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## Original Study

## The Psychosocial Impact of the COVID-19 Pandemic on Chronic Care Patients



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## A B S T R A C T

## Keywords:

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**Objectives:** The COVID-19 pandemic has had a profound and pervasive impact on psychosocial health and disrupted care systems world-wide. Our research aims to assess the psychosocial impact of the pandemic and related changes in chronic care provision on patients with chronic obstructive pulmonary disease (COPD) and heart failure.

**Design:** A qualitative survey using semi-structured interviews was held among patients with COPD and heart failure.

**Setting and Participants:** Using randomized sampling, 23 patients with COPD, heart failure, or both were recruited to participate in semi-structured interviews. Interviews were held by phone or videocall. The survey was held during the summer of 2021, when strict national containment strategies were widely implemented but gradually loosened and vaccination was ongoing.

**Methods:** Inductive coding using Gioia's approach was used to analyze the data in Atlas.Ti 9.1 software. Using an iterative approach, the data were synthesized in a data structure and data table, which was analyzed using an interpretative approach.

**Results:** We found 3 aggregate dimensions in which the COVID-19 pandemic has a negative impact on psychosocial health of patients with chronic disease: (1) perceived vulnerability to disease, (2) influence of health policy, and (3) a mismatch of supply and demand of health care. In these dimensions, the impact of the COVID-19 crisis was found to have a negative impact on psychosocial well-being, compounded by national strategies to contain the pandemic and a disruption of chronic care for patients.

**Conclusions and Implications:** Health care providers should be aware of a multidimensional nature of psychosocial distress for chronic disease patients due to the COVID-19 crisis. Future practice and health policy could be improved by increasing awareness among health care providers, promote regular attention for psychosocial well-being of patients, provision of clear information related to the pandemic, and strategies to secure continuity of care. Results of this study might be further explored in larger studies.

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Chronic obstructive pulmonary disease (COPD) and heart failure are among the top 5 most prevalent chronic diseases in the Netherlands, representing 600,000 and 240,000 patients, respectively,

with a high burden of disease and associated socioeconomic costs.<sup>1,2</sup> Chronic, continuous care is essential in their treatment.<sup>3,4,5</sup> However, the COVID-19 pandemic has disrupted chronic care.<sup>6,7</sup> Fear of visiting a care provider, fear of bothering medical staff attending to patients with COVID-19, rescheduled or canceled appointments due to increased influx of patients with COVID-19, and COVID-19 management strategies such as social distancing are prevalent reasons of disruption of chronic care and related health care changes.<sup>8,9,10,11</sup>

Concomitant with reduced care accessibility and reduced usage of care by patients with COPD and heart failure,<sup>12,13</sup> patients report

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higher levels of psychosocial distress such as depression and anxiety.<sup>14,15</sup> Next to a direct impact on physical health, the COVID-19 pandemic has a detrimental secondary impact on overall and psychosocial well-being of these patients.<sup>16,17,18,19</sup> This impact cannot be neglected, taking into consideration patients with COPD and heart failure are at increased risk for psychosocial distress and psychosocial well-being is in itself a risk factor in the prognosis of both diseases.<sup>20,21</sup> Psychosocial distress related to the pandemic is reported not only to be the result of fear of infection, receiving appropriate care, or coping with symptoms and stress, but also to be a result of social isolation, financial stressors and unemployment, and negative media coverage of the pandemic.<sup>22,23,24,25</sup>

As prognosis for both diseases is most likely to be affected by a disruption in care and are among the most prevalent and costly chronic diseases, as well as being at risk for developing negative psychosocial outcomes as a result of the beforementioned impact of the COVID-19 pandemic, we conducted a scoping, systematic review of the literature on the psychosocial health during the pandemic of these 2 patient groups. Using the search strategy mentioned in [Table 1](#), we found ample evidence of negative psychosocial effects of the pandemic. However, the research conducted so far is of a quantitative nature and no qualitative studies to date have been conducted exploring the concepts and processes behind this negative impact for patients with COPD and heart failure. Furthermore, data collected in quantitative studies has mainly been derived of data collected in the first 2 periods of the pandemic (2020 and early 2021). These data cannot account for a prolonged exposure to psychosocial distress caused by the pandemic as well as time-related deterioration of personal resilience and the effects of ever-increasing stringent public health safety measures or implementation of vaccination policies. Furthermore, to gain a better understanding of the negative COVID-19 pandemic-related impact, qualitative inquiry is warranted, allowing for better design of targeted interventions. Our paper reports on the psychosocial impact of the COVID-19 pandemic and COVID-19-related changes in care for patients with COPD and heart failure, and explores the processes and concepts behind the psychosocial impact of the COVID-19 pandemic. We aimed to evaluate the direct impact of the pandemic, and whether and how the pandemic and changes in chronic health care have affected the psychosocial health of these patients.

## Methodology

### Study Design and Sampling

A qualitative study design using semi-structured interviews was developed for this research, applying phenomenology within a constructivist paradigm. Institutional review board approval was obtained by extending the data collection of a previous study. Building on this previous study reporting higher levels of psychosocial well-being problems of patients due to the COVID-19 pandemic in its first year,<sup>14</sup> and expert opinion, an interview guide for conducting semi-structured interviews was developed. We recruited 1 participant from a database of patients who had participated in the previous study, in order to conduct a pilot-interview to test our interview guide. The interview guide contained questions about the patient's diagnosis, experience with care during the past year, psychosocial impact of the pandemic, and experience with telemedicine. We then used randomized, stratified sampling to recruit 10 patients with COPD and 10 patients with heart failure as their primary diagnosis from the database. The only eligibility criteria used were that the patient had to be of adult age and have COPD and/or heart failure as their primary diagnosis, and it was agreed on to recruit more participants if data saturation was not reached. Using criteria set by expert opinion of a treating physician using the provider-patient relation and derived

background data of the patient, selective sampling was used to include 2 patients with a lower socioeconomic background from respective departments of the Maastricht University Medical Centre+. Interviews were then conducted by 2 independent interviewers with experience in qualitative research (first 2 authors, a health scientist with expertise in mental and public health and a research assistant). Informed consent was obtained for all 23 interviews before starting the data collection. Basic characteristics of the participants are given in [Table 2](#).

### Data Collection and Analysis

Because of COVID-19 restrictions, interviews were held via an online video connection or by phone. The interviews were held during the summer of 2021. Data saturation was reached before all interviews were conducted; however, as the data were rich on information, the interviewers chose to conduct all participants recruited. All interviews were recorded and transcribed verbatim. Interviews lasted 30 minutes on average.

Using an adductive approach,<sup>26</sup> based on the method of Gioia et al.,<sup>27</sup> the first 2 authors (health scientist and research assistant) independently analyzed 6 interviews, 3 per disease category. Interviews were analyzed using Atlas.ti 9.1 software. The coding was then compared until consensus was reached. Subsequently, the remaining interviews were coded taking into consideration emerging concepts and relationships. This led to the development of first-order concepts narrowing down the codes to a manageable amount. Then themes were extracted through an iterative process by the first 2 authors leading to theoretical saturation. Themes were presented to the research team and discussed, presenting the analytical process step-by-step. On agreement and satisfaction with the rigor and completeness of the data analysis, the first 2 authors built a data structure used in the final step of analysis of drawing insights from our data.

Through the dialectical process between the narratives of the interviews and the adductive perspective of the first 2 authors, overlapping first-order codes were produced. The heuristic approach of moving back and forth between the data then produced second-order themes that were distilled into aggregate dimensions, finalized in a data structure.

Compelling or representative quotes from the interviews were extracted to represent the data. Subsequently, we arranged the first-order concepts, second-order themes, aggregate dimensions, and representative data in a data table, linking the data structure to the narrative, providing a comprehensive overview of the data. The data table can be found in [Supplementary Table 1](#).

## Findings

To understand the impact on psychosocial health of the pandemic and concurrent changes in chronic care of patients with COPD and heart failure, we developed a data structure to help provide an overview of the impact. The data structure is given in [Figure 1](#). This section describes every aggregate dimension, providing exemplary quotes from the interview narratives.

### Influence of Perceived Vulnerability to COVID-19 on Psychosocial Well-Being

#### Significant Psychological Distress due to Perceived Vulnerability to Infection

##### *Fear of infection and high vulnerability due to chronic disease*

All participants reported psychological distress caused by their perceived vulnerability to infection due to having a preexisting chronic condition. Participants were aware of the extra risk they have

**Table 1**  
Search Strategy

Search Strategy Scoping, Systematic Review		
	Description	Output
Step 1	Formulation of concepts	Concept 1: psychological <ul style="list-style-type: none"> <li>Keywords: psychological, psychosocial</li> </ul> Concept 2: chronic disease(s) <ul style="list-style-type: none"> <li>Keywords: chronic disease(s), noncommunicable disease(s), COPD, heart failure</li> </ul> Concept 3: COVID-19 <ul style="list-style-type: none"> <li>Keywords: COVID-19</li> </ul>
Step 2	Search general concepts	Search strings: <ol style="list-style-type: none"> <li>"Psychosocial OR psychological" and "COPD OR heart failure" AND covid-19</li> <li>"psychosocial" OR "psychological") AND ("chronic disease") AND "COVID-19"</li> </ol>
Step 3	Formulation of MeSH terms	Concept 1: <ul style="list-style-type: none"> <li>"Psychological Distress"[MeSH]</li> <li>"Mental Health"[MeSH]</li> </ul> Concept 2: <ul style="list-style-type: none"> <li>"Chronic Disease"[MeSH]</li> <li>"Noncommunicable Diseases"[MeSH]</li> <li>"Pulmonary Disease, Chronic Obstructive"[MeSH]</li> <li>"Heart Failure"[MeSH]</li> </ul> Concept 3: <ul style="list-style-type: none"> <li>"COVID-19"[MeSH]</li> <li>"SARS-CoV-2"[MeSH]</li> </ul>
Step 4	Search MeSH strings	Search strings: <ol style="list-style-type: none"> <li>"Mental Health"[MeSH] AND ("Chronic Disease"[MeSH] OR "Noncommunicable Diseases"[MeSH] OR "Pulmonary Disease, Chronic Obstructive"[MeSH] OR "Heart Failure"[MeSH]) AND ("COVID-19"[MeSH] OR ""SARS-CoV-2"[MeSH])</li> <li>"Psychological Distress"[MeSH] AND ("Chronic Disease"[MeSH] OR "Noncommunicable Diseases"[MeSH] OR "Pulmonary Disease, Chronic Obstructive"[MeSH] OR "Heart Failure"[MeSH]) AND ("COVID-19"[MeSH] OR ""SARS-CoV-2"[MeSH])</li> </ol>

Table 1 shows the search strategy used in a scoping, systematic review of the literature available on the psychosocial impact of COVID-19 on chronic care patients, and on patients with COPD and heart failure specifically. The search was conducted in PubMed.

as being chronically ill, their direct vulnerability to a COVID-19 infection, and the high risk of serious complication when infected.

"He [treating physician] said: It is the best you stay inside as much as you can, avoid every contact that isn't necessary, because you know: 2 years ago you barely survived a double pneumonia, but what do we see now of consequences of people who were infected with COVID-19? You won't survive it. Well, that really scared me."

Experienced fear led to psychological distress that was expressed in typical symptoms such as traits of depression, anxiety disorder, existential crisis, and sleep disorders.

#### *Fear and distress of not receiving timely and appropriate care*

Some participants were worried about not receiving timely and appropriate care when infected as a reason to avoid getting infection. Participants spoke poorly of overburdened health care systems and their chances of getting timely and appropriate treatment.

"And then I knew, if I get it, I will be one of the last people getting an ICU bed if you look at survival statistics, and that was hard to realize."

Several participants did not want to be admitted to an intensive care unit (ICU) bed when infected, because they either estimated chances of survival being small or because they felt other people such as younger individuals should take priority.

#### *Anger, loneliness, and powerlessness regarding pandemic and own vulnerability*

Anger, loneliness, and feelings of powerlessness were frequently mentioned as psychological responses to the pandemic and perceived

vulnerability as a chronic disease patient. Individuals who lived alone felt more alone and vulnerable, whereas participants who were married spoke of the resilience arising from facing the pandemic as a couple. This concept seems representative of an inability to change a threatening situation, related to not being able to overcome or accept to this situation.

"And I live alone, and that was really hard for me, that I needed to handle everything alone and discover it all by myself."

Processes larger than the local community of household such as the politics of health policy, lockdown strategies, and recommendations for chronic patients to remain isolated, were prone to induce some form of anger, despair, or powerlessness.

#### *Increased grief experience and difficulty coping with it*

Grief and sadness were commonly reported reactions to the impact of the pandemic, experienced vulnerability, and its consequences such as social distancing.

"If I have to explain it, I am 75. Yes, in 75 years I cried twice, I think, last year I had cried 8 times."

Participants pointed out families were confined to their homes, and children reluctantly visited their parents due to the risk of spreading the infection to more vulnerable relatives. The lack of close social support seemed to lead to difficulty coping with psychological distress.

#### *Patients need psychological support for distress caused by the pandemic*

Many participants spoke of a need for psychological or psychiatric care due to the consequences of the pandemic on their psychosocial

well-being. Depression, anxiety, posttraumatic stress disorder, and, for example, addiction were conditions linked to the impact of the pandemic. This highlights the significance and extent of the psychological distress as experienced by patients.

“I started drinking because of the stress. So, I contacted addiction care.”

#### *Perception of others of the COVID-19 threat*

Some narratives suggested that different perceptions of the COVID-19 threat and urgency of preventive strategies led to frustration, irritability, or anger among patients.

“I get really irritated if I hear people talk just about being able again to go to drinks, like that is really the most important thing now.”

#### *Extreme Restriction and Precaution With Human Contact Out of Fear*

##### *Emphasis on social distancing out of fear*

All participants highlighted in various degrees the importance of social distancing in their prevention strategies. Social distancing was a behavior that mostly meant participants isolated themselves from all face-to-face social contact, with only a few participants making exceptions for family or other high-valued contacts.

“I didn’t want to have my son in my garden anymore, because I could not stand it anymore [the fear].”

##### *Isolation at home, less time outdoors due to fear causes distress*

Social distancing meant for most participants to isolate themselves at home. Activities such as visits to theaters, going to group-based activities such as sports, and sometimes just even walking outside were to be avoided, and according to participants the resulting loss of time spent outside the house caused distress.

“I haven’t left the house at all, because I am so scared. Talking about heart failure, my doctor already told me to be careful because I am very, very vulnerable for infections.”

##### *Fear of infection leads to avoidance of care*

Perceived as potential hotspots for infection, with COVID-19 as well as other diseases, appointments at care providers were avoided. Even, when possible, face-to-face appointments for health problems were not desirable when participants were afraid for worse consequences for their health if infected with COVID-19.

“I had a check-up at the hospital [after surgery] but it changed to a phone call. Since then, my eye has been worse significantly. I should go back, but I think, I’ll wait.”

Care for the primary chronic disease was considered to be secondary to self-preservation, as, for example, physiotherapy was restricted to home-based exercises.

## **Influence of Health Policy on Psychosocial Well-Being**

### *Importance of Clear and Effective Vaccination Strategies for Psychosocial Well-Being*

#### *Vaccination and following the guidelines causes safer feeling*

Almost all interviewees indicated vaccinations to be important, as it gave them some degree of security. The safer feeling either was mentioned specifically or was indicated by changes in the behavior of

**Table 2**  
Characteristics of the Study Sample

Demographic data and characteristics of study participants			
Variable	Total (n = )	Mean	Range
Gender	23		
Male	11		
Female	12		
Age			
Male		68.3	48–84
Female		56.3	32–74
Diagnosis			
COPD	10 (5 male, 5 female)		
Average age	69.1		42–78
Heart failure	11 (6 male, 5 female)		
Average age	61.7		33–84
Both	2 (2 female)		
Average age	61.5		51–67

Table 2 shows the demographic and characteristic data for all study participants.

participants, for example, vaccinated participants were more likely to go outside their homes.

“Yes, getting a vaccination is very pleasant. It gives you so much more security.”

Similar to the implications of being vaccinated, following strict guidelines such as total social isolation and distancing and the use of facemasks, were related to feelings of safety.

#### *Despite vaccination, still concerned for own health due to COVID-19 infection risk*

In contrast with the group of participants who felt much safer when vaccinated, there was a group of participants who still had serious concerns for their health after being vaccinated. They acknowledged the risk was reduced and stipulated it was important to be vaccinated but felt too vulnerable to be more complacent in their response to the pandemic:

“Well, [getting a vaccination], it at least gives you the feeling that it will affect you less seriously. But we all know that you are not safe. Vaccinate or not, you are not safe.”

#### *Vaccination restores freedom of movement and accessibility to care*

Two of the most frequently mentioned benefits of being vaccinated were the ability to go out of the house and the increased accessibility of care. Physiotherapy, for example, became again available for those who were vaccinated, which meant an incredible improvement of perceived health and ability to self-manage disease.

“[Getting a vaccination] It is incredible, it really makes a difference. Because I had my first vaccination shot, I could restart physiotherapy.”

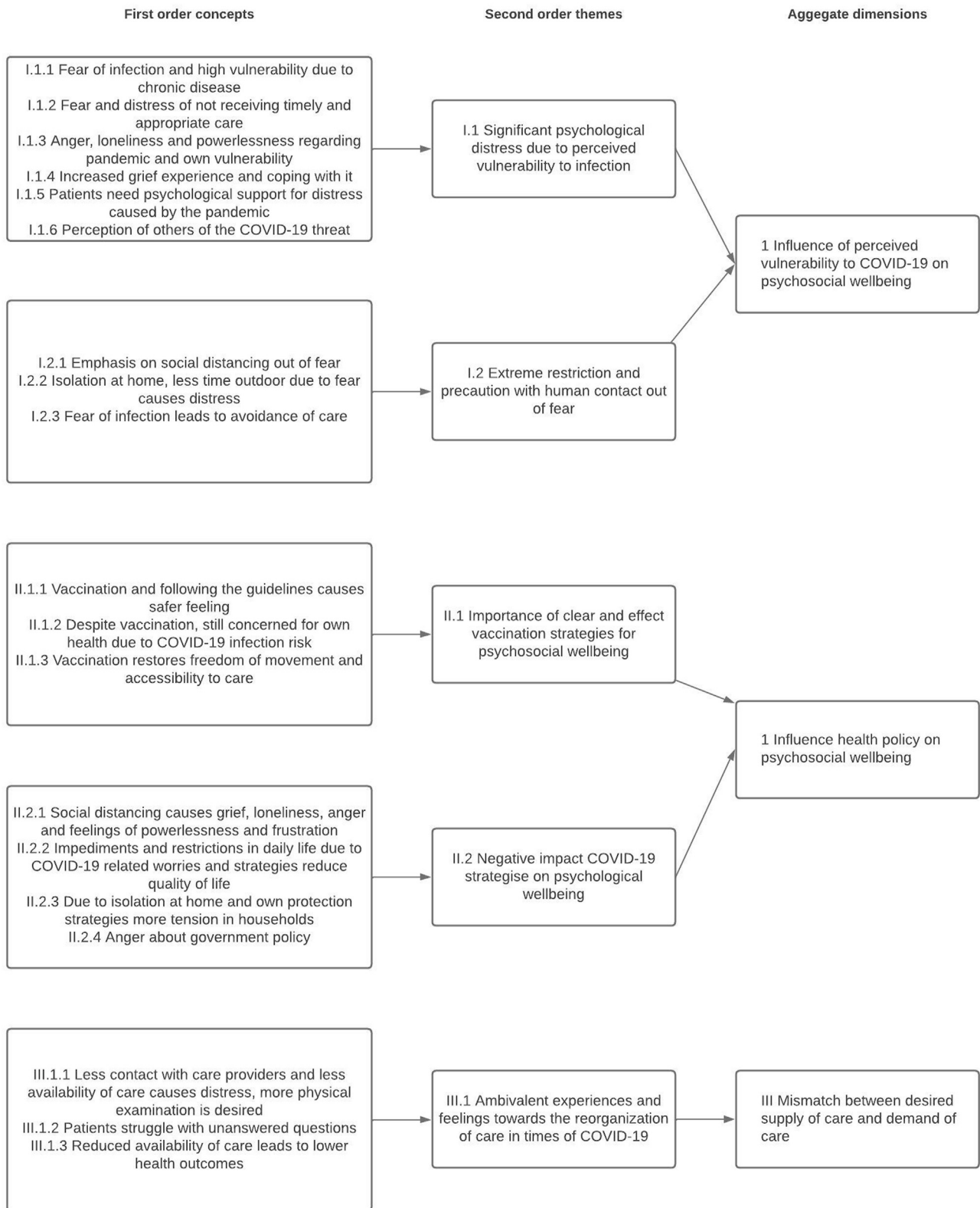
Those who were most positive about vaccinations showed the most change in prevention-related behavior.

#### *Negative Impact of COVID-19 Strategies on Psychological Well-Being*

##### *Social distancing causes grief, loneliness, anger, and feelings of powerlessness and frustration*

Social distancing had significant drawbacks experienced by participants. Social distancing disrupted the common need for human interaction, the possibility of receiving community support, and the pooling of resources against the impact of the pandemic. This resulted in feelings such as loneliness and powerlessness when confronted with the threat of the pandemic. Social distancing was linked with negative emotions by participants with more sadness and with less

**Data structure**



**Fig. 1.** Data structure. The figure represents the emerging themes and their relations that arise after the adductive analysis of the data. Nineteen first-order concepts brought forth 5 themes distilled into 3 aggregate dimensions.

effectual coping strategies. Participants even went as far as stating they would not engage in another social lockdown to be safe, but instead would ignore their safety in exchange for more quality of life:

“I feel like I won’t repeat how it went last winter. I, think like, so what if I get COVID and maybe die, at least I did fun things instead of locking myself away and be safe, but die of a depression, that doesn’t work either.”

#### *Impediments and restrictions in daily life due to COVID-19–related worries and strategies reduce quality of life*

Stating that their quality of life already was compromised because of their chronic disease, worries about possible COVID-19 impact on health and concerns about prevention strategies resulting in pervasive, undesired side-effects, further impaired the quality of life of patients. Although the reduction in quality of life due to their chronic disease was generally accepted, the extra reduction was less widely accepted. Participants mentioned the further reduction of ways to have a normal life to beyond even the most basic of behaviors made life hard.

“Your quality of life is not what you want [when having multiple chronic diseases]. And if due to COVID you can’t leave the house spontaneously ... it becomes really hard.”

#### *Isolation at home and other protection strategies caused more tension in households*

Often dependent on a related caregiver, participants reported appreciation of the care they received from spouses, children, or other social contacts. However, the isolation at home to avoid infection also caused conflict, frustration with one another, and confrontation with one’s dependency on others causes distress for participants. As participants felt they were more limited in their options to engage in social contacts, the remaining contacts became much more important, however, also became a bigger source for stress.

“One way or the other, you spend 24 hours a day together in one house. That is really hard sometimes.”

#### *Anger about government policy*

Participants required clarity on the vaccination process. Next to clarity, the process itself was questioned. Anger about lobbyist influence on government policy, or anger about the influence of cost-containment strategies on government policies were not limited to vaccination but extended to the procurement of facial masks and other protective materials. No participant expressed positive feelings for government policy and only expressed negative consequences for their psychosocial health.

“I became a little angry at the government that everything had to be so precise, economical, and efficient.”

### **Mismatch Between Desired Supply of Care and Demand of Care**

#### *Ambivalent Experiences and Feelings Toward the Reorganization of Care in Times of COVID-19*

##### *Less contact with care providers and less availability of care causes distress, more physical examination is desired*

Important to participants was that reduced access and availability to care leads to more uncertainty and distress about health. Seemingly, there was a general need of participants to receive some form of confirmation on the status of their health, and when absent, this

lacking confirmation led to more stress about personal health. The narratives also suggest that when patients are more uncertain about their own health status, the more vulnerable they feel.

“Because you were not allowed, and couldn’t, come to the hospital to get blood drawn. That was such a hassle. They [care providers] were not allowed to have it done either ... Thus, it was so much uncertainty. And that was very hard for me.”

The use of telemedicine was considered as unsatisfactory and not a good replacement for personal contact.

#### *Patients struggle with unanswered questions*

Concurrent with the urge to receive medical attention came the increased number of questions about care provision and the impact of the pandemic on health and health risks for patients with chronic disease. Several times participants mentioned care providers informed their patients about the risks of infection and their inability to provide effective treatment when infected, but these care providers gave no additional supportive information:

“The thing which was really unsatisfactory is that the general practitioner called only stating that if I be infected with Corona, he could not help me. And that was it. We never heard more about it from the general practitioner.”

Participants were unsatisfied with the level of information they received, and the lack of information corresponded directly with feelings of anxiety and depression.

#### *Reduced availability of care leads to poorer health outcomes*

As a result of less care being available to them, participants frequently reported their health being diminished, and thus indicate the output of their treatment is not solely manageable by self-care. Furthermore, self-management was reported to be difficult without supervision of care professionals.

“I always had a running and rowing machine at home and also a cross-trainer, and at first, I used them sometimes, but at a certain moment you need to have the discipline to use them and that was completely gone at one point. And when you experience more discomfort from your lungs, the step to use those devices becomes a lot larger.”

Their disease-related limitations such as movement impairment reduced the number of available options for self-management. The narratives suggest therapies such as physiotherapy are essential for the level of functioning of patients with a chronic disease, and that the pandemic, due to the restrictions on all levels, leads to a loss of functioning for a large group of patients.

### **Discussion**

Our research confirms other studies conducted in the world reporting a decline in psychosocial well-being of patients with chronic diseases. Studies conducted in Canada,<sup>28</sup> China,<sup>29</sup> and Italy,<sup>30,31</sup> for example, all showed similar results. However, one larger study conducted in the United States by Davis et al.<sup>32</sup> reported stable psychological and spiritual outcomes over time, and reported stability in psychosocial resilience in the first 3 months of the COVID-19 pandemic. Our study found that fear of being infected contributed negatively to psychosocial well-being. The difference in results between studies can be explained by the moment of measurement. We explored the psychological well-being when the pandemic was well in its first 1 and a half year, and more reports of the vulnerability of patients were made public as well as the widespread media coverage of the disastrous outcomes of patients with chronic conditions being

infected by COVID-19.<sup>33</sup> The news of overburdened health systems was widely known and a devastating reality for most patients, as they now also faced a loss of potential resources to maintain their health, which was considered by Davis et al.<sup>32</sup> to be a factor stabilizing decline in psychosocial well-being. Conservation of resources theory can be used to explain our results, and has previously been used to explain psychosocial distress in global disasters.<sup>34</sup> Our participants all reported a loss of resources to be used in protection from infection, the need to engage in extreme measures for maintaining control over protection, or resources to be used in the health care received.

Our study adds to research conducted by exploring different dimensions that might affect psychosocial well-being rather than only limiting to measurement of the prevalence of adverse psychosocial well-being outcomes. Previous studies have mentioned the particular vulnerability of patients with chronic diseases for psychosocial distress.<sup>35</sup> From the literature, we know psychosocial well-being is associated with health outcomes in COPD and therefore we argue psychosocial well-being is important to maintain in COPD treatment.<sup>36,37</sup> We qualitatively confirmed the report of Garcia-Llana et al.<sup>38</sup> that part of the negative psychosocial impact could be attributed to fears of adverse effects, not getting the vaccine, and a lack of information. We add to previous research by stating that patients with chronic disease engage in extreme social distancing expressed in isolation at home and avoidance of care, thereby contributing to negative psychosocial well-being and a reduction in perceived health.<sup>39,40</sup> Loneliness was one of the most prevalent end-results of social distancing, similar to the study of Polenick, et al.,<sup>41</sup> and is similarly reported to affect the overall health status and psychosocial well-being of older individuals with COPD.<sup>42</sup> It is well-known that measures such as social distancing can be stressful to patients,<sup>33,43</sup> for example, due to the perceived resource loss as a result of lack of companionship, hope, and care and the loss of a network.<sup>44</sup> In this aspect, effective health policy to contain COVID-19 spread becomes counter-effective in managing personal health for patients. We were able to confirm that implemented health policy had adverse health effects due to people not being able to engage in self-management of their disease, such as daily exercise.<sup>40</sup> Our results are largely similar to a large qualitative study of COVID-19–related concerns among people with long-term respiratory conditions, which reported concerns similar to our study, such as anxiety over possible adverse outcomes of having an infection with COVID-19.<sup>35</sup>

To help continuation of care, telehealth has been widely implemented during the COVID-19 crisis.<sup>7,45</sup> However small successes might be achieved, our study stresses the importance of personal contact with patients with COPD or heart failure, especially when physical examination is desired by patients, which is a commonly reported issue.<sup>7,45–48</sup> This apparent drawback of telehealth has been highlighted during the COVID-19 crisis, and according to our research, emphasizes for the need of information, personal contact, and regular interaction with patients with chronic diseases to health facilitate an integrated, chronic care model.<sup>49,50</sup> Integrated care has been faced with new challenges during the COVID-19 crisis,<sup>51</sup> and physicians should be made aware of their new tasks.

### Strengths and Limitations

To our best knowledge, our study is one of the first studies that qualitatively explores the psychosocial impact of the COVID-19 pandemic on the psychosocial well-being of patients with chronic diseases.<sup>31,35,39</sup> In our results, we describe the different reasons that might be causing a decline in psychosocial well-being. One major drawback from taking a qualitative approach is its generalizability over larger populations.<sup>52</sup> Our sample consisted of 23 participants with COPD, heart failure, or both. Although data saturation was reached, caution must be made to generalize our results to other

patient groups or larger samples. For example, in one study among patients with cancer and HIV, psychosocial well-being problems were less evident.<sup>30</sup> However, one major advantage of our systematic approach to qualitative research, is the rigor of our proposed data structure.<sup>27</sup> Therefore, we provided direction for larger quantitative studies.

### Conclusion and Implications

Psychosocial distress due to the impact of the COVID-19 pandemic is evident in patients with chronic diseases. The causal factors are multidimensional and can be numerous. Fear of infection due to vulnerability of their health, distress caused by implemented health policy for infection control, and a mismatch of desired supply and demand of health care are to be explored by health care providers and policy makers in order to limit the psychosocial impact of the COVID-19 crisis.

Based on our findings, we make the following recommendations for future practice and health policy in case of another epidemic:

- Increase awareness of psychosocial well-being of patients among health care providers through education, policy development, publication in journals, and social media.
- Systematically check and talk about stress and psychosocial well-being with patients via personal contact, and if not otherwise possible, via telecommunication.
- Repeatedly provide clear information about the pandemic, vaccinations, and their risks, in understandable language.
- Engage in advance care planning conversation with patients, including their perspectives on care provision.
- Secure continuity of care by providing a regular point of contact for patients, to follow up on questions and worries.

### Conflict of Interest

The authors declare no conflict of interests. No grant or financial support was used in this study.

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**Supplementary Table 1**  
Data Table

Second-order themes and First-order Categories	Representative data
Overarching dimension:	
I. Influence of perceived vulnerability to COVID-19 on psychosocial well-being	
I.1. Significant psychological distress due to perceived vulnerability to infection	
I.1.1 Fear of infection and high vulnerability due to chronic disease	<ol style="list-style-type: none"> <li>1. "He [treating physician said: the best of you is you stay inside as much as you can, avoid every contact that isn't necessary, because you know: 2 years ago you barely survived a double pneumonia, but what do we see now of consequences of people who were infected with COVID-19? You won't survive it. Well, that really scared me."</li> <li>2. "In the beginning I was really scared, I didn't want anybody to come visit me."</li> <li>3. "Of course, already my health was bad and I slept bad, but when you see the images on TV, and there is little information known, you get confronted very hard with your own mortality and how you are going to handle things."</li> </ol>
I.1.2 Fear and distress of not receiving timely and appropriate care	<ol style="list-style-type: none"> <li>1. "And then I knew, if I get it, I will be one of the last people getting an ICU bed if you look at survival statistics, and that was hard to realize."</li> <li>2. "The general practitioner no, I haven't heard from him at all. And I became very depressed at one point ... It is the harshness of people like me getting pushed aside as if we caused our own bad health and it's too bad if you died. It feels like it has become survival of the fittest. And it even occurred among my friends and acquaintances. That was really hard for me."</li> </ol>
I.1.3 Anger, loneliness, and powerlessness regarding pandemic and own vulnerability	<ol style="list-style-type: none"> <li>1. "And I live alone, and that was really hard for me, that I needed to handle everything alone and discover it all by myself."</li> <li>2. "And of course, it is like, there will be 20 warnings, be careful, be careful, be careful, because if you get Corona, well, together with heart failure it's the end of the story. And that causes your stress level to spike 5 times as high as normal."</li> </ol>
I.1.4 Increased grief experienced and difficulty coping with it	<ol style="list-style-type: none"> <li>1. "Yes, in that sense, lonely and sad about the family. You can't contact them, they are also very careful, just a phone call now and then."</li> <li>2. "If I have to explain it, I am 75. Yes, in 75 years I cried twice, I think, last year I had cried 8 times."</li> </ol>
I.1.5 Patients require psychological support for distress caused by pandemic	<ol style="list-style-type: none"> <li>1. "And I really ended up in psychiatric help again with a big depression."</li> <li>2. "Was referred to the psychiatric physician's assistant, but that was really not enough, so I am wondering whether I should consult a medical psychologist."</li> <li>3. "I started drinking because of the stress. So, I contacted addiction care."</li> </ol>
I.1.6 Perception of others of the COVID-19 threat	<ol style="list-style-type: none"> <li>1. "I get really irritated if I hear people talk just about being able again to go to drinks, like that is really the most important thing now."</li> </ol>
I.2. Extreme restriction and precaution with human contact out of fear	
I.2.1 Emphasis on social distancing out of fear	<ol style="list-style-type: none"> <li>1. "In the beginning I was really scared, and I did not want anybody to come over."</li> <li>2. "I didn't want to have my son in my garden anymore, because I could not stand it anymore [the fear]."</li> </ol>
I.2.2 Isolation at home, less time outdoors out due to fear causes distress	<ol style="list-style-type: none"> <li>1. "The first lockdown I didn't go outside the house at all. I was also to scared to go to a store."</li> <li>2. "I haven't left the house at all, because I am so scared. Talking about heart failure, my doctor already told me to be careful because I am very, very vulnerable for infections."</li> <li>3. "I am kind of used not to go out much. But that [about being home-bound] becomes oppressive after a while."</li> </ol>
I.2.3 Fear of infection leads to avoidance of care	<ol style="list-style-type: none"> <li>1. "It is difficult for me, to cope with having to put therapy on the back burner ... Because I didn't dare to go due to Corona."</li> <li>2. "Normally, I would go to the dentist, 3 times a year ... but I was too afraid to go."</li> <li>3. "I had a control appointment at the hospital [after surgery] but it changed to a phone call. Since then my eye has been worse significantly. I should go back, but I think, I'll wait."</li> </ol>
II. Influence of health policy on psychosocial well-being	
II.1. Importance of clear and effective vaccination strategies for psychosocial well-being	
II.1.1 Vaccination and following the guidelines causes safer feeling	<ol style="list-style-type: none"> <li>1. "You didn't think like, oh, I hope we won't get corona or we have to go to the hospital."</li> </ol> <p>"I did not worry about that. Just because I followed the rules and didn't go anywhere, and that kind of stuff, so I wouldn't know where I should have gotten it [COVID-19]."</p> <ol style="list-style-type: none"> <li>2. "What did it mean for you, when you were vaccinated?"</li> </ol> <p>"Yes, very pleasant. It gives you so much more security."</p>

II.1.2 Despite vaccination, still fear for own health due to COVID-19 infection risk

1. "How does it feel to be vaccinated? Does it make a difference in how you feel now?"  
"No, I notice little difference because you still know you aren't fully protected ... I don't feel safe yet, but that is appropriate because after the second vaccination you have to restrain yourself for 2 weeks still."
2. "And does it give you a safer feeling?"  
"Well, it at least gives you the feeling that it will affect you less seriously. But we all know that you are not safe. Vaccinate or not, you are not safe."

II.1.3 Vaccination restores freedom of movement and accessibility to care

3. "It sort of gives you a safer feeling. I just don't understand its rationale. Safer of who? When? Vaccinated?"  
1. "How does it feel for you? [about being vaccinated]."  
"Incredible, it really makes a difference. Because I had my first vaccination shot, I could restart physiotherapy."  
2. "Since the second shot we became a lot more free in [going out] ... and having social contacts."

II.2 Negative Impact of COVID-19 strategies on psychological well-being

II.2.1 Social distancing causes grief, loneliness, anger, and feelings of powerlessness and frustration

1. "We didn't let anybody in the house ... Only the children visited, in the garden, each on opposite sides of the table. But at the certain moment you crave that contact."  
2. "I live alone ... Yes it, is just that ... Very lonely..."  
3. "I feel like I won't repeat how it went last winter. I, think like, so what if I get COVID and maybe die, at least I did fun things instead of locking myself away and be safe, but die of a depression, that doesn't work either."

II.2.2 Impediments and restrictions in daily life due to COVID-19–related worries and strategies reduce quality of life

1. "Your quality of life is not what you want [when having multiple chronic diseases]. And if due to COVID you can't leave the house spontaneously ... it becomes really hard."  
2. "A mixture of anger and helplessness. Helplessness of my wife and me. And now ... we had many plans to go out and things like that, well, that all was not possible anymore"

II.2.3 Due to isolation at home and other protection strategies more tension in households

1. "I don't go to the store ... my husband does the groceries ... and if I write down Lassie rice, he brings home white rice while he knows we always eat brown rice, yes that kind of frustrations occur,"  
2. "Related to that, everybody works really hard to keep it safe for me here. And still succeeds in it. I know what the consequences are." Interviewer: "That must be very stressful for you, right?" Patient: "Yes."  
3. "One way or the other, you spend 24 hours a day together in one house. That is really hard sometimes."

II.2.4 Anger about government policy

1. "I became a little angry at the government that everything had to be so precise, economical and efficient."  
2. "I am a calm person, but I was screaming with rage ... the vaccination, it was not normal. All those lobbies."

III. Influence of mismatch supply and demand of care

III.1 Ambivalent experiences and feelings toward the reorganization of care in times of COVID-19

III.1.1 Less contact with care providers and less availability of care causes distress; more physical examination is desired

1. "Because you were not allowed, and couldn't, come to the hospital to get blood drawn. That was such a hassle. They [care providers] weren't allowed to have it done either ... Thus it was so much uncertainty. And that was very hard for me."  
2. [On the preference of hospital visits versus consultation via phone]  
Interviewer: "So, that's more important to you?"  
Patient: "Yes, yes, yes, because, they will make images and echo's and all that. While when using the phone it will be: 'Everything ok with you, sir? Yes, no, I will call back in half a year' [says patient mockingly]."  
3. "What I would have liked is a lung function test. It's been 2 years already since the last one, maybe even longer ago."

III.1.2 Patients struggle with unanswered questions

1. "The thing which was really unsatisfactory is that the general practitioner called only stating that if I contracted Corona, he could not help me. And that was it. We never heard more about it from the general practitioner."

III.1.3 Reduced availability of care leads to lower health outputs

1. "What really bothered me is that working out [at a physiotherapist] became no longer an option, and since running is out of the question for me. I really missed the working out and thus also gained weight."  
2. "Last year I declined in muscle power a lot because I didn't do anything since physiotherapy was closed. Well, I was scared too ... it was a drama, all the things I couldn't do, I wanted to be sad and became very dependent."  
3. [About physiotherapy not being available] "Of course, it is a large group of people in the Netherlands who will experience loss and decline of functioning due to corona on all levels ... and that affects quality of life greatly".