SCANDINAVIAN JOURNAL OF PRIMARY HEALTH CARE
2025, VOL. 43, NO. 2, 434–447
https://doi.org/10.1080/02813432.2025.2452924

Taylor & Francis
Taylor & Francis Group

RESEARCH ARTICLE

OPEN ACCESS Check for updates

Considerations and experiences with healthcare-seeking during the first COVID-19 lockdown in Denmark

Isabella Raasthøj Holst, Lisa Maria Sele Sætre, Gitte Bruun Lauridsen, Kirubakaran Balasubramaniam, Peter Haastrup, Sonja Wehberg and Dorte Ejg Jarbøl

The Research Unit of General Practice, Department of Public Health, University of Southern Denmark, Odense M, Denmark

ABSTRACT

Aim: To (1) examine considerations before and experiences with GP contact during the first COronaVIrus Disease 2019 (COVID-19) lockdown among Danish citizens; (2) analyse the associations with sex, age, chronic disease, and socioeconomic factors; and (3) explore changes in healthcare-seeking behaviour post-pandemic.

Method: A total of 100,000 Danes aged 20 years or older, randomly selected in the general population, were invited to participate in a survey examining considerations and experiences with healthcare seeking during the first COVID-19 lockdown. Data were collected in spring 2022 and linked to register data on socioeconomic factors. Descriptive statistics and multivariable logistic regression models were applied.

Results: Of the 27,369 eligible individuals, 18% reported a need to contact their GP. Being worried about burdening the healthcare system was most frequently reported (45%), followed by being in doubt about acceptable contact reasons (33%), and concern about infection (24%). Although 44% of those who needed to contact their GP found the digital solutions advantageous, individuals frequently found it difficult to discuss symptoms by telehealth (29%) and that they were examined less thoroughly. Generally, women, younger people, and individuals with lower socioeconomic status were more likely to be worried and report difficulties with contact to general practice. Some 86% of the respondents reported no changes in healthcare-seeking behaviour post-pandemic.

Conclusion: The results may assist in the organisation of healthcare in case of future lockdowns. Yet, the COVID-19 pandemic has only slightly affected the healthcare-seeking behaviour in the Danish general population.

ARTICLE HISTORY
Received 16 January 2024
Accepted 8 January 2025

KEYWORDS
COVID-19; general practice; primary health care; help-seeking behaviour; telemedicine

How this fits in

During the first COVID-19 lockdown, the healthcare system was affected by altered accessibility in general practice. To avoid transmission of infection, non-acute in-clinic consultations were kept to a minimum and replaced by use of telehealth solutions. This study adds to the understanding of considerations and experiences with healthcare-seeking during such an unprecedented lockdown. It also indicates that the healthcare-seeking behaviour changed to a minor degree post-pandemic.

Introduction

The global pandemic of COronaVIrus Disease 2019 (COVID-19) affected societies and healthcare systems worldwide. In Denmark, the first case of COVID-19 was diagnosed on February 27th, 2020, and two weeks later, on March 11th, a governmental lockdown of the society was initiated, leading to the first of three lockdowns [1]. Consequently, Danish general practitioners (GPs) closed for non-acute in-clinic consultations, and patients were mainly assigned to use telehealth solutions such as email, telephone, and video [2–4] like in several other countries [5–7].

Telehealth consultations were found to be an effective way of providing healthcare during the pandemic, yet the digital solutions may have been a barrier to healthcare-seeking for some patients [8,9]. Consultation rates in general practice were lower among vulnerable patient groups during the pandemic, including patients with higher age, comorbidity, lower education, and lower income, indicating inequalities in access to healthcare [4]. People may have postponed or avoided

CONTACT Isabella Raasthøj Holst iraasthoj@health.sdu.dk The Research Unit of General Practice, Campusvej 55, 5230 Odense M, Denmark
Supplemental data for this article can be accessed online at https://doi.org/10.1080/02813432.2025.2452924.

GP contact, for example if they perceived their symptoms as too insignificant for burdening the healthcare system or were worried about becoming infected if attending the GP's office [10]. The lockdowns may have reinforced some of the existing inequities in health, for instance by limiting access to healthcare services, which can be particularly a challenge for certain population groups [4,11,12]. Many consultations can be postponed without harm, but delayed treatment of serious or acute medical issues or inadequate management of chronic diseases can cause poor outcomes, lower quality of life, and increased uncertainty for the individual [13].

The restrictions on in-clinic consultations impaired the opportunity to have face-to-face contact and perform physical examinations. This may have compromised the relationships between the patients and GPs as well as the continuity of care which could affect both quality of health, quality of life, and mortality [14,15]. The physical examination is important for the patient's perception of quality in healthcare [16,17]. Hence, the attempt to keep social distance may have resulted in experiences of being insufficiently examined or not taken seriously at both in-clinic and telehealth consultations during the lockdown.

The time between 2020 and 2022 was extraordinary due to the high focus on the transmission of COVID-19, societal lockdowns, restrictions, social isolation, and changed healthcare access [1,4]. These conditions may have induced several considerations before making contact with the GP, such as concern about infection or unnecessary burdening of the healthcare system. Furthermore, little is known about how the general population experienced the contact if they reached out to the GP during the lockdown, and whether the COVID-19 pandemic has caused changes in the overall healthcare-seeking behaviour afterwards. This information may be valuable for the handling of future healthcare crises and the organisation of the post-pandemic healthcare system [18].

This study aimed to (1) examine considerations before and experiences with GP contact during the first COVID-19 lockdown among Danish citizens; (2) analyse the associations with sex, age, chronic disease, and socioeconomic factors; and (3) explore changes in healthcare-seeking behaviour post-pandemic.

Method

Study design and population

The present study is a part of the Danish Symptom Cohort II, a nationwide study investigating symptoms and healthcare-seeking behaviour in the general population. A total of 100,000 Danes aged 20 years or older, randomly selected from the Danish Civil Registration System (CRS) [19], were invited to a web-based survey. The invitees received an invitation in their personal digital mailbox (eBoks) which is used for secure communication between public authorities and citizens in Denmark. The invitation contained a description of the study purpose, legal rights, and a unique link providing access to the survey conducted in an electronic platform called SurveyXact. Participation was voluntary, and individuals who did not wish to participate were offered the opportunity to decline online or by contacting the project group. After seven days, non-respondents received a reminder letter in their digital mailbox encouraging them to participate. This procedure was repeated after additional seven days. Data were collected from May to July 2022. Details of the study design are reported elsewhere [20].

The questionnaire

The DaSC II questionnaire was developed based on a conceptual framework covering six domains, and all items were phrased in Danish. The questionnaire was comprehensive and covered several constructs within the six domains. In this study, we used data from the last domain concerning healthcare-seeking behaviour during the first Danish COVID-19 lockdown. Items for the COVID-19 domain were inspired by the validated Awareness and Beliefs about Cancer Measures [21,22] and the UK Cancer Awareness Measures used during the COVID-19 pandemic to explore healthcare seeking during lockdown in the UK [23,24]. Moreover, the questions were inspired by semi-structured group interviews conducted with a user panel with twelve representatives from the general population. The questionnaire was pilot tested twice; in a research environment and among the user panel resulting in reduction of the number of COVID-19 questions and few rewordings. The survey was designed with a forced answer feature and leap structure to omit missing responses and unnecessary questions, respectively. Prior to the final distribution, the survey was field tested among 499 randomly selected individuals from the general population. In this process, postal invitations were distributed to individuals who were officially exempted from digital mail, e.g. due to either severe physical or mental illness, language problems, or no access to computer access in their home [25]. The response rate among those who received a postal letter was very low (<5%), and the disturbance caused by the invitations among invitees and their relatives were significantly higher than among those invited by digital mail. Therefore, we considered it relevant to omit the postal

invitation to reduce unnecessary disturbance with no or very low likelihood of adding value to the final study population. The conceptual framework, development, and pilot- and field tests of the questionnaire are described in detail elsewhere [20].

The COVID-19 domain was initiated by a question about whether the individual had needed to contact their GP during the first COVID-19 lockdown. Subsequently those who stated a need of GP contact were presented with seven predefined statements exploring three possible considerations prior to contact to the GP and four experiences with actual GP contact established during the COVID-19 lockdown. The three statements covering considerations (C1-C3) were phrased as follows: C1: I was in doubt as to what I could contact the doctor with ('In doubt as to what to contact with'), C2: I was worried I would catch the Corona virus if I went to the doctor's office ('Worried about infection'), C3: I was worried about putting an unnecessary burden on the health care system ('Worried about burdening'). The four statements covering the actual experiences (E1-E4) were phrased as follows: E1: I found it difficult to discuss my symptoms over the phone, in an e-mail, or during a video consultation ('Difficult to discuss symptoms digitally'), E2: I considered it as an advantage, that more things could be handled over the phone, email, or video ('Advantage of digital communication'), E3: I found that the reason I contacted the doctor was considered as less important ('Reason considered less important') and E4: I found that I was examined less thoroughly due to the corona pandemic ('Examined less thoroughly'), Table 1. Responses to each statement were given on a four-point Likert scale ranging from 'completely disagree' to 'completely agree' with an additional option to answer 'I don't know'.

Finally, all respondents were asked whether their overall healthcare-seeking behaviour had changed post-pandemic.

Table 1. Wording of questions.

The remaining questions are about your thoughts and experiences during the COVID-19 lockdown in March 2020. It might be difficult to remember that far back, but please just answer to the best of your ability.	
Thinking back to the time during the COVID-19 lockdown in March 2020, did you need to contact your general practitioner concerning your health? *(Yes, No, I don't know)*	
Thinking back to the time during the COVID-19 lockdown in March 2020, how much do you disagree or agree with the following statements? (*Completely disagree, Partly disagree, Partly agree, Completely agree, I don't know)*	
Considerations	
C1	I was in doubt as to what I could contact the doctor about (short: *'In doubt as to what to contact with'*)
C2	I was worried I would catch the corona virus if I went to the doctor's office (short: '*Worried about infection*')
C3	I was worried about putting an unnecessary burden on the health care system (short: *'Worried about burdening'*)
Experiences	
E1	I found it difficult to discuss my symptoms over the phone, in an e-mail, or during a video consultation (short: *'Difficult to discuss symptoms digitally'*)
E2	I considered it as an advantage, that more things could be handled over the phone, email, or video (short: *'Advantage of digital communication'*)
E3	I found that the reason I contacted the doctor was considered as less important (short: *'Reason considered less important'*)
E4	I found that I was examined less thoroughly due to the corona pandemic (short: *'Examined less thoroughly'*)
The next question is about your contact with your doctor now. Which of the following statements best applies to you? Compared with the time before the corona pandemic:	
Q1	I generally wait longer before contacting my doctor
Q2	I am now generally quicker to contact my doctor
Q3	I have not changed when I contact my doctor
Chronic disease	
Do you have any **chronic disease, long-term effects after injuries, disability, or other chronic disorder**? *(Yes, No, I don't know)*	

Register data

To keep the number of questions in the comprehensive questionnaire low, and because the Danish registers are extensive and valid [26–28], socioeconomic data were obtained from Statistics Denmark using the unique Civil Registration System number assigned to each Danish citizen [19,26,28]. The variables of interest were marital status, highest obtained educational level, labour market affiliation, and ethnicity. Additionally, data on vital status were obtained from the Danish Health Data Authority [29]. The variables are described in detail under statistical analyses.

Statistical analyses

Individuals who died before data collection and individuals who were officially exempted from digital mail were considered ineligible for study. As the COVID-19 domain was placed at the end of the questionnaire, only individuals who answered the entire questionnaire were included in the present study.

The analyses regarding considerations and experiences were restricted to individuals who reported a need for contacting their GP during the lockdown. Frequencies for the response categories were calculated using descriptive statistics. Afterwards we dichotomized into 'agree' and 'disagree' by merging 'partly' and 'completely' within each category. Individuals who answered 'I don't know' were excluded from further analyses of each statement. Post hoc we conducted sensitivity analyses by recoding 'don't know' into both 'agree' and 'disagree' categories. Neither of these recodings significantly altered the associations. We analysed the probability to 'agree' with each statement by multivariable logistic regression models. Covariates considered were sex

(women or men), age groups (20–39, 40–59, 60–79, and 80+ years), chronic disease (yes or no), marital status (single/living alone or married/cohabitating), highest obtained educational level (low (<10 years), middle (10–15 years), or high (≥15 years), labor market affiliation (working, retired, out of workforce, or disability pension), and ethnicity (Danish or immigrants/descendants of immigrants). Respondents who answered 'I don't know' regarding chronic disease were interpreted as having no chronic disease. We decided post-hoc to perform multivariable logistic regression models with an interaction between sex and age as it appeared that sex modified the effect of age.

All respondents were included in the analyses concerning healthcare-seeking post-pandemic. We calculated the frequency of each response in total and by each covariate by using descriptive statistics. A χ^2 test was conducted to test for difference within each of the covariates.

Statistical analyses were performed using StataCorp 2019 (Stata Statistical Software: Release 17.0, College Station, TX: StataCorp LLC). All tests used a significance level of $p < 0.05$.

Results

General characteristics of the study sample

Of the 100,000 randomly selected individuals, 7% were ineligible due to no digital mailbox or death before data collection. Of the eligible 92,746 individuals, 31,415 (34%) responded to the survey. After exclusion of

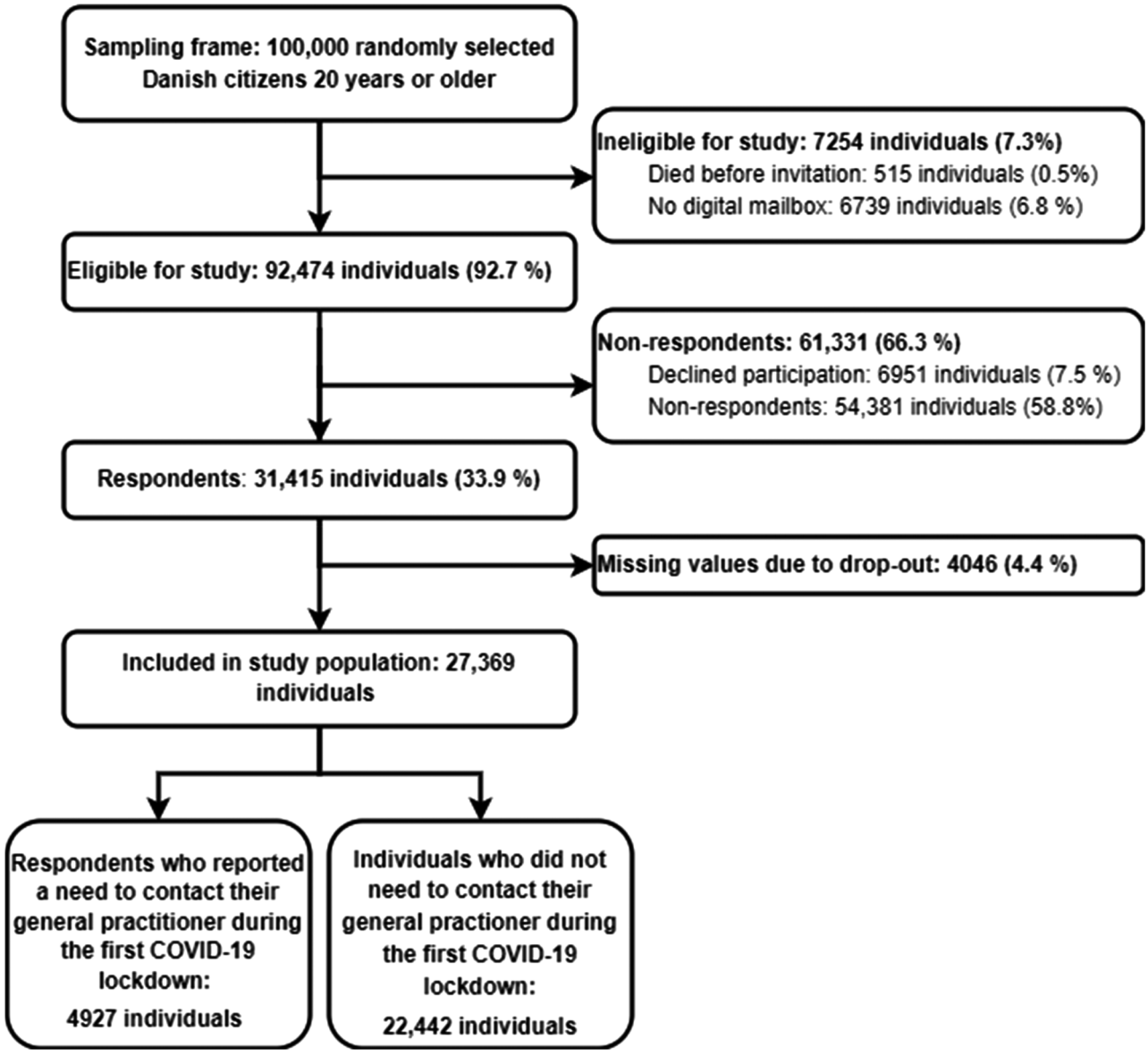

Figure 1. Flowchart.

individuals who did not answer all the questions, a total of 27,369 were included (Figure 1). Of the individuals eligible for the study, 4927 reported that they had needed to contact their GP during the first COVID-19 lockdown (Figure 1). Characteristics of the entire study population and the subgroups (respondents with and without a need to contact the GP during the lockdown and those who dropped out of the survey) are shown in Table 2.

Healthcare-seeking behaviour during the first COVID-19 lockdown

Figure 2 shows the distribution of answers to each predefined statements exploring the considerations prior to contact to the GP and experiences with actual GP contact during the COVID-19 lockdown. Almost half of the respondents (45%) partly or completely agreed with the statement that they were worried about putting an unnecessary burden on the healthcare system (C3), and 33% agreed that they were in doubt as to what they could contact the GP with (C1). Another 24% were worried to catch the corona virus (C2) (Figure 2).

Some 29% partly or completely agreed that they found it difficult to discuss their symptoms digitally (E1) while 44% considered it as an advantage that more things could be handled over the phone, email, or video (E2). Further, 27% of respondents experienced

Table 2. Study population characteristics.

	Total *N* (%)	Respondents who reported a need to contact their GP *n* (%)	Respondents without a need to contact their GP[b] *n* (%)	Missing due to drop out during the questionnaire *n* (%)
Total	31,415 (100.0)	4927 (100.0)	22,442 (100.0)	4046 (100.0)
Sex				
Women	17,936 (57.1)	2965 (60.2)	12607 (56.2)	2364 (58.4)
Men	13,479 (42.9)	1962 (39.8)	9835 (43.8)	1682 (41.6)
Age groups				
20–39 years	6915 (22.0)	1149 (23.3)	4420 (19.7)	1346 (33.3)
40–59 years	11,407 (36.3)	1911 (38.8)	8163 (36.4)	1333 (32.9)
60–79 years	11,715 (37.3)	1721 (34.9)	8870 (39.5)	1124 (27.8)
80+ years	1378 (4.4)	146 (3.0)	989 (4.4)	243 (6.0)
Chronic disease				
No[a]	19,555 (62.2)	1972 (40.0)	13,670 (60.9)	3913 (96.7)
Yes	11,860 (37.8)	2955 (60.0)	8772 (39.1)	133 (3.3)
Marital status				
Single/Living alone	9448 (30.1)	1617 (32.8)	6373 (28.4)	1458 (36.0)
Married/cohabitating	21967 (69.9)	3310 (67.2)	16069 (71.6)	2588 (64.0)
Highest obtained educational level				
Low (<10 years)	2418 (7.7)	339 (6.9)	1581 (7.0)	498 (12.3)
Middle (10–15 years)	15608 (49.7)	2362 (47.9)	11051 (49.2)	2195 (54.3)
High (>15 years)	13389 (42.6)	2226 (45.2)	9810 (43.7)	1353 (33.4)
Labour market affiliation				
Working	19898 (63.3)	3041 (61.7)	14303 (63.7)	2554 (63.1)
Unempolyed	8063 (25.7)	1046 (21.2)	6119 (27.3)	898 (22.2)
Out of workforce	2215 (7.1)	527 (10.7)	1326 (5.9)	362 (8.9)
Disability pension	1239 (3.9)	313 (6.4)	694 (3.1)	232 (5.7)
Ethnicity				
Danish	28831 (91.8)	4472 (90.8)	20933 (93.3)	3426 (84.7)
Immigrants and descendants of immigrants	2584 (8.2)	455 (9.2)	1509 (6.7)	620 (15.3)

[a]No contains the responses 'No' and 'I don't know' to the question about chronic disease.
[b]Including the responses 'I don't know' to the questions about need of GP contact during the first COVID-19 lockdown.

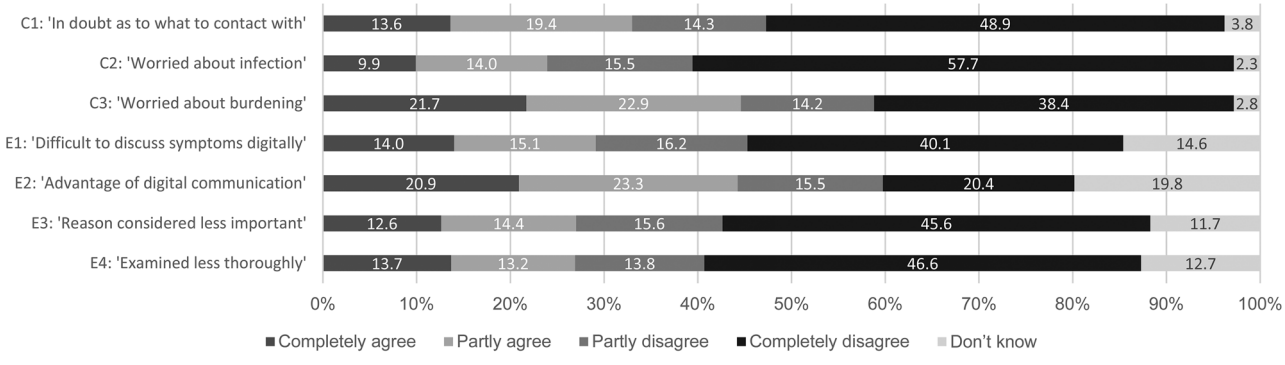

Figure 2. Distribution of answers to the questions regarding considerations and experiences during the first COVID-19 lockdown ($N = 4927$).

that the reason they contacted their GP was considered as less important (E3), and that they were examined less thoroughly due to the pandemic (E4) (Figure 2).

Associations with sex, age, chronic disease, and socioeconomic factors

Analyses of the associations between sex, age, chronic disease, socioeconomic factors, and agreement with the predefined statements are shown in Tables 3 and 4. Crude analyses are reported in Supplementary Tables S1 and S2. Men had lower odds of agreeing with most statements compared to women, although this was statistically insignificant for perceiving digital communication as an advantage and finding that the reason for contact was considered less important. Likewise, the older age groups (>40 years) had lower odds of agreement compared to individuals aged 20–40 years for all statements except for considering digital communication as an advantage and for being worried about infection for the oldest age group (80+ years). Having a chronic disease increased the odds of being worried about infection (C2) (OR = 1.36, 95% CI 1.18; 1.57), and finding that they were examined less thoroughly (E4) (OR = 1.17, 95% CI 1.02; 1.34) compared to not having a chronic disease. Individuals with a higher level of educational had lower likelihood of agreeing with all statements than individuals with low educational level (<10 years) except for considering digital solutions an advantage (E2). Individuals out of the workforce (OR = 1.79, 95% CI 1.45; 2.20), unemployed (OR = 1.57, 95% CI 1.24; 1.99), and on disability pension (OR = 2.43, 95% CI 1.85; 3.18) were more likely to be worried about infection (C2) compared to individuals working. Immigrants and descendants of immigrants were more likely than individuals of Danish ethnicity to be worried about infection (C2) (OR = 2.41, 95% CI 1.95; 2.97), finding it difficult to discuss symptoms digitally (E1) (OR = 1.74, 95% CI 1.41; 2.16), experiencing their reason for contact was considered to be less important (E2) (OR = 1.74, 95% CI 1.40; 2.26), and experiencing that they were examined less thoroughly (E4) (OR = 1.75, 95% CI 1.41; 2.18). Yet, immigrants and descendants were less likely to consider digital communication as an advantage (E2) (OR = 0.65 95% CI 0.52; 0.81).

The post-hoc analyses including an interaction between sex and age did not significantly change the results, Supplementary Tables S3. Nor did the

Table 3. Associations between sex, age, and chronic disease and considerations about GP contact during the first COVID-19 lockdown.

	C1: 'In doubt as to what to contact with' ($n = 4740$)[a]		C2: 'Worried about infection' ($n = 4789$) [a]		C3: 'Worried about burdening' ($n = 4790$)[a]	
	Agree[b] n (%)	Adj. OR (95% CI)[c]	Agree[b] n (%)	Adj. OR (95% CI)[c]	Agree[b] n (%)	Adj. OR (95% CI)[c]
Total	1628 (34.3)		1181 (24.7)		2198 (45.9)	
Sex						
Women	1081 (37.9)	Ref	754 (26.2)	Ref	1433 (49.7)	Ref
Men	547 (29.0)	**0.73 (0.64; 0.83)**	427 (22.4)	**0.85 (0.74; 0.98)**	765 (40.1)	**0.74 (0.66; 0.83)**
Age groups						
20–39 years	516 (47.3)	Ref	321 (28.9)	Ref	628 (56.9)	Ref
40–59 years	648 (34.8)	**0.63 (0.54; 0.74)**	414 (22.2)	**0.66 (0.55; 0.78)**	879 (47.2)	**0.72 (0.61; 0.84)**
60–79 years	430 (26.0)	**0.45 (0.37; 0.56)**	406 (24.1)	**0.63 (0.50; 0.79)**	639 (38.0)	**0.53 (0.43; 0.64)**
80+ years	34 (25.2)	**0.46 (0.29; 0.73)**	40 (29.6)	0.80 (0.50; 1.26)	52 (36.4)	**0.50 (0.33; 0.76)**
Chronic disease						
No	705 (37.5)	Ref	419 (21.9)	–	921 (48.5)	–
Yes	923 (32.3)	0.90 (0.79; 1.03)	762 (26.5)	**1.29 (1.12; 1.49)**	1277 (44.2)	0.93 (0.82; 1.05)
Marital status						
Single/Living alone	1060 (33.1%)	Ref	769 (23.9%)	Ref	950 (33.2%)	Ref
Married/cohabitating	568 (36.9%)	0.94 (0.82; 1.07)	412 (26.2%)	1.01 (0.87; 1.16)	484 (35.9%)	0.91 (0.80; 1.03)
Highest obtained educational level						
Low (<10 years)	116 (37.1%)	Ref	109 (34.2%)	Ref	128 (44.1%)	Ref
Middle (10–15 years)	800 (35.3%)	0.82 (0.64; 1.06)	551 (24.0%)	**0.68 (0.53; 0.89)**	726 (36.2%)	**0.78 (0.61; 0.99)**
High (> 15 years)	712 (33.0%)	**0.70 (0.54; 0.90)**	521 (23.9%)	**0.71 (0.54; 0.92)**	580 (30.4%)	0.85 (0.67; 1.09)
Labour market affiliation						
Working	106 (35.7%)	Ref	144 (48.0%)	Ref	106 (38.8%)	Ref
Unemployed	214 (42.5%)	0.93 (0.74; 1.17)	269 (52.7%)	**1.57 (1.24; 1.99)**	188 (41.9%)	0.96 (0.79; 1.18)
Out of workforce	251 (25.0%)	1.17 (0.95; 1.43)	379 (37.0%)	**1.79 (1.45; 2.20)**	272 (30.8%)	1.16 (0.95; 1.41)
Disability pension	1057 (36.0%)	1.14 (0.87; 1.49)	1406 (47.6%)	**2.43 (1.85; 3.18)**	868 (33.3%)	1.19 (0.92; 1.53)
Ethnicity						
Danish	1410 (32.7%)	Ref	1957 (44.9%)	Ref	1245 (32.7%)	Ref
Immigrants and descendants of immigrants	218 (51.3%)	**1.93 (1.57; 2.38)**	241 (55.9%)	**2.41 (1.95; 2.97)**	189 (46.9%)	**1.37 (1.12; 1.68)**

Significant results have been highlighted with **bold font**.
[a]Respondents who answered 'I don't know' to the question were excluded.
[b]Agree includes the responses partly and completely agree.
[c]Adjustments made for sex, age, chronic disease, and socioeconomic status.

Table 4. Associations between sex, age, and chronic disease and experiences with GP contact during the first COVID-19 lockdown.

	E1: 'Difficult to discuss symptoms digitally' ($n=4209$)[a]		E2: 'Advantage of digital communication' ($n=3951$)[a]		E3: 'Reason considered less important' ($n=4350$)[a]		E4: 'Examined less thoroughly' ($n=4299$)[a]	
	Agree[b] n (%)	Adj. OR (95 CI)[c]	Agree[b] n (%)	Adj. OR (95 CI)[c]	Agree[b] n (%)	Adj. OR (95 CI)[c]	Agree[b] n (%)	Adj. OR (95 CI)[c]
Total	1434 (34.1)		2179 (55.2)		1333 (30.6)		1322 (30.8)	
Sex								
Women	911 (36.0)	Ref	1335 (56.5)	Ref	842 (32.2)	Ref	853 (33.3)	Ref
Men	523 (31.2)	**0.84 (0.73; 0.96)**	844 (53.1)	0.93 (0.82; 1.06)	491 (28.3)	0.91 (0.79; 1.04)	469 (26.9)	**0.79 (0.69; 0.90)**
Age groups								
20–39 years	419 (42.3)	Ref	555 (58.3)	Ref	392 (39.2)	Ref	396 (39.9)	Ref
40–59 years	531 (32.4)	**0.66 (0.56; 0.79)**	922 (60.5)	**1.10 (0.92; 1.30)**	546 (32.3)	**0.74 (0.62; 0.87)**	526 (31.9)	**0.69 (0.58; 0.82)**
60–79 years	451 (30.9)	**0.60 (0.48; 0.74)**	649 (47.7)	**0.75 (0.60; 0.92)**	374 (24.5)	**0.52 (0.42; 0.65)**	379 (24.8)	**0.53 (0.42; 0.66)**
80+ years	33 (28.0)	**0.50 (0.31; 0.80)**	53 (46.1)	0.76 (0.49; 1.19)	21 (16.2)	**0.31 (0.18; 0.54)**	21 (15.8)	**0.32 (0.18; 0.54)**
Chronic disease								
No	583 (34.9)	Ref	897 (56.8)	Ref	550 (31.9)	Ref	514 (30.3)	Ref
Yes	851 (33.5)	1.01 (0.88; 1.16)	1282 (54.0)	0.95 (0.83; 1.08)	783 (29.8)	0.97 (0.84; 1.11)	808 (31.0)	**1.16 (1.01; 1.34)**
Marital status								
Single/Living alone	950 (33.2%)	Ref	1519 (56.8%)	Ref	881 (29.9%)	Ref	883 (30.4%)	Ref
Married/cohabitating	484 (35.9%)	0.98 (0.85; 1.13)	660 (51.8%)	**1.22 (1.06; 1.40)**	452 (32.1%)	1.00 (0.87; 1.15)	439 (31.5%)	1.05 (0.91; 1.21)
Highest obtained educational level								
Low (<10 years)	128 (44.1%)	Ref	136 (51.5%)	Ref	119 (39.8%)	Ref	117 (39.4%)	Ref
Middle (10–15 years)	726 (36.2%)	**0.69 (0.54; 0.90)**	981 (51.4%)	0.87 (0.67; 1.13)	652 (31.3%)	**0.62 (0.47; 0.80)**	646 (31.5%)	**0.61 (0.47; 0.79)**
High (> 15 years)	580 (30.4%)	**0.52 (0.40; 0.67)**	1062 (59.7%)	1.18 (0.90; 1.54)	562 (28.5%)	**0.53 (0.40; 0.69)**	559 (28.6%)	**0.50 (0.38; 0.66)**
Labour market affiliation								
Working	106 (38.8%)	Ref	123 (49.4%)	Ref	109 (38.9%)	Ref	101 (37.7%)	Ref
Unempolyed	188 (41.9%)	1.12 (0.89; 1.41)	243 (57.2%)	0.78 (0.62; 0.97)	185 (40.1%)	0.96 (0.75; 1.22)	166 (36.6%)	0.85 (0.67; 1.08)
Out of workforce	272 (30.8%)	**1.24 (1.00; 1.54)**	374 (45.4%)	1.05 (0.85; 1.30)	208 (22.2%)	**1.34 (1.08; 1.65)**	209 (22.0%)	1.04 (0.84; 1.29)
Disability pension	868 (33.3%)	1.27 (0.97; 1.68)	1439 (58.7%)	0.83 (0.63; 1.10)	831 (31.1%)	**1.53 (1.17; 2.02)**	846 (32.2%)	1.29 (0.97; 1.70)
Ethnicity								
Danish	1245 (32.7%)	Ref	1995 (55.9%)	Ref	1162 (29.3%)	Ref	1153 (29.4%)	Ref
Immigrants and descendants of immigrants	189 (46.9%)	**1.74 (1.41; 2.16)**	184 (48.5%)	**0.65 (0.52; 0.81)**	171 (44.5%)	**1.74 (1.40; 2.16)**	169 (44.1%)	**1.75 (1.41; 2.18)**

Significant results have been highlighted with ***bold font****.*

[a]Respondents who answered 'I don't know' to the question were excluded.

[b]Agree includes the responses partly and completely agree.

[c]Adjustments made for sex, age, chronic disease, and socioeconomic status.

sensitivity analyses, in which the individuals who answered 'I don't know', were recoded into both 'agree' and 'disagree' categories (data not shown).

Post-pandemic healthcare-seeking behaviour

Among all respondents, 86.2% reported no change in their healthcare-seeking behaviour following the pandemic (Table 5). Some 9.6% reported that they generally waited longer while the remaining 4.2% reported to contact the GP sooner. The proportion of respondents who waited longer was higher for women, individuals in the youngest age group (20–59 years), and among individuals with a chronic disease, cohabitating, having a higher level of education, working, being unemployed, and among those with different ethnicity than Danish (Table 5).

Discussion

Summary

A substantial proportion of those who needed to contact their GP during the first COVID-19 lockdown was in doubt about as to what they could contact the GP about, worried about catching the corona virus, and worried about putting an unnecessary burden on the healthcare system. Nearly half of them found it advantageous that more could be handled digitally, but almost one third found it difficult to discuss their symptoms using telehealth. Also, one of four found that their contact was considered less important, or that they were examined less thoroughly. Generally, women, the youngest people, and individuals with lower socioeconomic status were most likely to agree on most considerations and experiences. Having a chronic disease increased the likelihood of being worried about infection and experiencing to be examined less thoroughly.

Most respondents reported no change in healthcare-seeking behaviour post-pandemic, yet one out of seven reported a change, with two-thirds reporting to wait longer.

Table 5. Healthcare-seeking behaviour following the COVID-19 lockdown ($N = 27{,}369$).

	Wait longer time	Contact sooner	No change
	n (%)	*n* (%)	*n* (%)
Total	2630 (9.6%)	1137 (4.2%)	23,602 (86.2%)
Sex			
Women	1583 (10.2%)	524 (3.4%)	13,465 (86.5%)
Men	1047 (8.9%)	613 (5.2%)	10,137 (85.9%)
Age groups			
20–39 years	660 (11.9%)	266 (4.8%)	4643 (83.4%)
40–59 years	1036 (10.3%)	377 (3.7%)	8661 (86.0%)
60–79 years	830 (7.8%)	431 (4.1%)	9330 (88.1%)
80+ years	104 (9.2%)	63 (5.6%)	968 (85.3%)
Chronic disease			
No	1419 (9.1%)	606 (3.9%)	13,617 (87.1%)
Yes	1211 (10.3%)	531 (4.5%)	9985 (85.1%)
Marital status			
Single/Living alone	1733 (8.9)	775 (4.0)	16871 (87.1)
Married/cohabitating	897 (11.2)	362 (4.5)	6731 (84.2)
Highest obtained educational level			
Low (<10 years)	1383 (10.3)	621 (4.6)	11409 (85.1)
Middle (10–15 years)	989 (8.2)	390 (3.2)	10657 (88.5)
High (>15 years)	258 (13.4)	126 (6.6)	1536 (80.0)
Labour market affiliation			
Working	160 (15.9)	53 (5.3)	794 (78.8)
Unempolyed	278 (15.0)	126 (6.8)	1449 (78.2)
Out of workforce	558 (7.8)	315 (4.4)	6292 (87.8)
Disability pension	1634 (9.4)	643 (3.7)	15067 (86.9)
Ethnicity			
Danish	2217 (8.7)	915 (3.6)	22273 (87.7)
Immigrants and descendants of immigrants	413 (21.0)	222 (11.3)	1329 (67.7)

Corresponding *p*-values based on $\chi 2$ tests between current healthcare-seeking behaviour and covariate categories were all <0.05.

Strengths and limitations

The large sample of individuals from the general population is a strength of the study and may add to the understanding of the lower number of contacts to the healthcare system [4], diagnostic activities [30], and diagnoses of severe illnesses [31] during the first COVID-19 lockdown. Another strength is the thorough development of the questionnaire following COSMIN guidelines [32,33]. The pilot and field tests showed high content validity and feasibility.

The response rate was lower than desired although it was sought heightened by an easily read and understandable invitation and the opportunity of contacting the project group throughout the data collection period. By these efforts, we aimed at including individuals of all ages and with different levels of education. Further, the possibility of contacting the project group was helpful for the individuals who faced technical problems or had doubts about the seriousness of the survey. However, selection bias cannot be eliminated. A higher proportion of the respondents were women, middle-aged, and had higher socioeconomic status than the non-respondents [20]. Further, the decision of excluding individuals without digital mail may have caused an underestimation of the difficulties with telehealth during the lockdown, since individuals exempted from digital mail are probably more likely to be challenged by telehealth. Therefore, those who were mostly affected by the altered access to healthcare during the COVID-19 pandemic may not have been included in this study. Thus, we may have underestimated the difficulties experienced by some groups of the general population. Yet, the study sample allowed

analyses of subgroups according to the selected variables providing knowledge about considerations and concerns in different population groups.

The COVID-19 domain was placed at the end of the questionnaire, and some individuals who initiated the survey dropped out before these questions. This may have several reasons, though some drop outs are expected in a comprehensive questionnaire. The respondents are likely to have higher health literacy than the non-respondents [34]. Hence, they might be less challenged in the contact with the healthcare system and in the comprehension of the instructions issued by the health authorities during the pandemic [35]. This could possibly have caused an underestimation of the difficulties explored in the present study, which may have been even more pronounced in some groups of the general population.

The percentage of dropouts is similar to other large Danish population-based surveys [36,37]. The design of the online survey with a forced answer feature was chosen to diminish the number of missing responses, but it may have prompted some respondents to withdraw even though we implemented an 'I don't know' or 'not relevant' answer category in questions that could be difficult or intimidating to answer.

There was a relatively high frequency of reporting 'I don't know' to the questions about experiences with healthcare seeking. A reason for this could be that some people had in-clinic consultations rather than using telehealth, or that they never actually contacted the GP despite declaring a need for contact. Unfortunately, we do not have information about consultation type even though this information could have added more nuances to the results.

Data were collected in spring 2022, and the first Danish COVID-19 lockdown was in March 2020 which may have led to recall bias [38]. We chose to focus on the first lockdown because it was unique and a first-time experience for everyone. Some may however have confused healthcare-seeking during the first lockdown with the needs of GP contact during the second or third lockdown. When talking to the user panel comprising a wide variety of citizens of all ages and socioeconomic classes prior to distributing the survey, the user panel participants stated that they very well remembered the time during the first lockdown and how they reacted and experienced the contact to their GP. Although, lockdowns and the pandemic to some degree became a part of everyday life in Denmark from 2020 to 2022 where both GPs and patients learned more about the virus and became familiar with the telehealth solutions, the examined considerations and experiences may be similar during the entire pandemic. For example, people might have kept their fear of catching the corona virus when visiting the doctor's office despite the availability of protective equipment later in the pandemic. Additionally, although the recommendations for general practice differed substantially across the pandemic concerning who should receive in-clinic consultations, symptoms are not believed to have been more easily discussed, nor were physical examinations more thorough later in the pandemic as the digital solutions did not improve much.

We used self-reported chronic disease as a proxy for comorbidity. Comorbidity can be measured in several ways [39–41], and some participants suffering from a chronic disease according to registers may have reported 'No' to the question if they do not feel sick. Although it could induce some misclassification, self-perceived chronic disease probably has higher influence on the individual's need for contacting the GP and the related considerations and experiences with contacts to the healthcare system than registry-based comorbidity indexes [42]. Other methods were considered to establish the presence of chronic disease, including obtaining data from registers. However, this method also has limitations, or can lead to misclassification, and they are not necessarily better than using questionnaire data [43].

Comparison with existing literature

Whether the statements included in this study affected the individual's healthcare-seeking during the lockdown is unknown, but they may have acted as barriers. For instance, fear of infection and not wanting to burden professionals has been reported as frequent motivations for postponing healthcare-seeking among patients visiting an emergency department [44]. Further, difficulties with discussing symptoms digitally, as in particular individuals out of the workforce and immigrants reported, may have caused some people to omit seeking care during the pandemic. This may also be of importance in the post-pandemic healthcare system, in which digital solutions are gaining ground [45].

Studies have shown that women, older people, and people with more comorbidity, lower education, or depression/anxiety more often avoided seeking healthcare during the pandemic [46–48]. Similarly, the present study found that women more frequently reported considerations related to GP contact, and that having a chronic disease, being unemployed, out of the workforce, receiving disability pension, or being an immigrant increased the likelihood of worrying about

infection. In line with others, we found a higher concern about infection in the youngest age group (20–39 years) [49,50], which is interesting since younger people are not the obvious risk group of severe COVID-19 [51]. One reason may be that younger individuals reported higher levels of loneliness and mental symptoms, which correlates with the fear of COVID-19 [50,52]. Another reason may be that high confidence in healthcare professionals and politicians are associated with less fear of infection, and that younger individuals are less confident with these than older individuals [53].

One third of respondents reported that they were examined less thoroughly and having a chronic disease increased the likelihood. For those who had in-clinic consultations it is reasonable to assume that the attempt to keep social distance during the consultations could have impaired the examinations.

One-third of respondents found it difficult to discuss their symptoms digitally. Technical solutions may include some challenges such as limited text available in email consultations, poor video quality, and problems with using electronic devices. Therefore, telehealth seems most suitable for simple issues, especially when there is a pre-existing relationship between the GP and patient [54]. Despite these limitations of the telehealth solutions, more than half reported that it was an advantage that more could be handled digitally, which may be important knowledge in the organisation of the post-pandemic healthcare system as well. This is in line with experiences from New Zealand and Australia, where most patients had positive experiences with the rapid implementation of telehealth services during the pandemic [55,56]. Telehealth solutions may be useful in the re-organisation of the increasingly strained and worn-out healthcare system, where prioritising of time and resources is needed [57]. The possibility of consulting the GP by video or phone provides easier access in a busy working schedule and eliminates barriers of transportation for patients with impaired mobility. Further, the lack of personal contact in some types of telehealth consultations makes it convenient for discussing sensitive topics like sexual health issues and for some mental health issues [58]. Yet, the relational limitation can also impair the management of mental health conditions which require the GP and patient to read non-verbal communication [59]. Moreover, telehealth can be challenging for some patient groups, e.g., older people who have lower digital health literacy compared to younger individuals [60]. For patients with less digital skills, phone consultations can be a solution where applicable [56].

Many countries experienced a decrease in life expectancy during the pandemic [61]. Denmark was one of the few countries with no change in life expectancy [62], possibly due to the non-pharmaceutical efforts such as lockdowns halting community transmission of COVID-19 until the vulnerable populations had been immunised by vaccination. Nevertheless, a substantial drop in cancer diagnoses was observed in the period of COVID-19, especially during the first lockdown [63], which indicates that there has been a change in healthcare contacts and cancer screening participation requiring physical presence [64,65]. This change may be related to some of the concerns addressed in this study, e.g. that some individuals were in doubt about what to contact the GP with, worried about infection, and worried about burdening the health care system.

Most respondents did not change their overall healthcare-seeking behaviour following the pandemic. However, ten percent of the respondents reported that they wait longer time before contacting their GP. It has been shown in other settings that lifting the restrictions were associated with an increase in some primary care services but not in others [66]. It is not possible to evaluate whether these shifts in post-pandemic healthcare seeking are problematic or not based on the present study.

Implications for research and practice

This study highlights some implications in case of a future lockdown. Many people were in doubt about acceptable reasons for contacting their GP and worried about putting an unnecessary burden on the healthcare system. Thus, it is important that the health authorities make a great effort to inform about how and when to use the healthcare system. Although the changes in healthcare services described were necessitated by the pandemic, the lessons learned from these rapid changes and implementations of telehealth solutions are valuable for the post pandemic everyday situation as well. Healthcare systems worldwide are seeing a growing demand due to aging populations, emerging treatment options, and a general lack of resources. Telehealth solutions are inevitably an important part of healthcare in the future, and this study highlights crucial aspects from the user perspective [67].

There was also a high number of respondents who found it difficult to discuss symptoms digitally. Both patients and GPs should be trained in using telehealth solutions, which requires they are incorporated in routine care [68]. Education of GPs will contribute to awareness of which consultation types can be handled

digitally and when in-clinic consultations are needed. Also, clear communication is important to establish a safety net for the patient, and to ensure that the rationale for skipping physical examinations is understood by the patient.

Although the majority did not change their overall healthcare-seeking behaviour, some respondents reported that they either contact their GP sooner or wait longer. More research is needed to investigate whether these changes of behaviour are appropriate or may cause delay when urgent care is needed.

Acknowledgements

We would like to thank all respondents of the Danish Symptom Cohort 2022. Also, thank to Maria Munch Storsveen for contributing to the statistical analyses.

Ethical approval

The invitees were informed that participation in the study was voluntary, and they had the opportunity to click on the resign link, if they did not want to participate. The invitation letter provided thorough information about the purpose of the study and the content of the questionnaire, and it explained that by answering the survey, participants consented to use of their data for research purposes in accordance with the Danish Data Legislation §10 (https://www.retsinformation.dk/eli/lta/2018/502). Respondents were informed that there would be no clinical follow-up, and they were instructed to contact their doctor in case of concerns about symptoms. Respondents who had questions to the study had the opportunity to contact the project group by phone or email for clarification. The project has been approved by the Research Ethics Committee at University of Southern Denmark (Case no. 21/29156), and by the Danish Data Protection Agency (j.no. 2011-41-6651) through the Research and Innovation Organisation (RIO), University of Southern Denmark (Project number 10.104).

Disclosure statement

No potential conflict of interest was reported by the author(s).

Funding

The project was funded by the Danish Cancer Society [grant no. R321-A17518], Region of Southern Denmark [grant no. 21/17597], and the Foundation for General Practice [grant no. A2742]. The fundings sources did not have any influence on the design of the study.

ORCID

Isabella Raasthøj Holst http://orcid.org/0000-0002-7076-9320
Lisa Maria Sele Sætre http://orcid.org/0000-0002-2029-3301
Gitte Bruun Lauridsen http://orcid.org/0000-0003-2729-6182
Kirubakaran Balasubramaniam http://orcid.org/0000-0002-3612-1731
Peter Haastrup http://orcid.org/0000-0001-7265-743X
Sonja Wehberg http://orcid.org/0000-0003-1503-2649
Dorte Ejg Jarbøl http://orcid.org/0000-0002-3241-4190

Data availability statement

The datasets generated and analysed in the current study are not publicly available and cannot be shared due to the data protection regulations of the Danish Data Protection Agency. Access to data is strictly limited to the researchers who have obtained permission for data processing. This permission was given to the Research Unit of General Practice, Department of Public Health, University of Southern Denmark. Further inquiries can be made to the Principal Investigator Dorte Jarbøl (email: DJarbol@health.sdu.dk).

References

[1] Lyngse FP, Kirkeby C, Halasa T, et al. Nationwide study on SARS-CoV-2 transmission within households from lockdown to reopening, Denmark, 27 February 2020 to 1 August 2020. Euro Surveill. 2022;27(6):2001800. doi: 10.2807/1560-7917.ES.2022.27.6.2001800.
[2] Regioner D. Videokonsultationer skal mindske smitterisikoen hos de praktiserende læger ; 2020. Available from: https://www.regioner.dk/services/nyheder/2020/marts/videokonsultationer-skal-mindske-smitterisikoen-hos-de-praktiserende-laeger.
[3] PLO. Almen praksis under COVID-19: Hurtig omstilling sikrede danskerne lægehjælp på video og telefon i starten af coronakrisen. Praktiserende Lægers Organisation (PLO) [The Danish Organization of General Practitioners]. 2020.
[4] Huibers L, Bech BH, Kirk UB, et al. Contacts in general practice during the COVID-19 pandemic: a register-based study. Br J Gen Pract. 2022;72(724):e799–e808. doi: 10.3399/BJGP.2021.0703.
[5] Glazier RH, Green ME, Wu FC, et al. Shifts in office and virtual primary care during the early COVID-19 pandemic in Ontario, Canada. CMAJ. 2021;193(6):e200–e210. doi: 10.1503/cmaj.202303.
[6] Alexander GC, Tajanlangit M, Heyward J, et al. Use and content of primary care office-based vs telemedicine care visits during the COVID-19 pandemic in the US. JAMA Netw Open. 2020;3(10):e2021476. doi: 10.1001/jamanetworkopen.2020.21476.
[7] Patel SY, Mehrotra A, Huskamp HA, et al. Trends in outpatient care delivery and telemedicine during the COVID-19 pandemic in the US. (2168-6114 (Electronic)).
[8] Hardcastle LA-O, Ogbogu U. Virtual care: enhancing access or harming care? (0840-4704 (Print)).
[9] Smolić Š, Blaževski N, Fabijančić M. Remote healthcare during the COVID-19 pandemic: findings for Older Adults in 27 European Countries and Israel. Front Public Health. 2022;10:921379. doi: 10.3389/fpubh.2022.921379.
[10] Dinmohamed AG, Visser O, Verhoeven RHA, et al. Fewer cancer diagnoses during the COVID-19 epidem-

ic in the Netherlands. Lancet Oncol. 2020;21(6):750–751. doi: 10.1016/S1470-2045(20)30265-5.
[11] Simon J, Helter TM, White RG, et al. Impacts of the Covid-19 lockdown and relevant vulnerabilities on capability well-being, mental health and social support: an Austrian survey study. BMC Public Health. 2021;21(1):314. doi: 10.1186/s12889-021-10351-5.
[12] Loades ME, Chatburn E, Higson-Sweeney N, et al. Rapid systematic review: the impact of social isolation and loneliness on the mental health of children and adolescents in the context of COVID-19. J Am Acad Child Adolesc Psychiatry. 2020;59(11):1218–1239.e3. doi: 10.1016/j.jaac.2020.05.009.
[13] Angelini M, Teglia F, Astolfi L, et al. Decrease of cancer diagnosis during COVID-19 pandemic: a systematic review and meta-analysis. Eur J Epidemiol. 2023;38(1):31–38. doi: 10.1007/s10654-022-00946-6.
[14] Sandvik H, Hetlevik Ø, Blinkenberg J, et al. Continuity in general practice as predictor of mortality, acute hospitalisation, and use of out-of-hours care: a registry-based observational study in Norway. Br J Gen Pract. 2022;72(715):e84–e90. doi: 10.3399/BJGP.2021.0340.
[15] Nshimirimana DA, Kokonya D, Gitaka J, et al. Impact of COVID-19 on health-related quality of life in the general population: a systematic review and meta-analysis. PLOS Glob Public Health. 2023;3(10):e0002137. doi: 10.1371/journal.pgph.0002137.
[16] Hashim MM, Edgeworth DM, Saunders JA, et al. Patient's perceptions of physical examination in the setting of chronic pain. Ir J Med Sci. 2021;190(1):313–316. doi: 10.1007/s11845-020-02250-2.
[17] Duan L, Mukherjee EM, Federman DG. The physical examination: a survey of patient preferences and expectations during primary care visits. Postgrad Med. 2020;132(1):102–108. doi: 10.1080/00325481.2020.1713618.
[18] Shaver J. The state of telehealth before and after the COVID-19 pandemic. Prim Care. 2022;49(4):517–530. doi: 10.1016/j.pop.2022.04.002.
[19] Pedersen CB. The Danish civil registration system. Scand J Public Health. 2011;39(7 Suppl):22–25. doi: 10.1177/1403494810387965.
[20] Sætre LMS, Raasthøj I, Lauridsen GB, et al. Revisiting the symptom iceberg based on the Danish symptom cohort – Symptom experiences and healthcare-seeking behaviour in the general Danish population in 2022. Heliyon. 2024;10(10):e31090. doi: 10.1016/j.heliyon.2024.e31090.
[21] Simon AE, Forbes LJL, Boniface D, et al. An international measure of awareness and beliefs about cancer: development and testing of the ABC. BMJ Open. 2012;2(6):e001758. doi: 10.1136/bmjopen-2012-001758.
[22] Hvidberg L, Pedersen AF, Wulff CN, et al. Measurement properties of the Danish version of the Awareness and Beliefs about Cancer (ABC) measure. BMC Med Res Methodol. 2017;17(1):74. doi: 10.1186/s12874-017-0352-2.
[23] Quinn-Scoggins HD, Cannings-John R, Moriarty Y, et al. Cancer symptom experience and help-seeking behaviour during the COVID-19 pandemic in the UK: a cross-sectional population survey. BMJ Open. 2021;11(9):e053095. doi: 10.1136/bmjopen-2021-053095.
[24] Whitelock VWK, Waller J, Quinn-Scoggins H, et al. COVID Cancer Awareness Measure (COVID-CAM) wave 1 2020 2021 [updated 2021-02-23; cited 2023 23 Mar]. Cancer Research UK's COVID Cancer Awareness Measure survey wave 1 (2020)]. Available from: https://osf.io/uevna.
[25] Fritagelse fra Digital Post [Exemption from digital post]: Agency for Digital Government; 2024. Available from: https://www.borger.dk/hjaelp-og-vejledning/hvad-har-du-brug-for-hjaelp-til/digital-post/fritagelse-fra-digital-post.
[26] Petersson F, Baadsgaard M, Thygesen LC. Danish registers on personal labour market affiliation. Scand J Public Health. 2011;39(7 Suppl):95–98. doi: 10.1177/1403494811408483.
[27] Baadsgaard M, Quitzau J. Danish registers on personal income and transfer payments. Scand J Public Health. 2011;39(7 Suppl):103–105. doi: 10.1177/1403494811405098.
[28] Jensen VM, Rasmussen AW. Danish education registers. Scand J Public Health. 2011;39(7 Suppl):91–94. doi: 10.1177/1403494810394715.
[29] Jensen HAR, Ekholm O, Davidsen M, et al. The Danish health and morbidity surveys: study design and participant characteristics. BMC Med Res Methodol. 2019;19(1):91. doi: 10.1186/s12874-019-0733-9.
[30] Nicholson BD, Ordóñez-Mena JM, Lay-Flurrie S, et al. Consultations for clinical features of possible cancer and associated urgent referrals before and during the COVID-19 pandemic: an observational cohort study from English primary care. Br J Cancer. 2022;126(6):948–956. doi: 10.1038/s41416-021-01666-6.
[31] Skovlund CW, Friis S, Dehlendorff C, et al. Hidden morbidities: drop in cancer diagnoses during the COVID-19 pandemic in Denmark. Acta Oncol. 2021;60(1):20–23. doi: 10.1080/0284186X.2020.1858235.
[32] Mokkink LB, Terwee CB, Patrick DL, et al. The COSMIN study reached international consensus on taxonomy, terminology, and definitions of measurement properties for health-related patient-reported outcomes. J Clin Epidemiol. 2010;63(7):737–745. doi: 10.1016/j.jclinepi.2010.02.006.
[33] Mokkink LB, de Vet HCW, Prinsen CAC, et al. COSMIN risk of bias checklist for systematic reviews of patient-reported outcome measures. Qual Life Res. 2018;27(5):1171–1179. doi: 10.1007/s11136-017-1765-4.
[34] Kripalani S, Goggins K, Couey C, et al. Disparities in research participation by level of health literacy. Mayo Clin Proc. 2021;96(2):314–321. doi: 10.1016/j.mayocp.2020.06.058.
[35] Hange N, Agoli AM, Pormento MKL, et al. Impact of COVID-19 response on public health literacy and communication. Health Promot Perspect. 2022;12(1):1–9. doi: 10.34172/hpp.2022.01.
[36] Sørensen AIV, Spiliopoulos L, Bager P, et al. A nationwide questionnaire study of post-acute symptoms and health problems after SARS-CoV-2 infection in Denmark. Nat Commun. 2022;13(1):4213. doi: 10.1038/s41467-022-31897-x.
[37] Friis KJM, Pedersen MH, Lasgaard M, et al. Hvordan har du det? 2021 – Sundhedsprofil for region og kommuner (Bind 1); 2022. Århus, Central Region of Denmark. Report No.: 978-87-93657-30-4.
[38] Stull DE, Leidy NK, Parasuraman B, et al. Optimal recall periods for patient-reported outcomes: challenges and

potential solutions. Curr Med Res Opin. 2009;25(4):929–942. doi: 10.1185/03007990902774765.
[39] Fortin M, Haggerty J, Sanche S, et al. Self-reported versus health administrative data: implications for assessing chronic illness burden in populations. A cross-sectional study. CMAJ Open. 2017;5(3):e729–e33. doi: 10.9778/cmajo.20170029.
[40] Nicholson K, Almirall J, Fortin M. The measurement of multimorbidity. Health Psychol. 2019;38(9):783–790. doi: 10.1037/hea0000739.
[41] Willadsen TG, Bebe A, Køster-Rasmussen R, et al. The role of diseases, risk factors and symptoms in the definition of multimorbidity – a systematic review. Scand J Prim Health Care. 2016;34(2):112–121. doi: 10.3109/02813432.2016.1153242.
[42] Huntley AL, Johnson R, Purdy S, et al. Measures of multimorbidity and morbidity burden for use in primary care and community settings: a systematic review and guide. Ann Fam Med. 2012;10(2):134–141. doi: 10.1370/afm.1363.
[43] Robinson KML, Jeppesen M, Vind AB, et al. Kroniske sygdomme – hvordan opgøres kroniske sygdomme. 2011. [Chronic diseases – how are chronic diseases measured]. Forskningscenter for Forebyggelse og Sundhed.
[44] Nab M, van Vehmendahl R, Somers I, et al. Delayed emergency healthcare seeking behaviour by Dutch emergency department visitors during the first COVID-19 wave: a mixed methods retrospective observational study. BMC Emerg Med. 2021;21(1):56. doi: 10.1186/s12873-021-00449-9.
[45] Vervloet TS, Ribeiro FS, Batista PHM, et al. Technology and innovation in enhancing primary health care: the role of digital solutions in strengthening healthcare systems, Chapter 22. Seven Editora. 2023. doi: 10.56238/globalhealthprespesc-022.
[46] Splinter MJ, Velek P, Ikram MK, et al. Prevalence and determinants of healthcare avoidance during the COVID-19 pandemic: a population-based cross-sectional study. PLoS Med. 2021;18(11):e1003854. doi: 10.1371/journal.pmed.1003854.
[47] D'Angelo S, Bevilacqua G, Bloom I, et al. Predictors and consequences of not seeking healthcare during the COVID-19 pandemic: findings from the HEAF Cohort. Int J Environ Res Public Health. 2022;19(20):50. doi: 10.3390/ijerph192013271.
[48] Mularczyk-Tomczewska P, Zarnowski A, Gujski M, et al. Barriers to accessing health services during the COVID-19 pandemic in Poland: a nationwide cross-sectional survey among 109,928 adults in Poland. Front Public Health. 2022;10:986996. doi: 10.3389/fpubh.2022.986996.
[49] Quadros S, Garg S, Ranjan R, et al. Fear of COVID 19 infection across different cohorts: a scoping review. Front Psychiatry. 2021;12:708430. doi: 10.3389/fpsyt.2021.708430.
[50] Bäuerle A, Teufel M, Musche V, et al. Increased generalized anxiety, depression and distress during the COVID-19 pandemic: a cross-sectional study in Germany. J Public Health. 2020;42(4):672–678. doi: 10.1093/pubmed/fdaa106.
[51] Figliozzi S, Masci PG, Ahmadi N, et al. Predictors of adverse prognosis in COVID-19: a systematic review and meta-analysis. Eur J Clin Invest. 2020;50(10):e13362. doi: 10.1111/eci.13362.
[52] Chung AF, Teasell MJ, Pergher V, et al. Fear of COVID-19 is associated with trust, subjective numeracy, and differentially with loneliness in older versus younger adults. Front Psychol. 2023;14:1080631. doi: 10.3389/fpsyg.2023.1080631.
[53] Reiersen J, Roll K, Williams JD, et al. Trust: a double-edged sword in combating the COVID-19 pandemic? Front Commun. 2022;7:302. doi: 10.3389/fcomm.2022.822302.
[54] Ward K, Vagholkar S, Sakur F, et al. Visit types in primary care with telehealth use during the covid-19 pandemic: systematic review. JMIR Med Inform. 2022;10(11):e40469. doi: 10.2196/40469.
[55] Imlach F, McKinlay E, Middleton L, et al. Telehealth consultations in general practice during a pandemic lockdown: survey and interviews on patient experiences and preferences. BMC Fam Pract. 2020;21(1):269. doi: 10.1186/s12875-020-01336-1.
[56] Javanparast S, Roeger L, Kwok Y, et al. The experience of Australian general practice patients at high risk of poor health outcomes with telehealth during the COVID-19 pandemic: a qualitative study. BMC Fam Pract. 2021;22(1):69. doi: 10.1186/s12875-021-01408-w.
[57] Aaby A, Meldgaard M, Ht M. Health literacy in the danish healthcare organisation. A path towards equity; 2020. Danish Health Authority;. Report No.: 978-87-7014-466-7.
[58] Moschogianis S, Darley S, Coulson T, et al. Patient experiences of an online consultation system: a qualitative study in English primary care post-COVID-19. Br J Gen Pract. 2024;74(744):e489–e497. doi: 10.3399/BJGP.2023.0076.
[59] Due TD, Thorsen T, Andersen JH. Use of alternative consultation forms in Danish general practice in the initial phase of the COVID-19 pandemic – a qualitative study. BMC Fam Pract. 2021;22(1):108. doi: 10.1186/s12875-021-01468-y.
[60] Estrela M, Semedo G, Roque F, et al. Sociodemographic determinants of digital health literacy: a systematic review and meta-analysis. Int J Med Inform. 2023;177:105124. doi: 10.1016/j.ijmedinf.2023.105124.
[61] Schöley J, Aburto JM, Kashnitsky I, et al. Life expectancy changes since COVID-19. Nat Hum Behav. 2022;6(12):1649–1659. doi: 10.1038/s41562-022-01450-3.
[62] Mills EHA, Møller AL, Gnesin F, et al. National all-cause mortality during the COVID-19 pandemic: a Danish registry-based study. Eur J Epidemiol. 2020;35(11):1007–1019. doi: 10.1007/s10654-020-00680-x.
[63] Skovlund CW, Friis S, Christensen J, et al. Drop in cancer diagnosis during the COVID-19 pandemic in Denmark: assessment of impact during 2020. Acta Oncol. 2022;61(5):658–661. doi: 10.1080/0284186X.2021.2024879.
[64] Olesen TB, Jensen H, Møller H, et al. Participation in the nationwide cervical cancer screening programme in Denmark during the COVID-19 pandemic: an observational study. Elife. 2023;12:522. doi: 10.7554/eLife.81522.
[65] Olesen TB, Jensen H, Møller H, et al. Nationwide participation in FIT-based colorectal cancer screening in Denmark during the COVID-19 pandemic: an observational study. Elife. 2023;12:11. doi: 10.7554/eLife.81808.
[66] Kapoor NR, Aryal A, Mehata S, et al. Effect of lifting COVID-19 restrictions on utilisation of primary care services

in Nepal: a difference-in-differences analysis. BMJ Open. 2022;12(11):e061849. doi: 10.1136/bmjopen-2022-061849.

[67] Vodička S, Zelko E. Remote consultations in general practice – a systematic review. Zdr Varst. 2022;61(4):224–230. doi: 10.2478/sjph-2022-0030.

[68] Smith AC, Thomas E, Snoswell CL, et al. Telehealth for global emergencies: implications for coronavirus disease 2019 (COVID-19). J Telemed Telecare. 2020;26(5):309–313. doi: 10.1177/1357633X20916567.