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# Working conditions in primary healthcare during the COVID-19 pandemic: an interview study with physicians in Sweden

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## Abstract

**Objectives:** The aim of this study was to explore how the COVID-19 pandemic changed working conditions for physicians in Swedish primary healthcare.

**Design:** A descriptive, qualitative approach with individual semi-structured interviews. The data were analysed using inductive content analysis.

**Setting:** Swedish primary healthcare units in both rural and urban areas.

**Participants:** A total of 11 primary care physicians fulfilled participation.

**Results:** Two main categories emerged: 'Work organization and routines' and 'Psychosocial work environment' containing three and five subcategories, respectively. The pandemic enforced changes in work organization and routines. Increased flexibility, including more patient-oriented delivery of care and novel means of inter- and intra-organizational interactions, were perceived as positive by physicians. The pandemic also caused several changes in the physicians' psychosocial work environment. Increased workload, information overload as well as ethical considerations and feelings of uncertainty made the work environment stressful for the physicians.

**Conclusions:** The COVID-19 pandemic affected the working conditions for physicians in Swedish primary healthcare in numerous ways. The pandemic enforced changes in work organization and routines for physicians in primary healthcare. Further research is needed to investigate how the pandemic will affect primary healthcare in the longer term. Learning from the pandemic is important because this will not be the last crisis that primary care and its healthcare professionals will face.

**Keywords:** COVID-19, working conditions, primary healthcare, physicians

## Article summary

### Strengths and limitations of this study

- To our knowledge, this is the first study on the effects of COVID-19 on working conditions for primary healthcare physicians in Sweden.
- A multidisciplinary research team conducted the study.
- The small number of participants ( $n=11$ ) could be considered a limitation.
- Participation was based on physicians' interest in the subject which can affect the results.

For peer review only

## INTRODUCTION

Coronavirus disease (COVID-19) has had an enormous impact on healthcare systems worldwide with crowded wards and intensive care units.[1, 2] The spread of COVID-19 has required measures such as closing of borders, self-quarantining and social distancing.[3] The pandemic has also prompted many changes in organizational processes and working routines in healthcare and has had an impact on the work environment in the healthcare sector.[4] For many healthcare workers, the pandemic has led to increased psychological distress. Healthcare workers have had to continuously assimilate new information and guidelines.[5-8] In addition, insufficient personal protective equipment has had a negative effect on the work environment.[4, 9, 10]

The media focus during the pandemic has been on healthcare workers in intensive care units and emergency rooms.[8, 11-13] However, only a small proportion of patients with COVID-19 are hospitalized. Primary healthcare has managed the largest share of COVID-19-related care.[1] Primary healthcare handled patients infected with, or potentially infected with, the coronavirus and carried out extensive testing for COVID-19 among citizens and are continuously doing so. Hence, the impact on healthcare workers in primary healthcare is substantial.[14, 15] Many changes have been instigated in primary healthcare in many countries worldwide, including Sweden, to maintain the safety of both patients and healthcare workers.[2, 4, 16] Instead of meeting patients face to face, telephone or video consultations are taking place and sometimes contact by email.[4, 8, 15, 17, 18]

Changes in response to the COVID-19 pandemic can cause stress and may add to existing problems with working condition in primary healthcare. Previous primary healthcare research has documented problems with a heavy workload, large administrative burden, poor job control, poor job satisfaction, understaffing and high staff turnover.[19-22] Studies have also found that problems with working conditions can lead to reduced quality of patient care and patient safety.[23]

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2  
3 Against the backdrop of changes in primary healthcare incurred by the COVID-19  
4  
5 pandemic, the aim of this study was to explore primary healthcare physicians' experiences of  
6  
7 the changes in working conditions in response to the pandemic. This knowledge is important  
8  
9 because previous research has documented many work-related problems in primary healthcare  
10  
11 even before the pandemic.[19-22]  
12  
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14

## 15 16 METHODS

### 17 18 **Study design and setting**

19  
20  
21  
22 We used a qualitative approach based on 11 semi-structured interviews with physicians  
23  
24 from different primary healthcare units in four regions in Sweden. A qualitative approach was  
25  
26 chosen. Individual interviews were considered the most relevant method to obtain information  
27  
28 of how the pandemic has affected the daily work and consequences for the work environment  
29  
30 in primary healthcare.  
31  
32

33  
34 The Swedish healthcare system is divided into 21 regions. Primary healthcare centres are  
35  
36 either publicly or privately managed and mainly funded by taxes. In 2019, 44% of 1140  
37  
38 primary healthcare settings in Sweden were privately managed.[24] Primary healthcare in  
39  
40 Sweden is responsible for first line healthcare, treatments and diagnosis as well as prevention  
41  
42 of diseases for the whole population.  
43  
44

### 45 46 **Recruitment of participants**

47  
48  
49 We used a purposeful sampling strategy to achieve a diverse sample regarding the size  
50  
51 (number of listed patients) and location (in terms of rural/urban location and different regions  
52  
53 of Sweden) of the primary healthcare centres. The purpose was to capture a broad range of  
54  
55 experiences concerning the working conditions to improve the trustworthiness of the study.  
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We approached six regions in Sweden by email to recruit participants for the interviews. In three of the regions, the person responsible for research in the primary healthcare organization was contacted with brief information about the study aim and method as well as an enquiry about participation. For the three other regions, we asked key persons to either forward our request for interviews to other persons within their organization or if they could assist us in the recruitment of participants. Five of the six regions we approached responded that they would like to participate. One other region did not respond to invitations sent via email. Thus, healthcare workers from primary healthcare units in four regions participated in the study. The four regions are in the middle and southern parts of Sweden.

In two regions, participants received information about the study via the management of the primary healthcare organization to whom we had sent information by email. In another region, four different healthcare units were chosen for participation by the primary healthcare management, which adhered to our purposeful sampling strategy of different locations and size of the primary healthcare units. In the fourth region, we established contact with a physician in primary healthcare who disseminated information about the study. This process allowed us to reach out to physicians, managers, registered nurses, and assistant nurses in each region. We approached 15 physicians and 11 agreed to participate in the study (Table 1). This study focused on physicians; results involving the other staff categories will be presented elsewhere.

**Table 1** Participant characteristics

Characteristic	Number (%)
Sex	
Male	7 (64)
Female	4 (36)
Level of medical training	
Specialist in general medicine	10 (91)
Resident in general medicine	1 (9)
Employment position	
Medically responsible physician*	7 (64)
Age	
35-42 years	6 (55)
43-66 years	5 (45)

\*Responsibility for patient safety and the healthcare provided at their unit.



1  
2  
3 The participants gave written informed consent and were assured of confidentiality and that  
4 their full identity would not be known to anyone but the researchers. By signing the informed  
5 consent, the participants also approved storage of their email address to enable the research  
6 team to contact them again for follow-up interviews.  
7  
8  
9  
10

11  
12 The study was approved by the Swedish Ethical Review Authority (no 2020-03981). We  
13 decided to offer economic compensation to each unit to cover some of the cost of working  
14 time. Transcripts are stored on the authors' password-protected computers and no  
15 unauthorized persons have access to the data.  
16  
17  
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21

## 22 **Data collection**

23  
24  
25  
26 A semi-structured interview guide was developed by the authors with questions regarding  
27 various changes caused, directly or indirectly, by the pandemic. The questions include for  
28 example: what changes have been made in the primary healthcare unit with regard to the  
29 coronavirus pandemic; what experiences have affected participants the most; how their  
30 working conditions have been affected; how psychosocial relations have been affected; how  
31 cooperation with other units worked.  
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40 The interview guide was tested in one pilot interview (not included in the study). The pilot  
41 interview yielded relevant information and did not lead to any revisions of the interview  
42 guide. However, after conducting six interviews, we recognized the need to add a question  
43 that specifically addressed the participants' perception of the workload due to the pandemic in  
44 their primary healthcare unit.  
45  
46  
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50

51 The interviews were conducted by two female researchers (HF and KS) between September  
52 and December 2020. Each interview lasted between 23 and 54 minutes. Ten interviews were  
53 conducted via videoconferencing software and recorded both by audio and video. One  
54 interview was conducted via telephone. All interviews were transcribed verbatim and labelled  
55  
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60

1  
2  
3 with a code. No field notes were taken. The transcripts were then examined by HF and KS to  
4  
5 ensure their accuracy. None of the participants were known previously to either of the  
6  
7 researchers performing the interviews.  
8  
9

## 10 **Analysis**

11  
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14  
15 The interviews were analysed with conventional content analysis according to Hsieh and  
16  
17 Shannon.[25] Initially, all authors read all interviews to achieve an understanding of the  
18  
19 whole. Following this step, HF read the interviews with physicians to identify keywords and  
20  
21 concepts. After coding by HF, subcategories emerged and were sorted into main categories.  
22  
23 After the initial coding and categorization, HF and JS met virtually to review the findings.  
24  
25 The other researchers were then invited to discuss the interpretation and after several meetings  
26  
27 and email correspondence, consensus was reached. The participants did not give feedback  
28  
29 during the analysis but were informed about the availability of the final results.  
30  
31  
32

## 33 **Patient and public involvement**

34  
35 No patient involved.  
36  
37  
38

## 39 **RESULTS**

40  
41 Eleven physicians in primary healthcare participated in this study (Table 1). All participants  
42  
43 were either specialists or residents in primary care medicine. They worked in primary  
44  
45 healthcare units located in both rural and urban areas of the middle and southern parts of  
46  
47 Sweden.[26] Seven of the participants had leading positions in their unit, including overall  
48  
49 medical responsibility. The median age was 42 years (range, 35-66 years), and 36% were  
50  
51 female.  
52  
53

54  
55 Analysis of the data yielded two categories and eight subcategories (Table 2). The results of  
56  
57 the analysis for each category and subcategory are presented in the following sections.  
58

59 Table 2 Categories and subcategories  
60

	<b>Increased</b>	<b>Increased and decreased</b>
Work organization and routines	Flexibility in delivery of care	Patient interactions Inter- and intra-organizational interactions
Psychosocial work environment	Workload Information load Uncertainty and ethical concerns	Decisional latitude Social support

## Work organization and routines

The pandemic influenced the physicians' daily work in terms of coordination, planning and execution of work tasks, changes in routines and collaboration between and within units. This category consists of three subcategories.

### Increased flexibility in delivery of care

The participants described increased flexibility and possibilities for more individual solutions for patients because of the pandemic. Some of the patients received a home visit by their physician, and other medical issues were taken care of over a phone call or a video contact. The participants experienced these solutions to be feasible and acceptable as an effect of the pandemic. Both patients and colleagues in primary healthcare were positive towards the individualized delivery of care. According to participants, many patients expressed gratitude when meeting their physician at home, engendering a sense of job satisfaction among the physicians.

When we started with home visits, the patients appreciated that a lot. They got overwhelmed when we came to their home, 'oh, can you come home to me, that is amazing'. So, it feels very nice to be able to offer it and to get this appreciation. [#2]

The participants also described more flexible solutions regarding medical rounds with municipality nurses. Instead of regular visits to nursing homes, the medical rounds could now be handled digitally or by telephone to minimize visitors in the nursing homes. Participants also described increased flexibility in terms of being able to work from home with mild symptoms.

1  
2  
3 Yes, we have worked considerably more by telephone but also by digital consultations with video  
4 with patients. We have also used digital media through video for medical rounds with nurses in  
5 retirement homes; normally we visit them so that is a big change. [#6]  
6  
7  
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9

### 10 Increased and decreased patient interactions

11  
12 Early in the pandemic, in March 2020, the influx of patients to the primary healthcare units  
13 reduced temporarily. The participants were told to cancel all appointments with patients older  
14 than 70 years old to protect these most vulnerable patients. Consultations changed from face-  
15 to-face interaction to telephone and digital meetings. Annual appointments with patients were  
16 cancelled because many of the patients belonged to risk groups.  
17  
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22

23  
24 In early spring, there were a lot of patients who were worried; they cancelled their appointments  
25 because they were afraid of getting infected. Our waiting room was completely empty, so this was  
26 probably the safest place in town when it came to not getting infected. [#2]  
27  
28  
29

30  
31 The participants described how, in trying to minimize the spread of the virus, the patients'  
32 "physical" path through the primary healthcare units had to be changed rapidly. Often from  
33 one day to the next. The primary healthcare units had to establish separate entrances or  
34 external facilities such as tents or outdoor sheds to be able to admit patients with infectious  
35 symptoms. Furthermore, employees were distinguished as "dirty" or "clean"; the "dirty"  
36 clinicians handled suspected infectious cases. However, this way of organizing the work led  
37 to difficulties. For example, it was more difficult for resident physicians working with  
38 infectious patients to ask for help when encountering medical problems. It was also  
39 sometimes difficult to spare healthcare workers to observe patients with a medical emergency,  
40 for instance, while waiting for an ambulance.  
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53  
54 The most evident change is that we have a special entrance for patients with infectious symptoms;  
55 we also have two specific rooms for these particular patients. [#7]  
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### Increased and decreased inter- and intra-organizational interactions

The participants experienced increased cooperation with external units as a result of the pandemic; for example, cooperation with municipality-based care of the elderly increased in both nursing homes and home-based care. The increase in cooperation was considered a positive result of the pandemic and something the participants would like to see continue. Several participants initiated training together with municipal healthcare, which involved training the employees in home-based care and retirement homes, teaching them about, for example, hygiene routines and how to reduce spread of the virus. The participants believed this interaction would not have taken place without the pandemic. There were also new contacts and interactions established with other community actors to prepare for adverse consequences of the pandemic, for example, with churches, funeral homes and fire brigades. These interactions involved preparation for mass testing as well as planning how to handle deceased patients. The participants believed the new interactions were positive, strengthening the role of primary healthcare in the community and contributing to a feeling of not being alone in the difficult situation caused by the pandemic.

In my opinion, cooperation with the municipal healthcare has improved. Earlier, I did not even know the name of their supervisor. Now I have spoken on the phone directly with the person in charge several times. Through our initiative, we went out to the municipal units to establish contact to build on for the future. [#5]

The pandemic also caused cooperation with hospitals and specialized care to deteriorate because some units returned patient referrals (from primary healthcare) with the explanation that they were unable to treat the patients 'due to the pandemic'. Primary healthcare thus had to be responsible for some patients with few or no instructions of how to handle their conditions. This increased the job demands for the participants and caused concern as to whether patient safety was in jeopardy due to insufficient medical treatment and the risk of

1  
2  
3 missing progressive cancer diseases. Even units of specialized care that, in the participants'  
4  
5 opinion, were suitable for digital consultations with patients, such as psychiatric divisions,  
6  
7 cancelled their appointments with patients and ceased accepting referrals.  
8  
9

10 This certain unit at the hospital admitted patients to our primary care unit and justified this with  
11  
12 answers saying that the patients should be handled in primary care due to the corona pandemic. This  
13  
14 was a systematic referral of patients from specialized units in hospitals to primary care units. I've  
15  
16 never seen such number of referrals from the hospital to our unit. [#9]  
17  
18

19 It was not only cooperation between units that changed due to the pandemic. The participants'  
20  
21 own primary healthcare units also had to make several changes with regard to internal  
22  
23 meetings and education to ensure the work environment was safe from spreading the virus.  
24  
25 Physical workplace meetings and training were replaced by digital meetings, which opened up  
26  
27 the possibility of participating from home. The opportunity to participate in meetings and  
28  
29 educational events digitally was considered positive by some participants because they saved  
30  
31 time; they did not have to travel to and from meetings.  
32  
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34

35 But I'm glad to attend meetings digitally, not least to avoid travelling time. [#11]  
36  
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38 Shortage of technical equipment such as computers to enable participants to work from home  
39  
40 was a problem, identified by participants.  
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43

## 44 **Psychosocial work environment**

45  
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48 The psychosocial work environment category encompasses five subcategories. Increased  
49  
50 workload concerns how the pandemic influenced the participants' workload. Increased  
51  
52 information load deals with how the participants perceived and were affected by the  
53  
54 information that emerged in response to the pandemic. Increased uncertainty and ethical  
55  
56 concerns include various forms of concerns that the participants experienced in relation to the  
57  
58 pandemic. Increased and decreased decisional latitude refers to the participants' opportunities  
59  
60

1  
2  
3 to influence their work situation during the pandemic. Increased and decreased perceived  
4 social support concerns the influence of the pandemic on social relationships at work and in  
5 general.  
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#### 10 Increased workload

11  
12  
13 The workload in primary healthcare increased due to the pandemic; for example, time  
14 required to answer questions from both colleagues and patients. Because COVID-19 was new  
15 to the participants as well, it forced them to read and study the subject after regular working  
16 hours to be able to handle all the questions. The participants described their working situation  
17 as untenable and they expressed great concern regarding colleagues' ability to endure in the  
18 long run.  
19  
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27 In my opinion, on the whole, it [the pandemic] is an extra layer of something you always have to  
28 consider in your daily work. And that's a burden in itself. It's quite a heavy burden sometimes, and it  
29 takes a lot of energy from you. [#10]  
30  
31  
32  
33

34 Some participants saw colleagues getting exhausted and forced to take sick leave as a result of  
35 the job strain caused by the pandemic. The participants lamented the difficulties of combining  
36 their regular primary healthcare work tasks with taking on and handling all the COVID-19-  
37 related work tasks, including testing, infection tracing, handling an overwhelming number of  
38 questions from colleagues and patients, as well as making assessments of patients with  
39 potentially critical illnesses. Although the participants had seen cancellation of most regular  
40 care during spring, the work situation worsened considerably in the autumn of 2020 when  
41 patients began returning in normal or even larger numbers to primary healthcare. Some of the  
42 participants expressed that care postponed from the spring could not wait any longer when  
43 autumn came.  
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57 Both physicians and nurses are tired now, and now that we're reopening, the pressure from patients  
58 increases – what could wait 6 months ago, no longer can wait. [#1]  
59  
60

### Increased information load

Participants described an overall overload of information related to COVID-19. This information could be continuous updates from day to day of when and who to test for SARS-Cov-2. All this information generated stress and caused participants to devote considerable time to read and digest new directives. According to the participants, the information came from several different sources, such as different management levels in the healthcare organization and public authorities. The directives were not always consistent, causing confusion and discussion among the healthcare workers. Many participants were uncertain regarding which information was most relevant or recent and what guidelines were most up to date and which were outdated. The participants were also affected by their patients seeking information and directives from authorities to the population. The participants described how patients heard one thing from the press conferences held by the Public Health Agency of Sweden one day and then the next day the primary healthcare unit was overwhelmed with phone calls and questions about new guidelines concerning testing, quarantine and immunization.

It's the same thing with all these changes as well. One day it's supposed to be in this way but the next day it's supposed to that way...And the fact is that the guidelines can be different nationally, regionally and even here within our own unit. [#10]

According to the participants, the information received was too much, too often, from too many sources and much of it was unnecessary; for example, daily reports on the number of hospitalized patients and patients in the intensive care unit.

### Increased uncertainty and ethical concerns

The participants described various forms of uncertainty and challenging considerations caused by the pandemic. Deciding which patients to prioritize for a physical appointment at the healthcare unit created ethical concerns for the participants. Due to the risk of viral



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2  
3 transmission, in-person contact was reduced during the first wave of the pandemic in the  
4  
5 spring of 2020. However, some patients had to physically meet their physician and it could be  
6  
7 difficult for the physicians to decide which patients had the most important medical needs.  
8  
9

10 The ethical issues, 'which patient am I supposed to prioritize for a visit here'? [#2]

11  
12  
13 At the beginning of the pandemic, the participants experienced a great deal of uncertainty  
14  
15 about the hygiene routines and the personal protective equipment. There were also concerns  
16  
17 and stress due to an obvious lack of equipment. Some participants underscored the  
18  
19 responsibility the regions have when it comes to providing personal protective wear such as  
20  
21 gloves, aprons, and face shields because they had previous experiences of equipment running  
22  
23 out of stock with negative consequences for the work environment. The participants described  
24  
25 how the primary healthcare organization was unprepared for the scenario of a pandemic and  
26  
27 how that unpreparedness violated their working conditions in a negative way.  
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32 We need to organize preparedness for upcoming pandemics so there are enough supplies in stock. As  
33  
34 it was in the beginning... it was a catastrophe/disaster. [#7]

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36  
37 No one knew how or what. Are we supposed to wear facial masks? Are we supposed to wear a  
38  
39 mouth guard? Are we not supposed to wear a mouth guard? We know that we should wash and  
40  
41 disinfect our hands, but were we supposed to wear an apron? And the fact that there was a big lack  
42  
43 of personal protective equipment was a stressor. [#6]

44  
45  
46 Participants also expressed that they felt uncertainty regarding the risk of being infected by  
47  
48 SARS-CoV-2. These worries diminished over time and few of the participants expressed that  
49  
50 they felt stressed or anxious about contracting the virus after a few weeks.  
51  
52

53 In the beginning, everything was very uncertain, how does it [the virus] transmit, what hygiene  
54  
55 routines are we supposed to have, which materials should we use, are there sufficient materials?  
56  
57 There was a lot of fear and worries about that before the routines were established. And then there  
58  
59 was extensive fear among us; some elderly colleagues who did not want to work with contagious  
60

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2  
3 patients. But this has all calmed down now, but in the beginning, there was, of course with all due  
4  
5 respect, a lot of worry and fear regarding the disease. [#7]  
6  
7

#### 8 Increased and decreased decisional latitude 9

10 Some participants felt that the pandemic increased their opportunity to influence decisions  
11 regarding working conditions in their own primary healthcare unit. However, they did have to  
12 adhere to many top-down instructions such as testing a certain number of patients or  
13 separating infectious from non-infectious patients. In some cases, participants questioned  
14 decisions coming from higher levels because they did not agree that the primary healthcare  
15 unit should be responsible for, for example, infection tracing in the community. When they  
16 expressed these opinions, they usually felt listened to and the additional work tasks were  
17 withdrawn. On the other hand, some participants mentioned limited ability to influence other  
18 tasks, such as a central decision to test for SARS-CoV-2 antibodies. Participants considered  
19 this antibody testing as unnecessary but still had to prepare for the work. Then the decision on  
20 antibody testing was withdrawn, leaving participants frustrated because the units had planned  
21 and put a lot of energy into making it work.  
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38 We have managed. We had multidisciplinary meetings every week - talking through what had  
39 worked and not... what needed to be changed and so on. It worked perfectly fine. [#3]  
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42

#### 43 Increased and decreased perceived social support 44

45 The participants experienced an overall increase in social support between colleagues in  
46 their primary healthcare unit. They perceived colleagues to be more helpful, caring and  
47 understanding than before the onset of the COVID-19 pandemic. Several of the participants  
48 expressed a sense of loss in not being able to see colleagues as before due to social distancing  
49 restrictions, both in the workplace setting and outside of work. Social distancing entailed less  
50 physical contact between colleagues because spontaneous hugs and other forms of physical  
51 closeness ceased almost completely, which was a significant loss for some participants.  
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3 I think the 'team spirit' in our group has strengthened; a bit of 'us-and-them' feeling has been solved.

4  
5 The group has been more cohesive. [#1]  
6  
7

8 Some participants raised concerns about lack of support for their hard work from the  
9  
10 population in general and from the media, which focused almost exclusively on specialized  
11  
12 care. This lack of recognition created a sense of frustration among healthcare workers in  
13  
14 primary healthcare.  
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16  
17 I don't begrudge all the heroes in hospitals their appreciation, but there are a lot of heroes outside the  
18  
19 hospitals as well. They never get the attention they deserve. [#9]  
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## 22 23 DISCUSSION

24 The aim of this study was to explore primary healthcare physicians' experiences of the  
25  
26 changes in working conditions in response to the pandemic. We found that the pandemic has  
27  
28 affected the working conditions in numerous ways, causing several changes in the physicians'  
29  
30 work organization and routines as well as in their psychosocial work environment.  
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33 Regarding the psychosocial work environment, our findings show that the physicians'  
34  
35 workload increased due to the pandemic. This is consistent with earlier pandemic-related  
36  
37 findings, which have shown that increased workload, risk of getting infected and the lack of  
38  
39 personal protective equipment makes physicians concerned about their own health.[27] These  
40  
41 findings raise concern because problems with working conditions in primary healthcare were  
42  
43 already known and documented by research before the onset of the COVID-19 pandemic.[20,  
44  
45 28, 29] Our findings suggest the importance of investigating the long-term effects of the  
46  
47 pandemic on the working conditions for physicians in primary healthcare.  
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50  
51 The participants described the COVID-19-related work with testing, routines and infection  
52  
53 tracing as difficult to administer. Some of the physicians interviewed for our study reported  
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55 seeing colleagues getting ill due to the increased workload caused by the pandemic. These  
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57 findings are in line with pre-pandemic research showing negative effects of high levels of  
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3 administrative tasks in the psychosocial work environment of physicians.[21, 30] The changes  
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5 in working condition caused by the pandemic generated feelings of uncertainty and ethical  
6  
7 concerns among the physicians. Research has shown that the presence of ethical distress can  
8  
9 negatively affect professional quality of life and increase employee turnover intentions.[31] It  
10  
11 is also well known that change, in general, can be challenging because it contradicts our basic  
12  
13 need for a stable environment and can create anxiety about how we will be affected.[32]  
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16  
17 Another finding of our study was the high information load due to the pandemic, adding to  
18  
19 the already heavy workload in primary healthcare. Despite the amount and availability of  
20  
21 information, the participants were uncertain about what guidelines or instructions they should  
22  
23 adhere to. These findings are in line with earlier research that has documented that receiving  
24  
25 too much information can lead to fatigue, stress and impaired decision quality as well as  
26  
27 ignorance of the information.[33-35] The participants in our study wished for less frequent  
28  
29 and more succinct information. Kain and Jardin [36] showed that family physicians in Canada  
30  
31 had similar expectations when it came to communication and information retrieval in public  
32  
33 health crises, e.g. the outbreak of severe acute respiratory syndrome (SARS). Setting up units  
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35 that healthcare professionals can consult with questions regarding testing, quarantine,  
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37 personal protective equipment and more has previously been shown to be helpful for primary  
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39 care physicians.[37]  
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45 Despite the many reported drawbacks with the working conditions, we also found that the  
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47 pandemic led to positive changes, according to the physicians. More flexible care delivery  
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49 with opportunities to work from home or meeting patients in their homes or via digital  
50  
51 solutions were mentioned. Some of these changes facilitated a more individualized care  
52  
53 provision adapted to what suited the patients best. This development is in line with the  
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55 policies of the Swedish government and public authorities to achieve a more patient-centred  
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57 healthcare that utilizes digital solutions for seeing patients.[38] According to the study  
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3 participants, the COVID-19 pandemic appears to have improved this type of individualized  
4 care and digital ways of working. Another advantage attributable to the COVID-19 pandemic  
5 was the improved collaboration with municipal healthcare, which the participants hoped  
6 would continue after the pandemic.  
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11 Our study has a few limitations that should be considered when interpreting the findings.  
12 The participants themselves showed interest in participating in the study, which could have  
13 affected the outcome. For example, participants might have had negative experiences during  
14 the pandemic and wished to enlighten others about the problems. It is also possible that they  
15 had experienced successful changes that they wanted to share. The workload on Swedish  
16 primary healthcare was, and still is, heavy, which made the recruitment of participants  
17 difficult. The number of interviewees (n=11) might be considered low, although Malterud et  
18 al.[39] emphasize that the strength of the information received is more important than the  
19 specific size of a study sample. It was shown by Guest et al.[40] that most of the codes (92%)  
20 emerge in the first 12 interviews, indicating that our results would not be very different with  
21 more interviews. The results are limited to primary healthcare in Sweden and are not directly  
22 applicable in an international setting.  
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40 These limitations notwithstanding, our study also has considerable strengths. The  
41 participants were recruited from different regions, from primary healthcare units in both rural  
42 and urban locations. Both men and women of different ages and experiences were  
43 interviewed, thus increasing the credibility of our study. Furthermore, the research team is  
44 multidisciplinary (HF and MH are resident physicians in primary healthcare, doctoral student  
45 and post-doc respectively, IS is a political scientist/sociologist, JS is a public health scientist,  
46 KS is a registered nurse and PN is a behavioural economist) and experienced in various  
47 qualitative methods. The members of the team are employed at different universities and  
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3 institutions, which contributed broad perspectives and experiences when interpreting the data  
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5 and reporting the findings.  
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8 In terms of implications of the study, further research in this area is relevant because the  
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10 COVID-19 pandemic has had a considerable impact on primary healthcare in Sweden and  
11  
12 worldwide. Many problems with the working conditions in primary healthcare existed before  
13  
14 the onset of the pandemic, therefore it is important to continue monitoring and examining this  
15  
16 work environment and also learn from positive examples and experiences. Further  
17  
18 investigations are warranted into physicians' needs in terms of information gathering and  
19  
20 various forms of support in major crises. Research is also needed to investigate how the  
21  
22 pandemic will affect primary healthcare in the longer term. Learning from the pandemic is  
23  
24 important because this will not be the last crisis faced by primary healthcare.  
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## 29 CONCLUSION

31 The COVID-19 pandemic affected the working conditions for physicians in Swedish  
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33 primary healthcare in numerous ways. The pandemic enforced changes in work organization  
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35 and routines. Increased flexibility including more patient-oriented delivery of care and novel  
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37 means of inter- and intra-organizational interactions were perceived as positive by physicians.  
38  
39 The pandemic also caused several changes in the physicians' psychosocial work environment.  
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41 Increased workload, information overload, as well as ethical considerations and feelings of  
42  
43 uncertainty, made the work environment stressful for the physicians.  
44  
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46

## 47 Acknowledgement

48  
49  
50 The authors wish to thank all participants for contributing with their experiences despite their  
51  
52 high workload. We are grateful for your insights and reflections on how the pandemic  
53  
54 affected your work.  
55  
56

## 57 Contributors

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2  
3 HF planned and designed the study together with PN, IS and JS. HF and KS performed all  
4 interviews. HF drafted the manuscript and all authors participated in revisions and discussions  
5 about the analyses and manuscript. All authors reviewed and gave feedback on the text. HF,  
6  
7  
8  
9  
10 KS and MH recruited participants All authors approved the final version for submitting.

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14  
15  
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## 17 18 19 Competing interests

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22 None declared

## 23 24 25 Patient consent for publication

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28 Not required

## 29 30 31 Ethical approval

32  
33 The study was approved by the Swedish Ethical Review Authority (no 2020-03981).

## 34 35 36 Data availability statement

37  
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39 Data is available upon request. All data are in Swedish language.

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For peer review only

## COREQ

## Consolidated criteria for reporting qualitative studies (COREQ): 32-item checklist

No	Item	Guide questions/description	Authors comment:
<b>Domain 1: Research team and reflexivity</b>			
Personal Characteristics			
1.	Interviewer/facilitator	Which author/s conducted the interview or focus group?	<b>Page: 6</b>
2.	Credentials	What were the researcher's credentials? <i>E.g. PhD, MD</i>	<b>First page</b>
3.	Occupation	What was their occupation at the time of the study?	<b>Page: 18</b>
4.	Gender	Was the researcher male or female?	<b>Page: 6</b>
5.	Experience and training	What experience or training did the researcher have?	<b>Page: 18</b>
Relationship with participants			
6.	Relationship established	Was a relationship established prior to study commencement?	<b>Page: 5</b>

No	Item	Guide questions/description	Authors comment:
7.	Participant knowledge of the interviewer	What did the participants know about the researcher? <i>e.g. personal goals, reasons for doing the research</i>	<b>Page: 5</b>
8.	Interviewer characteristics	What characteristics were reported about the interviewer/facilitator? <i>e.g. Bias, assumptions, reasons and interests in the research topic</i>	<b>Page: 5</b>
<b>Domain 2: study design</b>			
Theoretical framework			
9.	Methodological orientation and Theory	What methodological orientation was stated to underpin the study? <i>e.g. grounded theory, discourse analysis, ethnography, phenomenology, content analysis</i>	<b>Page: 7</b>
Participant selection			
10.	Sampling	How were participants selected? <i>e.g. purposive, convenience, consecutive, snowball</i>	<b>Page: 4</b>
11.	Method of approach	How were participants approached? <i>e.g. face-</i>	<b>Page: 5</b>

No	Item	Guide questions/description	Authors comment:
		<i>to-face, telephone, mail, email</i>	
12.	Sample size	How many participants were in the study?	<b>Page: 5</b>
13.	Non-participation	How many people refused to participate or dropped out? Reasons?	<b>Page: 5</b>
Setting			
14.	Setting of data collection	Where was the data collected? <i>e.g. home, clinic, workplace</i>	<b>Page: 6</b>
15.	Presence of non-participants	Was anyone else present besides the participants and researchers?	<b>Page: 6</b>
16.	Description of sample	What are the important characteristics of the sample? <i>e.g. demographic data, date</i>	<b>Page: 4</b>
Data collection			
17.	Interview guide	Were questions, prompts, guides provided by the authors? Was it pilot tested?	<b>Page: 6</b>
18.	Repeat interviews	Were repeat interviews carried out? If yes, how many?	<b>Page: 6</b>

No	Item	Guide questions/description	Authors comment:
19.	Audio/visual recording	Did the research use audio or visual recording to collect the data?	<i>Page 6</i>
20.	Field notes	Were field notes made during and/or after the interview or focus group?	<i>Page: 7</i>
21.	Duration	What was the duration of the interviews or focus group?	<i>Page: 6</i>
22.	Data saturation	Was data saturation discussed?	<i>Page: 18</i>
23.	Transcripts returned	Were transcripts returned to participants for comment and/or correction?	<i>Page: 7</i>
<b>Domain 3:</b>			
<b>analysis and findingsz</b>			
Data analysis			
24.	Number of data coders	How many data coders coded the data?	<i>Page: 7</i>
25.	Description of the coding tree	Did authors provide a description of the coding tree?	<i>Page: 7</i>
26.	Derivation of themes	Were themes identified in advance or derived from the data?	<i>Page: 7</i>



<b>No</b>	<b>Item</b>	<b>Guide questions/description</b>	<b>Authors comment:</b>
27.	Software	What software, if applicable, was used to manage the data?	<b><i>Not applicable</i></b>
28.	Participant checking	Did participants provide feedback on the findings?	<b><i>Page: 7</i></b>
<b>Reporting</b>			
29.	Quotations presented	Were participant quotations presented to illustrate the themes / findings? Was each quotation identified? <i>e.g. participant number</i>	<b><i>Page: 8-16</i></b>
30.	Data and findings consistent	Was there consistency between the data presented and the findings?	<b><i>Page: 8-16</i></b>
31.	Clarity of major themes	Were major themes clearly presented in the findings?	<b><i>Page: 8-16</i></b>
32.	Clarity of minor themes	Is there a description of diverse cases or discussion of minor themes?	<b><i>Page: 8-16</i></b>

# BMJ Open

## Working conditions in primary healthcare during the COVID-19 pandemic: an interview study with physicians in Sweden

Journal:	<i>BMJ Open</i>
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# Working conditions in primary healthcare during the COVID-19 pandemic: an interview study with physicians in Sweden

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## Abstract

**Objectives:** The aim of this study was to explore how the COVID-19 pandemic changed working conditions for physicians in Swedish primary healthcare.

**Design:** A descriptive, qualitative approach with individual semi-structured interviews. The data were analysed using inductive content analysis.

**Setting:** Swedish primary healthcare units in both rural and urban areas.

**Participants:** A total of 11 primary care physicians fulfilled participation.

**Results:** Two main categories emerged: 'Work organization and routines' and 'Psychosocial work environment' containing three and five subcategories, respectively. The pandemic enforced changes in work organization and routines. Increased flexibility, including more patient-oriented delivery of care and novel means of inter- and intra-organizational interactions, were perceived as positive by physicians. The pandemic also caused several changes in the physicians' psychosocial work environment. Increased workload, information overload as well as ethical considerations and feelings of uncertainty made the work environment stressful for the physicians.

**Conclusions:** The COVID-19 pandemic affected the working conditions for physicians in Swedish primary healthcare in numerous ways. The pandemic enforced changes in work organization and routines for physicians in primary healthcare. Further research is needed to investigate how the pandemic will affect primary healthcare in the longer term. Learning from the pandemic is important because this will not be the last crisis that primary care and its healthcare professionals will face.

**Keywords:** COVID-19, working conditions, primary healthcare, physicians

## Article summary

### Strengths and limitations of this study

- To our knowledge, this is the first study on the effects of COVID-19 on working conditions for primary healthcare physicians in Sweden.
- A multidisciplinary research team conducted the study.
- The small number of participants ( $n=11$ ) could be considered a limitation.
- Participation was based on physicians' interest in the subject which can affect the results.

For peer review only

## INTRODUCTION

Coronavirus disease (COVID-19) has had an enormous impact on healthcare systems worldwide with crowded wards and intensive care units.[1, 2] The spread of COVID-19 has required measures such as closing of borders, self-quarantining and social distancing.[3] The pandemic has also prompted many changes in organizational processes and working routines in healthcare and has had an impact on the work environment in the healthcare sector.[4] For many healthcare workers, the pandemic has led to increased psychological distress. Healthcare workers have had to continuously assimilate new information and guidelines.[5-8] In addition, insufficient personal protective equipment has had a negative effect on the work environment.[4, 9, 10]

The media focus during the pandemic has been on healthcare workers in intensive care units and emergency rooms.[8, 11-13] However, only a small proportion of patients with COVID-19 are hospitalized. Primary healthcare has managed the largest share of COVID-19-related care.[1] Primary healthcare handled patients infected with, or potentially infected with, the coronavirus and carried out extensive testing for COVID-19 among citizens and are continuously doing so. Hence, the impact on healthcare workers in primary healthcare is substantial.[14, 15] Many changes have been instigated in primary healthcare in many countries worldwide, including Sweden, to maintain the safety of both patients and healthcare workers.[2, 4, 16] Instead of meeting patients face to face, telephone or video consultations are taking place and sometimes contact by email.[4, 8, 15, 17, 18]

Changes in response to the COVID-19 pandemic can cause stress and may add to existing problems with working condition in primary healthcare. Previous primary healthcare research has documented problems with a heavy workload, large administrative burden, poor job control, poor job satisfaction, understaffing and high staff turnover.[19-22] Studies have also found that problems with working conditions can lead to reduced quality of patient care and patient safety.[23]

1  
2  
3 Against the backdrop of changes in primary healthcare incurred by the COVID-19  
4  
5 pandemic, the aim of this study was to explore primary healthcare physicians' experiences of  
6  
7 the changes in working conditions in response to the pandemic. This knowledge is important  
8  
9 because previous research has documented many work-related problems in primary healthcare  
10  
11 even before the pandemic.[19-22]  
12  
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14

## 15 16 METHODS

### 17 18 **Study design and setting**

19  
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21  
22 We used a qualitative approach based on 11 semi-structured interviews with physicians  
23  
24 from different primary healthcare units in four regions in Sweden. Individual interviews were  
25  
26 considered the most relevant method to obtain information of how the pandemic has affected  
27  
28 the daily work and consequences for the work environment in primary healthcare. Our  
29  
30 approach was explorative, as we wanted to gain insights into the physicians' own experiences  
31  
32 and what they considered most important.  
33  
34  
35

36 The Swedish healthcare system is divided into 21 regions. Primary healthcare centres are  
37  
38 either publicly or privately managed and mainly funded by taxes. In 2019, 44% of 1140  
39  
40 primary healthcare settings in Sweden were privately managed.[24] Primary healthcare in  
41  
42 Sweden is responsible for first line healthcare, treatments and diagnosis as well as prevention  
43  
44 of diseases for the whole population.  
45  
46  
47

### 48 49 **Recruitment of participants**

50  
51  
52 We used a purposeful sampling strategy to achieve a diverse sample regarding the size  
53  
54 (number of listed patients) and location (in terms of rural/urban location and different regions  
55  
56 of Sweden) of the primary healthcare centres. The purpose was to capture a broad range of  
57  
58 experiences concerning the working conditions to improve the trustworthiness of the study.  
59  
60

We approached six regions in Sweden by email to recruit participants for the interviews. In three of the regions, the person responsible for research in the primary healthcare organization was contacted with brief information about the study aim and method as well as an enquiry about participation. For the three other regions, we asked key persons to either forward our request for interviews to other persons within their organization or if they could assist us in the recruitment of participants. Six regions were approached of which four agreed to participate. Two regions did not respond. The four regions are located in the middle and southern parts of Sweden.

Physicians in the four regions were approached to take part in the study in slightly different ways, depending on the local management and who were contact persons for the primary healthcare organization. Still, the recruitment adhered to our purposeful sampling strategy of involving physicians from different locations, working in different-sized primary healthcare units.

We approached 15 physicians and 11 agreed to participate in the study (Table 1).

**Table 1** Participant characteristics

Characteristic	Number (%)
Sex	
Male	7 (64)
Female	4 (36)
Level of medical training	
Specialist in general medicine	10 (91)
Resident in general medicine	1 (9)
Employment position	
Medically responsible physician*	7 (64)
Age	
35-42 years	6 (55)
43-66 years	5 (45)

\*Responsibility for patient safety and the healthcare provided at their unit.

The participants gave written informed consent and were assured of confidentiality and that their full identity would not be known to anyone but the researchers. By signing the informed consent, the participants also approved storage of their email address to enable the research team to contact them again for follow-up interviews.



1  
2  
3 The study was approved by the Swedish Ethical Review Authority (no 2020-03981).  
4  
5 Economic compensation of 1000 SEK (i.e., Swedish kronor), approximately 116 USD per  
6  
7 participant, was paid to the unit to which the participants belonged to cover some of the cost  
8  
9 of working time. No individual received payment. Transcripts are stored on the authors'  
10  
11 password-protected computers and no unauthorized persons have access to the data.  
12  
13  
14

## 15 **Data collection**

16  
17  
18  
19 A semi-structured interview guide was developed by the authors with questions regarding  
20  
21 various changes caused, directly or indirectly, by the pandemic. The questions include for  
22  
23 example: what changes have been made in the primary healthcare unit with regard to the  
24  
25 coronavirus pandemic; what experiences have affected participants the most; how their  
26  
27 working conditions have been affected; how psychosocial relations have been affected; how  
28  
29 cooperation with other units worked.  
30  
31  
32

33 The interview guide was tested in one pilot interview (not included in the study). The pilot  
34  
35 interview yielded relevant information and did not lead to any revisions of the interview  
36  
37 guide. However, after conducting two interviews, we recognized the need to add a question  
38  
39 that specifically addressed the participants' perception of the workload due to the pandemic in  
40  
41 their primary healthcare unit.  
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45 The interviews were conducted by two female researchers (HF and KS) between September  
46  
47 and December 2020. Each interview lasted between 23 and 54 minutes. Ten interviews were  
48  
49 conducted via videoconferencing software and recorded both by audio and video. One  
50  
51 interview was conducted via telephone. All interviews were transcribed verbatim and labelled  
52  
53 with a code. No field notes were taken. The transcripts were then examined by HF and KS to  
54  
55 ensure their accuracy. None of the participants were known previously to either of the  
56  
57 researchers performing the interviews.  
58  
59  
60

## Analysis

The interviews were analysed with conventional content analysis according to Hsieh and Shannon. This method is considered appropriate when there is limited research or knowledge of a phenomenon. In conventional content analysis, the categories are grounded in the experiences of the participants and knowledge is derived from the data. [25] The research group is experienced in qualitative research and has published many studies using this analysis method. Initially, all authors read all interviews to achieve an understanding of the whole. Following this step, HF read the interviews with physicians to identify keywords and concepts. After coding by HF, subcategories emerged and were sorted into main categories. After the initial coding and categorization, HF and JS met virtually to review the findings. The other researchers were then invited to discuss the interpretation and after several meetings and email correspondence, consensus was reached. The participants did not give feedback during the analysis but were informed about the availability of the final results.

## Patient and public involvement

No patient was involved since the study exclusively concerns physicians.

## RESULTS

Eleven physicians in primary healthcare participated in this study (Table 1). All participants were either specialists or residents in primary care medicine. They worked in primary healthcare units located in both rural and urban areas of the middle and southern parts of Sweden.[26] Seven of the participants had leading positions in their unit, including overall medical responsibility. The median age was 42 years (range, 35-66 years), and 36% were female.

Analysis of the data yielded two categories and eight subcategories (Table 2). The results of the analysis for each category and subcategory are presented in the following sections.

Table 2 Categories and subcategories

	<b>Increased</b>	<b>Increased and decreased</b>
Work organization and routines	Flexibility in delivery of care	Patient interactions Inter- and intra-organizational interactions
Psychosocial work environment	Workload Information load Uncertainty and ethical concerns	Decisional latitude Social support

## Work organization and routines

The pandemic influenced the physicians' daily work in terms of coordination, planning and execution of work tasks, changes in routines and collaboration between and within units. The participants also had to adjust to new physical structures of the workplace, the ambition being to limit the spread of the virus in the unit. This sectioning of the workplaces made collaboration between colleagues and tutorials of resident physicians more difficult to manage. This category consists of three subcategories.

### Increased flexibility in delivery of care

The participants described increased flexibility and possibilities for more individual solutions for patients because of the pandemic. Some of the patients received a home visit by their physician, and other medical issues were taken care of over a phone call or a video contact. The participants experienced these solutions to be feasible and acceptable as an effect of the pandemic. Both patients and colleagues in primary healthcare were positive towards the individualized delivery of care. According to participants, many patients expressed gratitude when meeting their physician at home, engendering a sense of job satisfaction among the physicians.

When we started with home visits, the patients appreciated that a lot. They got overwhelmed when we came to their home, 'oh, can you come home to me, that is amazing'. So, it feels very nice to be able to offer it and to get this appreciation. [#2]

1  
2  
3 The participants also described more flexible solutions regarding medical rounds with  
4 municipality nurses. Instead of regular visits to nursing homes, the medical rounds could now  
5 be handled digitally or by telephone to minimize visitors in the nursing homes. Participants  
6 also described increased flexibility in terms of being able to work from home with mild  
7 symptoms.  
8  
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15 Yes, we have worked considerably more by telephone but also by digital consultations with video  
16 with patients. We have also used digital media through video for medical rounds with nurses in  
17 retirement homes; normally we visit them so that is a big change. [#6]  
18  
19

### 20 21 22 Increased and decreased patient interactions

23  
24 Early in the pandemic, in March 2020, the influx of patients to the primary healthcare units  
25 reduced temporarily. The participants were told to cancel all appointments with patients older  
26 than 70 years old to protect these most vulnerable patients. Consultations changed from face-  
27 to-face interaction to telephone and digital meetings. Annual appointments with patients were  
28 cancelled because many of the patients belonged to risk groups.  
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36 In early spring, there were a lot of patients who were worried; they cancelled their appointments  
37 because they were afraid of getting infected. Our waiting room was completely empty, so this was  
38 probably the safest place in town when it came to not getting infected. [#2]  
39  
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42  
43 The participants described how, in trying to minimize the spread of the virus, the patients'  
44 "physical" path through the primary healthcare units had to be changed rapidly. Often from  
45 one day to the next. The primary healthcare units had to establish separate entrances or  
46 external facilities such as tents or outdoor sheds to be able to admit patients with infectious  
47 symptoms. Furthermore, employees were distinguished as "dirty" or "clean"; the "dirty"  
48 clinicians handled suspected infectious cases. However, this way of organizing the work led  
49 to difficulties. For example, it was more difficult for resident physicians working with  
50 infectious patients to ask for help when encountering medical problems. It was also  
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3 sometimes difficult to spare healthcare workers to observe patients with a medical emergency,  
4  
5 for instance, while waiting for an ambulance.  
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7

8 The most evident change is that we have a special entrance for patients with infectious symptoms;  
9  
10 we also have two specific rooms for these particular patients. [#7]  
11  
12

### 13 Increased and decreased inter- and intra-organizational interactions 14

15 The participants experienced increased cooperation with external units as a result of the  
16 pandemic; for example, cooperation with municipality-based care of the elderly increased in  
17 both nursing homes and home-based care. The increase in cooperation was considered a  
18 positive result of the pandemic and something the participants would like to see continue.  
19  
20 Several participants initiated training together with municipal healthcare, which involved  
21 training the employees in home-based care and retirement homes, teaching them about, for  
22 example, hygiene routines and how to reduce spread of the virus. The participants believed  
23 this interaction would not have taken place without the pandemic. There were also new  
24 contacts and interactions established with other community actors to prepare for adverse  
25 consequences of the pandemic, for example, with churches, funeral homes and fire brigades.  
26  
27 These interactions involved preparation for mass testing as well as planning how to handle  
28 deceased patients. The participants believed the new interactions were positive, strengthening  
29 the role of primary healthcare in the community and contributing to a feeling of not being  
30 alone in the difficult situation caused by the pandemic.  
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48 In my opinion, cooperation with the municipal healthcare has improved. Earlier, I did not even know  
49 the name of their supervisor. Now I have spoken on the phone directly with the person in charge  
50 several times. Through our initiative, we went out to the municipal units to establish contact to build  
51 on for the future. [#5]  
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57 The pandemic also caused cooperation with hospitals and specialized care to deteriorate  
58 because some units returned patient referrals (from primary healthcare) with the explanation  
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3 that they were unable to treat the patients ‘due to the pandemic’. Primary healthcare thus had  
4  
5 to be responsible for some patients with few or no instructions of how to handle their  
6  
7 conditions. This increased the job demands for the participants and caused concern as to  
8  
9 whether patient safety was in jeopardy due to insufficient medical treatment and the risk of  
10  
11 missing progressive cancer diseases. Even units of specialized care that, in the participants’  
12  
13 opinion, were suitable for digital consultations with patients, such as psychiatric divisions,  
14  
15 cancelled their appointments with patients and ceased accepting referrals.  
16  
17

18  
19 This certain unit at the hospital admitted patients to our primary care unit and justified this with  
20  
21 answers saying that the patients should be handled in primary care due to the corona pandemic. This  
22  
23 was a systematic referral of patients from specialized units in hospitals to primary care units. I’ve  
24  
25 never seen such number of referrals from the hospital to our unit. [#9]  
26  
27

28  
29 It was not only cooperation between units that changed due to the pandemic. The participants’  
30  
31 own primary healthcare units also had to make several changes with regard to internal  
32  
33 meetings and education to ensure the work environment was safe from spreading the virus.  
34  
35 Physical workplace meetings and training were replaced by digital meetings, which opened up  
36  
37 the possibility of participating from home. The opportunity to participate in meetings and  
38  
39 educational events digitally was considered positive by some participants because they saved  
40  
41 time; they did not have to travel to and from meetings.  
42  
43

44  
45 But I’m glad to attend meetings digitally, not least to avoid travelling time. [#11]  
46  
47

48  
49 Shortage of technical equipment such as computers to enable participants to work from home  
50  
51 was a problem, identified by participants.

52  
53 And then we had another technical problem. We had managed with two webcams and two headsets, but  
54  
55 now everyone wanted to have these and then they were not available in all of Sweden, apparently. [#2]  
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## Psychosocial work environment

The psychosocial work environment category encompasses five subcategories. Increased workload concerns how the pandemic influenced the participants' workload. Increased information load deals with how the participants perceived and were affected by the information that emerged in response to the pandemic. The participants experienced the information load overwhelming, with information emerging from a multitude of sources and too frequently. Increased uncertainty and ethical concerns include various forms of concerns that the participants experienced in relation to the pandemic. One such concern was related to decisions regarding which patients to prioritize for physical consultation. Increased and decreased decisional latitude refers to the participants' opportunities to influence their work situation during the pandemic. Increased and decreased perceived social support concerns the influence of the pandemic on social relationships at work and in general. Participants experienced an increased closeness with colleagues, with earlier conflicts being possible to put aside when jointly trying to cope with the "mutual enemy" in the form of COVID-19.

### Increased workload

The workload in primary healthcare increased due to the pandemic; for example, time required to answer questions from both colleagues and patients. Because COVID-19 was new to the participants as well, it forced them to read and study the subject after regular working hours to be able to handle all the questions. The participants described their working situation as untenable and they expressed great concern regarding colleagues' ability to endure in the long run.

In my opinion, on the whole, it [the pandemic] is an extra layer of something you always have to consider in your daily work. And that's a burden in itself. It's quite a heavy burden sometimes, and it takes a lot of energy from you. [#10]

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2  
3 Some participants saw colleagues getting exhausted and forced to take sick leave as a result of  
4 the job strain caused by the pandemic. The participants lamented the difficulties of combining  
5 their regular primary healthcare work tasks with taking on and handling all the COVID-19-  
6 related work tasks, including testing, infection tracing, handling an overwhelming number of  
7 questions from colleagues and patients, as well as making assessments of patients with  
8 potentially critical illnesses. Although the participants had seen cancellation of most regular  
9 care during spring, the work situation worsened considerably in the autumn of 2020 when  
10 patients began returning in normal or even larger numbers to primary healthcare. Some of the  
11 participants expressed that care postponed from the spring could not wait any longer when  
12 autumn came.

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27 Both physicians and nurses are tired now, and now that we're reopening, the pressure from patients  
28 increases – what could wait 6 months ago, no longer can wait. [#1]  
29

### 30 31 Increased information load

32  
33 Participants described an overall overload of information related to COVID-19. This  
34 information could be continuous updates from day to day of when and who to test for SARS-  
35 Cov-2. All this information generated stress and caused participants to devote considerable  
36 time to read and digest new directives. According to the participants, the information came  
37 from several different sources, such as different management levels in the healthcare  
38 organization and public authorities. The directives were not always consistent, causing  
39 confusion and discussion among the healthcare workers. Many participants were uncertain  
40 regarding which information was most relevant or recent and what guidelines were most up to  
41 date and which were outdated. The participants were also affected by their patients seeking  
42 information and directives from authorities to the population. The participants described how  
43 patients heard one thing from the press conferences held by the Public Health Agency of  
44 Sweden one day and then the next day the primary healthcare unit was overwhelmed with  
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3 phone calls and questions about new guidelines concerning testing, quarantine and  
4  
5 immunization.  
6  
7

8         It's the same thing with all these changes as well. One day it's supposed to be in this way but the  
9  
10         next day it's supposed to that way...And the fact is that the guidelines can be different nationally,  
11  
12         regionally and even here within our own unit. [#10]  
13  
14

15 According to the participants, the information received was too much, too often, from too  
16  
17 many sources and much of it was unnecessary; for example, daily reports on the number of  
18  
19 hospitalized patients and patients in the intensive care unit.  
20  
21

### 22 23 Increased uncertainty and ethical concerns 24

25         The participants described various forms of uncertainty and challenging considerations  
26  
27 caused by the pandemic. Deciding which patients to prioritize for a physical appointment at  
28  
29 the healthcare unit created ethical concerns for the participants. Due to the risk of viral  
30  
31 transmission, in-person contact was reduced during the first wave of the pandemic in the  
32  
33 spring of 2020. However, some patients had to physically meet their physician and it could be  
34  
35 difficult for the physicians to decide which patients had the most important medical needs.  
36  
37  
38

39         The ethical issues, 'which patient am I supposed to prioritize for a visit here'? [#2]  
40  
41

42 At the beginning of the pandemic, the participants experienced a great deal of uncertainty  
43  
44 about the hygiene routines and the personal protective equipment. There were also concerns  
45  
46 and stress due to an obvious lack of equipment. Some participants underscored the  
47  
48 responsibility the regions have when it comes to providing personal protective wear such as  
49  
50 gloves, aprons, and face shields because they had previous experiences of equipment running  
51  
52 out of stock with negative consequences for the work environment. The participants described  
53  
54 how the primary healthcare organization was unprepared for the scenario of a pandemic and  
55  
56 how that unpreparedness violated their working conditions in a negative way.  
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3 We need to organize preparedness for upcoming pandemics so there are enough supplies in stock. As  
4 it was in the beginning... it was a catastrophe/disaster. [#7]  
5  
6

7  
8 No one knew how or what. Are we supposed to wear facial masks? Are we supposed to wear a  
9  
10 mouth guard? Are we not supposed to wear a mouth guard? We know that we should wash and  
11  
12 disinfect our hands, but were we supposed to wear an apron? And the fact that there was a big lack  
13  
14 of personal protective equipment was a stressor. [#6]  
15

16  
17 Participants also expressed that they felt uncertainty regarding the risk of being infected by  
18  
19 SARS-CoV-2. These worries diminished over time and few of the participants expressed that  
20  
21 they felt stressed or anxious about contracting the virus after a few weeks.  
22

23  
24 In the beginning, everything was very uncertain, how does it [the virus] transmit, what hygiene  
25  
26 routines are we supposed to have, which materials should we use, are there sufficient materials?  
27  
28 There was a lot of fear and worries about that before the routines were established. And then there  
29  
30 was extensive fear among us; some elderly colleagues who did not want to work with contagious  
31  
32 patients. But this has all calmed down now, but in the beginning, there was, of course with all due  
33  
34 respect, a lot of worry and fear regarding the disease. [#7]  
35

### 36 37 Increased and decreased decisional latitude

38  
39 Some participants felt that the pandemic increased their opportunity to influence decisions  
40  
41 regarding working conditions in their own primary healthcare unit. However, they did have to  
42  
43 adhere to many top-down instructions such as testing a certain number of patients or  
44  
45 separating infectious from non-infectious patients. In some cases, participants questioned  
46  
47 decisions coming from higher levels because they did not agree that the primary healthcare  
48  
49 unit should be responsible for, for example, infection tracing in the community. When they  
50  
51 expressed these opinions, they usually felt listened to and the additional work tasks were  
52  
53 withdrawn. On the other hand, some participants mentioned limited ability to influence other  
54  
55 tasks, such as a central decision to test for SARS-CoV-2 antibodies. Participants considered  
56  
57 this antibody testing as unnecessary but still had to prepare for the work. Then the decision on  
58  
59 this antibody testing as unnecessary but still had to prepare for the work. Then the decision on  
60

1  
2  
3 antibody testing was withdrawn, leaving participants frustrated because the units had planned  
4 and put a lot of energy into making it work.  
5  
6

7  
8 We have managed. We had multidisciplinary meetings every week - talking through what had  
9 worked and not... what needed to be changed and so on. It worked perfectly fine. [#3]  
10  
11

### 12 13 Increased and decreased perceived social support 14

15 The participants experienced an overall increase in social support between colleagues in  
16 their primary healthcare unit. They perceived colleagues to be more helpful, caring and  
17 understanding than before the onset of the COVID-19 pandemic. Several of the participants  
18 expressed a sense of loss in not being able to see colleagues as before due to social distancing  
19 restrictions, both in the workplace setting and outside of work. Social distancing entailed less  
20 physical contact between colleagues because spontaneous hugs and other forms of physical  
21 closeness ceased almost completely, which was a significant loss for some participants.  
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32 I think the 'team spirit' in our group has strengthened; a bit of 'us-and-them' feeling has been solved.  
33 The group has been more cohesive. [#1]  
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36  
37 Some participants raised concerns about lack of support for their hard work from the  
38 population in general and from the media, which focused almost exclusively on specialized  
39 care. This lack of recognition created a sense of frustration among healthcare workers in  
40 primary healthcare.  
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46 I don't begrudge all the heroes in hospitals their appreciation, but there are a lot of heroes outside the  
47 hospitals as well. They never get the attention they deserve. [#9]  
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## 51 52 DISCUSSION

53 The aim of this study was to explore primary healthcare physicians' experiences of the  
54 changes in working conditions in response to the pandemic. To the best of our knowledge, no  
55 study with the same intention has previously been published. This underscores the relevance  
56 of our study in highlighting experiences of primary care physicians. We found that the  
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3 pandemic has affected the working conditions in numerous ways, causing several changes in  
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5 the physicians' work organization and routines as well as in their psychosocial work  
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7 environment.  
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10 Regarding the psychosocial work environment, our findings show that the physicians'  
11  
12 workload increased due to the pandemic. This is consistent with earlier pandemic-related  
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14 findings, which have shown that increased workload, risk of getting infected and the lack of  
15  
16 personal protective equipment makes physicians concerned about their own health.[27] These  
17  
18 findings raise concern because problems with working conditions in primary healthcare were  
19  
20 already known and documented by research before the onset of the COVID-19 pandemic.[20,  
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22 28, 29] Our findings suggest the importance of investigating the long-term effects of the  
23  
24 pandemic on the working conditions for physicians in primary healthcare.  
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28 The participants described the COVID-19-related work with testing, routines and infection  
29  
30 tracing as difficult to administer. Some of the physicians interviewed for our study reported  
31  
32 seeing colleagues getting ill due to the increased workload caused by the pandemic. These  
33  
34 findings are in line with pre-pandemic research showing negative effects of high levels of  
35  
36 administrative tasks in the psychosocial work environment of physicians.[21, 30] The changes  
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38 in working condition caused by the pandemic generated feelings of uncertainty and ethical  
39  
40 concerns among the physicians. Research has shown that the presence of ethical distress can  
41  
42 negatively affect professional quality of life and increase employee turnover intentions.[31] It  
43  
44 is also well known that change, in general, can be challenging because it contradicts our basic  
45  
46 need for a stable environment and can create anxiety about how we will be affected.[32]  
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51 Another finding of our study was the high information load due to the pandemic, adding to  
52  
53 the already heavy workload in primary healthcare. Despite the amount and availability of  
54  
55 information, the participants were uncertain about what guidelines or instructions they should  
56  
57 adhere to. These findings are in line with earlier research that has documented that receiving  
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3 too much information can lead to fatigue, stress and impaired decision quality as well as  
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5 ignorance of the information.[33-35] The participants in our study wished for less frequent  
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7 and more succinct information. Kain and Jardin [36] showed that family physicians in Canada  
8  
9 had similar expectations when it came to communication and information retrieval in public  
10  
11 health crises, e.g. the outbreak of severe acute respiratory syndrome (SARS). Setting up units  
12  
13 that healthcare professionals can consult with questions regarding testing, quarantine,  
14  
15 personal protective equipment and more has previously been shown to be helpful for primary  
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17 care physicians.[37]  
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22 Despite the many reported drawbacks with the working conditions, we also found that the  
23  
24 pandemic led to positive changes, according to the physicians. More flexible care delivery  
25  
26 with opportunities to work from home or meeting patients in their homes or via digital  
27  
28 solutions were mentioned. Some of these changes facilitated a more individualized care  
29  
30 provision adapted to what suited the patients best. This development is in line with the  
31  
32 policies of the Swedish government and public authorities to achieve a more patient-centred  
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34 healthcare that utilizes digital solutions for seeing patients.[38] According to the study  
35  
36 participants, the COVID-19 pandemic appears to have improved this type of individualized  
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38 care and digital ways of working. Another advantage attributable to the COVID-19 pandemic  
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40 was the improved collaboration with municipal healthcare, which the participants hoped  
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42 would continue after the pandemic.  
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47 Our study has a few limitations that should be considered when interpreting the findings.  
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49 The participants themselves showed interest in participating in the study, which could have  
50  
51 affected the outcome. For example, participants might have had negative experiences during  
52  
53 the pandemic and wished to enlighten others about the problems. It is also possible that they  
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55 had experienced successful changes that they wanted to share. The workload on Swedish  
56  
57 primary healthcare was, and still is, heavy, which made the recruitment of participants  
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3 difficult. The number of interviewees (n=11) might be considered low, although Malterud et  
4 al.[39] emphasize that the strength of the information received is more important than the  
5 specific size of a study sample. Conducting too many interviews might result in excessive  
6 data, which increases the risk of misinterpretations or superficial analysis. The purposive  
7 sampling method used in our study enabled us to include participants with experiences from  
8 both large and small units, rural and urban, men and women, thus strengthening the  
9 information power [39]. Research has shown that most of the codes (92%) tend to emerge in  
10 the first 12 interviews, indicating that our results would not be very different with more  
11 interviews [40]. The results are limited to primary healthcare in Sweden and are not directly  
12 applicable in an international setting.

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These limitations notwithstanding, our study also has considerable strengths. The participants were recruited from different regions, from primary healthcare units in both rural and urban locations. Both men and women of different ages and experiences were interviewed, thus increasing the credibility of our study. Furthermore, the research team is multidisciplinary (HF and MH are resident physicians in primary healthcare, doctoral student and post-doc respectively, IS is a political scientist/sociologist, JS is a public health scientist, KS is a registered nurse and PN is a behavioural economist) and experienced in various qualitative methods. The members of the team are employed at different universities and institutions, which contributed broad perspectives and experiences when interpreting the data and reporting the findings.

In terms of implications of the study, further research in this area is relevant because the COVID-19 pandemic has had a considerable impact on primary healthcare in Sweden and worldwide. Many problems with the working conditions in primary healthcare existed before the onset of the pandemic, therefore it is important to continue monitoring and examining this work environment and also learn from positive examples and experiences. Further

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3 investigations are warranted into physicians' needs in terms of information gathering and  
4 various forms of support in major crises. Research is also needed to investigate how the  
5 pandemic will affect primary healthcare in the longer term. Learning from the pandemic is  
6 important because this will not be the last crisis faced by primary healthcare. According to the  
7 results in our study, one important lesson for the next crisis or pandemic is the importance of  
8 coherent, structured top-down information to avoid information overload.  
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## 18 CONCLUSION

19 The COVID-19 pandemic affected the working conditions for physicians in Swedish  
20 primary healthcare in numerous ways. The pandemic enforced changes in work organization  
21 and routines. Increased flexibility including more patient-oriented delivery of care and novel  
22 means of inter- and intra-organizational interactions were perceived as positive by physicians.  
23 The pandemic also caused several changes in the physicians' psychosocial work environment.  
24 Increased workload, information overload, as well as ethical considerations and feelings of  
25 uncertainty, made the work environment stressful for the physicians.  
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## 36 Acknowledgement

37 The authors wish to thank all participants for contributing with their experiences despite their  
38 high workload. We are grateful for your insights and reflections on how the pandemic  
39 affected your work.  
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## 46 Contributors

47 HF planned and designed the study together with PN, IS and JS. HF and KS performed all  
48 interviews. HF drafted the manuscript and all authors participated in revisions and discussions  
49 about the analyses and manuscript. All authors reviewed and gave feedback on the text. HF,  
50 KS and MH recruited participants All authors approved the final version for submitting.  
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1  
2  
3 The study is funded by AFA Försäkring (AFA Insurance) application no. 200130.  
4

## 5 6 Competing interests

7  
8  
9 None declared

## 10 11 Patient consent for publication

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14 Not required

## 15 16 17 Ethical approval

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19  
20 The study was approved by the Swedish Ethical Review Authority (no 2020-03981).  
21

## 22 23 Data availability statement

24  
25  
26 Data is available upon request. All data are in Swedish language.  
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For peer review only

## COREQ

## Consolidated criteria for reporting qualitative studies (COREQ): 32-item checklist

No	Item	Guide questions/description	Authors comment:
<b>Domain 1: Research team and reflexivity</b>			
Personal Characteristics			
1.	Interviewer/facilitator	Which author/s conducted the interview or focus group?	<b>Page: 6</b>
2.	Credentials	What were the researcher's credentials? <i>E.g. PhD, MD</i>	<b>First page</b>
3.	Occupation	What was their occupation at the time of the study?	<b>Page: 18</b>
4.	Gender	Was the researcher male or female?	<b>Page: 6</b>
5.	Experience and training	What experience or training did the researcher have?	<b>Page: 18</b>
Relationship with participants			
6.	Relationship established	Was a relationship established prior to study commencement?	<b>Page: 5</b>

No	Item	Guide questions/description	Authors comment:
7.	Participant knowledge of the interviewer	What did the participants know about the researcher? <i>e.g. personal goals, reasons for doing the research</i>	<b>Page: 5</b>
8.	Interviewer characteristics	What characteristics were reported about the interviewer/facilitator? <i>e.g. Bias, assumptions, reasons and interests in the research topic</i>	<b>Page: 5</b>
<b>Domain 2: study design</b>			
Theoretical framework			
9.	Methodological orientation and Theory	What methodological orientation was stated to underpin the study? <i>e.g. grounded theory, discourse analysis, ethnography, phenomenology, content analysis</i>	<b>Page: 7</b>
Participant selection			
10.	Sampling	How were participants selected? <i>e.g. purposive, convenience, consecutive, snowball</i>	<b>Page: 4</b>
11.	Method of approach	How were participants approached? <i>e.g. face-</i>	<b>Page: 5</b>

No	Item	Guide questions/description	Authors comment:
		<i>to-face, telephone, mail, email</i>	
12.	Sample size	How many participants were in the study?	<b>Page: 5</b>
13.	Non-participation	How many people refused to participate or dropped out? Reasons?	<b>Page: 5</b>
Setting			
14.	Setting of data collection	Where was the data collected? <i>e.g. home, clinic, workplace</i>	<b>Page: 6</b>
15.	Presence of non-participants	Was anyone else present besides the participants and researchers?	<b>Page: 6</b>
16.	Description of sample	What are the important characteristics of the sample? <i>e.g. demographic data, date</i>	<b>Page: 4</b>
Data collection			
17.	Interview guide	Were questions, prompts, guides provided by the authors? Was it pilot tested?	<b>Page: 6</b>
18.	Repeat interviews	Were repeat interviews carried out? If yes, how many?	<b>Page: 6</b>



No	Item	Guide questions/description	Authors comment:
19.	Audio/visual recording	Did the research use audio or visual recording to collect the data?	<i>Page 6</i>
20.	Field notes	Were field notes made during and/or after the interview or focus group?	<i>Page: 7</i>
21.	Duration	What was the duration of the interviews or focus group?	<i>Page: 6</i>
22.	Data saturation	Was data saturation discussed?	<i>Page: 18</i>
23.	Transcripts returned	Were transcripts returned to participants for comment and/or correction?	<i>Page: 7</i>
<b>Domain 3:</b>			
<b>analysis and findingsz</b>			
Data analysis			
24.	Number of data coders	How many data coders coded the data?	<i>Page: 7</i>
25.	Description of the coding tree	Did authors provide a description of the coding tree?	<i>Page: 7</i>
26.	Derivation of themes	Were themes identified in advance or derived from the data?	<i>Page: 7</i>

<b>No</b>	<b>Item</b>	<b>Guide questions/description</b>	<b>Authors comment:</b>
27.	Software	What software, if applicable, was used to manage the data?	<b><i>Not applicable</i></b>
28.	Participant checking	Did participants provide feedback on the findings?	<b><i>Page: 7</i></b>
<b>Reporting</b>			
29.	Quotations presented	Were participant quotations presented to illustrate the themes / findings? Was each quotation identified? <i>e.g. participant number</i>	<b><i>Page: 8-16</i></b>
30.	Data and findings consistent	Was there consistency between the data presented and the findings?	<b><i>Page: 8-16</i></b>
31.	Clarity of major themes	Were major themes clearly presented in the findings?	<b><i>Page: 8-16</i></b>
32.	Clarity of minor themes	Is there a description of diverse cases or discussion of minor themes?	<b><i>Page: 8-16</i></b>