Comparison of data before and during the pandemic (Jan 01, 2018 to Jan 16, 2021)	Specialised healthcare (administration of virtual care visits with physicians)	Used administrative databases	Population-based, repeated cross-sectional study
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Volpato (2021)	Italy	<p>n = 146 (79 COPD patients, 24 caregivers, 43 HCPs)</p> <p>Average age 71.1</p> <p>Patients: 22.9% were smokers at the time of the survey, 63.9% were former smokers, 11.3% had never smoked.</p>	<p>Convenience sample recruited from seven hospitals, give outpatient clinics operated by GPs, and two patients' associations for pulmonary diseases across Italy.</p> <p>Inclusion criteria: patients with COPD of any severity according to GOLD criteria, caregivers for patients with COPD, aged 18 years or older, no cognitive impairment documented, HCPs (preferably pulmonologists or GPs) treating COPD</p>	July and November 2020	Primary healthcare (caregivers, GPs), specialised healthcare (HCPs - pulmonologists, physiotherapists), hospitals	Online semi-structured questionnaire	Cross-sectional observational narrative medicine study
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Wu (2021)	UK	n = 55 clinicians + 19 COPD patients  Smoking status not collected.	Surveys were hosted using Thiscovery (www.thiscovery.org), which allows members of the public, including patients carers, healthcare professionals and others to engage in research.  Patient eligibility criteria - 18 years or older, accessed specialty COPD care in the last 3 months, been diagnosed with COPD.	Collected during pandemic, but exact dates not mentioned.	Specialised healthcare	Two questionnaires for clinicians and COPD patients	Qualitative
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## Supplementary Appendix 1

## Search strategies

## Ovid Medline Search Strategy

1	lung diseases, obstructive/ or exp bronchitis/ or exp pulmonary disease, chronic obstructive/	106433
2	(COPD or COAD or COBD).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]	55407
3	emphysema*.mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]	38379
4	(chronic* adj3 bronchiti*).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]	11844
5	(obstruct* adj3 (pulmonary or lung* or airway* or airflow* or bronch* or respirat*)).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]	131639
6	1 or 2 or 3 or 4 or 5	193752
7	exp patient satisfaction/ or exp patient preference/	97603
8	exp "Patient Acceptance of Health Care"/	169073
9	(patient satisfaction or satisfaction or patient preference or consumer satisfaction or patient acceptance of health care or patient rating).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]	299213
10	patient experience.mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]	8502

11	patient assess*.mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]	5761
12	patient rat* of care.mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]	36
13	exp health services accessibility/ or exp health equity/ or exp right to health/ or exp universal health care/	122501
14	(access to health care or accessibility or health services or accessibility or program or accessibility of health services or availability of health services or health services accessibility or health services availability or health services geographic accessibility or program accessibility).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]	1002590
15	(care quality or health care quality or healthcare quality or quality of care or quality of health care or quality of healthcare).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]	195765
16	exp physician-patient relations/ or exp therapeutic alliance/	75936
17	exp Trust/	11939
18	exp respect/	766
19	exp prejudice/ or exp social discrimination/ or exp social stigma/ or exp stereotyping/	54991
20	exp Attitude to Health/	461591
21	exp help-seeking behavior/	1111
22	7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21	1743605
23	SARS-CoV-2/ or COVID-19/	170136
24	(corona* adj1 (virus* or viral*)).ti,ab,kw,kf.	5152
25	(CoV not (Coefficient* or "co-efficen*" or covalent* or Covington* or covariant* or covarianc* or "cut-off value*" or "cutoff value*" or "cut-off volume*" or "cutoff volume*" or "combined optimi?ation value*" or "central vessel trunk*" or CoVR or CoVS)).ti,ab,kw,kf.	90699
26	(coronavirus* or 2019nCoV* or 19nCoV* or "2019 novel*" or Ncov* or "n-cov" or "SARSCoV-2*" or "SARSCoV-2*" or SARSCoV2* or "SARS-CoV2*" or "severe acute respiratory syndrome*" or COVID*2).ti,ab,kw,kf.	263356
27	23 or 24 or 25 or 26	281407

28	23 or 24 or 25 or 26	281407
29	limit 27 to yr="2020 -Current"	268064
30	6 and 22 and 29	100

## PsychINFO Search Strategies

1	copd.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures, mesh word]	1836
2	chronic obstructive pulmonary disease.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures, mesh word]	2626
3	Chronic Obstructive Pulmonary Disease/	1418
4	exp Chronic Obstructive Pulmonary Disease/	1643
5	chronic obstructive pulmonary disease/ or exp bronchial disorders/ or exp pulmonary emphysema/	1643
6	exp bronchial disorders/	177
7	exp pulmonary emphysema/	87
8	(COPD or COAD or COBD).mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures, mesh word]	1864
9	emphysema*.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures, mesh word]	317
10	(chronic* adj3 bronchiti*).mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures, mesh word]	159
11	(obstruct* adj3 (pulmonary or lung* or airway* or airflow* or bronch* or respirat*)).mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures, mesh word]	3546
12	1 or 2 or 4 or 6 or 7 or 8 or 9 or 10 or 11	4151
13	patient experience.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures, mesh word]	1675
14	patient satisfaction.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures, mesh word]	14274
15	patient preference.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures, mesh word]	2388
16	exp consumer satisfaction/	5528
17	consumer satisfaction.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures, mesh word]	6414

18	patient acceptance of health care.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures, mesh word]	12271
19	patient rating.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures, mesh word]	98
20	patient assess*.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures, mesh word]	1025
21	patient rat* of care.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures, mesh word]	15
22	patient perception.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures, mesh word]	516
23	patient opinion.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures, mesh word]	56
24	patient percep*.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures, mesh word]	1661
25	patient attitude*.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures, mesh word]	1279
26	patient attitude.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures, mesh word]	111
27	patient feeling*.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures, mesh word]	60
28	patient emotion*.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures, mesh word]	160
29	exp client attitudes/	24195
30	exp Client Satisfaction/	6098
31	patient outcome*.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures, mesh word]	6872
32	physician patient relation.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures, mesh word]	20
33	physician patient relation*.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures, mesh word]	13795
34	therapeutic processes/	27032
35	exp therapeutic processes/	80854
36	Physician Patient Interaction.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures, mesh word]	310

37Patient Provider Processes.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures, mesh word]	0
38therapeutic alliance.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures, mesh word]	9050
39therapeutic alliance/	5821
40exp Therapeutic Alliance/	5821
41health service accessibility.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures, mesh word]	21
42health access.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures, mesh word]	345
43health care access/	1834
44exp Health Care Access/	7945
45accessibility of health services.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures, mesh word]	40
46"quality of care"/	14370
47care quality.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures, mesh word]	2717
48health care quality.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures, mesh word]	884
49healthcare quality.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures, mesh word]	459
50quality of care.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures, mesh word]	23206
51quality of health care.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures, mesh word]	8123
52quality of healthcare.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures, mesh word]	742
53stigma.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures, mesh word]	32321
54stigma*.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures, mesh word]	40163
55exp stigma/	15886
56exp self-stigma/	568

57"trust (social behavior)"/	13622
58trust.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures, mesh word]	43352
59trust*.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures, mesh word]	53996
60exp "Trust (Social Behavior)"/	13622
61respect.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures, mesh word]	97412
62Respect/	1358
63exp Respect/	1358
64help seeking behaviour.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures, mesh word]	519
65help seeking behavio*.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures, mesh word]	7975
66Help Seeking Behavior/	6369
67exp help seeking behavior/	15323
6813 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 23 or 24 or 25 or 27 or 28 or 29 or 30 or 31 or 33 or 35 or 36 or 38 or 40 or 41 or 42 or 44 or 45 or 46 or 47 or 48 or 49 or 50 or 51 or 52 or 54 or 55 or 56 or 59 or 60 or 61 or 63 or 65 or 67	361042
6913 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24 or 27 or 28 or 30 or 33 or 38 or 40 or 41 or 42 or 44 or 45 or 46 or 47 or 48 or 49 or 50 or 51 or 52 or 54 or 55 or 56 or 59 or 60 or 61 or 63 or 65 or 67	282953
70exp Pandemics/ or exp COVID-19/ or exp Quarantine/ or exp Coronavirus/	13455
71coronavirus disease 2019.mp.	1572
72SARS-CoV-2.mp. or exp COVID-19/	10993
73(corona* adj1 (virus* or viral*)).mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures, mesh word]	149
74(CoV not (Coefficien* or "co-efficien*" or covalent* or Covington* or covariant* or covarianc* or "cut-off value*" or "cutoff value*" or "cut-off volume*" or "cutoff volume*" or "combined optimi?ation value*" or "central vessel trunk*" or CoVR or CoVS)).mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures, mesh word]	3552
75(coronavirus* or 2019nCoV* or 19nCoV* or "2019 novel*" or Ncov* or "n-cov" or "SARSCoV-2*" or "SARSCoV-2*" or SARSCoV2* or "SARS-CoV2*" or "severe acute respiratory syndrome*" or	18910

COVID*2).mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures, mesh word]	
7670 or 71 or 72 or 73 or 74 or 75	19749
7712 and 68 and 76	4
Emcare Search Strategies	
1	exp chronic obstructive lung disease/ 36582
2	exp chronic bronchitis/ 2256
3	exp cigarette smoke-induced emphysema/ 6
4	exp emphysema/ 11490
5	exp lung emphysema/ 4384
6	exp obstructive airway disease/ 108798
7	emphysema*.mp. 10843
8	(chronic* adj3 bronchiti*).mp. 2610
9	(obstruct* adj3 (pulmonary or lung* or airway* or airflow* or bronch* or respirat*)).mp. 55782
10	exp patient satisfaction/ 58007
11	exp patient preference/ 8223
12	patient acceptance of health care.mp. 169
13	(patient satisfaction or satisfaction or patient preference or consumer satisfaction or patient acceptance of health care or patient rating).mp. 151513
14	patient experience.mp. 5954
15	patient assess*.mp. 15741
16	patient rat* of care.mp. 25
17	exp health care access/ 43004
18	exp health equity/ 3777
19	exp right to health/ 295
20	(access to health care or accessibility or health services or accessibility or program or accessibility of health services or availability of health services or health services accessibility or health services availability or health services geographic accessibility or program accessibility).mp. 429377
21	(care quality or health care quality or healthcare quality or quality of care or quality of health care or quality of healthcare).mp. 130892
22	exp doctor patient relationship/ 1856

23exp therapeutic alliance/	668
24exp trust/	13982
25exp respect/	1511
26exp prejudice/	2260
27exp social discrimination/	18684
28exp social stigma/	4047
29exp stereotyping/	846
301 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9	120870
3110 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24 or 25 or 26 or 27 or 28 or 29	730382
32covid.mp. or exp coronavirus disease 2019/	93661
33limit 32 to (yr="2019 -Current" and covid-19)	30693
3432 or 33	93661
3530 and 31 and 34	94
36SARS-CoV-2.mp. or exp Severe acute respiratory syndrome coronavirus 2/	26791
37limit 36 to (yr="2019 -Current" and covid-19)	8923
3834 or 36 or 37	96661
3930 and 31 and 38	94
40SARS-CoV-2.mp. or exp Severe acute respiratory syndrome coronavirus 2/	26791
41exp coronavirus disease 2019/	60298
42exp experimental coronavirus disease 2019/	2
43(corona* adj1 (virus* or viral*).ti,ab,kw.	1184
44(CoV not (Coefficient* or co-efficien* or covalent* or covington or covariant* or covarianc* or "cut-off value*" or "cutoff value*" or "cut-off volume*" or "cutoff volume*" or "combined optimi?ation value*" or "central vessel trunk" or CoVR or CoVS)).ti,ab,kw.	19159
45(coronavirus* or 2019nCoV* or 19nCoV* or "2019 novel*" or Ncov* or "n-cov" or "SARSCoV-2*" or "SARSCoV-2*" or SARSCoV2* or "SARS-CoV2*" or "severe acute respiratory syndrome*" or COVID*2).ti,ab,kw.	92479
4640 or 41 or 42 or 43 or 44 or 45	100435
4740 or 41 or 42 or 43 or 44 or 45	100435
48limit 47 to yr="2020 -Current"	98164
4930 and 31 and 48	94

## CINAHL search strategies

S17	S3 AND S10 AND S16	<b>Search modes</b> - Boolean/Phrase	<a href="#">View Results</a> (139) <a href="#">View Details</a> <a href="#">Edit</a>
S16	S11 OR S13 OR S14 OR S15	<b>Search modes</b> - Boolean/Phrase	<a href="#">View Results</a> (75,753) <a href="#">View Details</a> <a href="#">Edit</a>
S15	(corona* n1 (virus* or viral*))	<b>Limiters</b> - Publication Year: 2020-2022 <b>Search modes</b> - Boolean/Phrase	<a href="#">View Results</a> (656) <a href="#">View Details</a> <a href="#">Edit</a>
S14	CoV	<b>Limiters</b> - Publication Year: 2020-2021 <b>Search modes</b> - Boolean/Phrase	<a href="#">View Results</a> (615) <a href="#">View Details</a> <a href="#">Edit</a>
S13	(coronavirus* or 2019nCoV* or 19nCoV* or "2019 novel*" or Ncov* or "n-cov" or "SARS-CoV-2*" or "SARSCoV-2*" or SARSCoV2* or "SARS-CoV2*" or "severe acute respiratory syndrome*" or COVID*2)	<b>Limiters</b> - Publication Year: 2020-2022 <b>Search modes</b> - Boolean/Phrase	<a href="#">View Results</a> (32,703) <a href="#">View Details</a> <a href="#">Edit</a>
S12	(corona* n1 (virus* or viral*))	<b>Search modes</b> - Boolean/Phrase	<a href="#">View Results</a> (718) <a href="#">View Details</a> <a href="#">Edit</a>
S11	(MH "COVID-19+") OR (MH "COVID-19 Testing") OR (MH "COVID-19 Vaccines") OR (MH "COVID-19 Pandemic") OR (MH "SARS-CoV-2")	<b>Search modes</b> - Boolean/Phrase	<a href="#">View Results</a> (60,466) <a href="#">View Details</a> <a href="#">Edit</a>
S10	S4 OR S5 OR S6 OR S7 OR S8 OR S9	<b>Search modes</b> - Boolean/Phrase	<a href="#">View Results</a> (1,492,890) <a href="#">View Details</a> <a href="#">Edit</a>
S9	(MH "Respect") OR "respect"	<b>Search modes</b> - Boolean/Phrase	<a href="#">View Results</a> (62,213) <a href="#">View Details</a> <a href="#">Edit</a>
S8	(MH "Therapeutic Alliance") OR "therapeutic alliance or therapeutic relationship or working alliance or bond or helping alliance"	<b>Search modes</b> - Boolean/Phrase	<a href="#">View Results</a> (520) <a href="#">View Details</a> <a href="#">Edit</a>
S7	(MH "Trust") OR "trust"	<b>Search modes</b> - Boolean/Phrase	<a href="#">View Results</a> (37,405) <a href="#">View Details</a> <a href="#">Edit</a>
S6	(MH "Life Experiences+") OR (MH "Patient Attitudes")	<b>Search modes</b> - Boolean/Phrase	<a href="#">View Results</a> (103,568) <a href="#">View Details</a> <a href="#">Edit</a>

S5	(MH "Health Services Accessibility+") OR "health access or healthcare access or access to healthcare" OR (MH "Quality of Health Care+") OR (MH "Primary Health Care+") OR (MH "Preventive Health Care+")	<b>Search modes</b> - Boolean/Phrase	<a href="#">View Results</a> (1,250,040) <a href="#">View Details</a> <a href="#">Edit</a>
S4	(MH "Patient Attitudes") OR (MH "Ventilator Patients") OR (MH "Physician-Patient Relations") OR (MH "Professional-Patient Relations+") OR "patient experience or patient perception or patient opinions or patient attitudes or patient views or patient feelings" OR (MH "Patient Satisfaction+") OR (MH "Patient-Reported Outcomes+") OR (MH "Patient Preference")	<b>Search modes</b> - Boolean/Phrase	<a href="#">View Results</a> (206,721) <a href="#">View Details</a> <a href="#">Edit</a>
S3	S1 OR S2	<b>Search modes</b> - Boolean/Phrase	<a href="#">View Results</a> (80,062) <a href="#">View Details</a> <a href="#">Edit</a>
S2	(MH "Pulmonary Disease, Chronic Obstructive+") OR (MH "Lung Diseases, Obstructive+") OR "chronic obstructive pulmonary disease or copd or chronic obstructive airway disease or chronic obstructive lung disease" OR (MH "Airway Obstruction+")	<b>Search modes</b> - Boolean/Phrase	<a href="#">View Results</a> (72,617) <a href="#">View Details</a> <a href="#">Edit</a>
S1	chronic obstructive pulmonary disease or copd or chronic obstructive airway disease or chronic obstructive lung disease	<b>Search modes</b> - Boolean/Phrase	<a href="#">View Results</a> (31,148) <a href="#">View Details</a> <a href="#">Edit</a>

## Supplementary Appendix 2

## Rapid review critical appraisal MMAT results

Screening Questions	Screening questions (for all types)	
Study Details	S1. Are there clear research questions? Yes, No, Can't tell, Comments	Do the collected data allow to address the research questions? Yes, No, Can't tell, Comments
Liang 2020	Yes	Yes
Mansfield 2021 (low in information richness)	Yes	Yes
Mousing 2021	Yes	Yes
Oliveira	Yes	Yes
Philip 2020 -Respiratory patients	Yes	Yes
Philip 2020 -COVID-19 related concerns	Yes	Yes
Pleguezuelos 2020	Yes	Yes
Stamenova 2022 (low in information richness)	Yes, some data collected before pandemic	Yes
Volpato 2021*Narrative Analysis	Yes	Yes
Wu 2021	Yes	Yes

<b>Study Details – Qualitative study designs</b>	1.1. Is the qualitative approach appropriate to answer the research question?	1.2. Are the qualitative data collection methods adequate to address the research question?	1.3. Are the findings adequately derived from the data?	1.4. Is the interpretation of results sufficiently substantiated by data?	1.5. Is there coherence between qualitative data sources, collection, analysis and interpretation?
Mousing 2021	Yes	Yes	Yes	Yes	Yes
Oliveira	Yes	Yes	Yes	Yes	Yes
Philip 2020 -COVID-19 related concerns	Yes	Yes	Yes	Yes	Yes
<b>Study Details - Quantitative non-randomized controlled trial designs</b>	3.1. Are the participants representative of the target population?	3.2. Are measurements appropriate regarding both the outcome and intervention (or exposure)?	3.3. Are there complete outcome data?	3.4. Are the confounders accounted for in the design and analysis?	3.5. During the study period, is the intervention administered (or exposure occurred) as intended?
Stamenova 2022 (low in information richness)	Yes	Yes	Yes	No	Yes
<b>Study Details – Quantitative descriptive designs</b>	4.1. Is the sampling strategy relevant to address the research question?	4.2. Is the sample representative of the target population?	4.3. Are the measurements appropriate?	4.4. Is the risk of nonresponse bias low?	4.5. Is the statistical analysis appropriate to answer the research question?
Liang 2020	Yes	Yes	Yes	Yes (153/218 responded)	Yes
Mansfield 2021 (low in information richness)	Yes	Yes	Yes	Can't tell, appeared to used a retrospectively collected dataset	Yes
Philip 2020 -Respiratory patients	Yes	Yes	Yes	Yes. A lot of data has been removed, wonder if this is alright? 9604/~13000	Yes
Pleguezuelos 2020	Yes	Yes	Yes	Yes	Yes

Wu 2021	Yes	Yes, but still only 19 patients and 55 clinicians. Patient recruitment was limited due to pandemic p.2	Yes	No	Yes
<b>Study Details - Mixed methods study designs</b>	5.1. Is there an adequate rationale for using a mixed methods design to address the research question?	5.2. Are the different components of the study effectively integrated to answer the research question?	5.3. Are the outputs of the integration of qualitative and quantitative components adequately interpreted?	5.4. Are divergences and inconsistencies between quantitative and qualitative results adequately addressed?	5.5. Do the different components of the study adhere to the quality criteria of each tradition of the methods involved?
Volpato 2021*Narrative Analysis	Yes	Yes	Narrative analysis, used statistical data and narrative medicine approach,	Yes	Can't tell

## Supplementary Appendix 3

## Data Extraction Template

<b>Authors (year of publication)</b>	<b>Title</b>	<b>Country</b>	<b>Sample</b> (number of participants, chronic illness (comorbidities), current or ex-smoker)	<b>Participant recruitment</b> (where participants were recruited from)	<b>Time period data collected (during COVID pandemic)</b>	<b>Health care setting (eg. primary health care)</b>	<b>Health care setting mentioned by participant (eg. in relevant quotes)</b>	<b>Data Collection method (eg. in-depth, semi-structured interviews, surveys)</b>	<b>Type of Methodology</b>	<b>Results and Findings</b>