Common Symptoms in COVID-19 Confirmed Cases Followed-Up at Home by Primary Healthcare Services

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ABSTRACT

Aim: This study aims to determine common symptoms in COVID-19 confirmed patients who were followed up at home by primary health care services.

Methods: This descriptive study was conducted in Kırklareli, Turkey between July 2020 and December 2020. The study was conducted with 315 patients aged 18 years and over who were confirmed positive by the Polymerase Chain Reaction test and followed up at home by a Family Health Center.

Results: The mean age of the participants was 43.13±16.33 years. 53.7% were male, 87% lived in rural areas, 98.1% had health insurance and 54.9% were employed. Of the adults, 5.1% had the adult vaccine and 25.4% had a chronic disease. While at least one symptom was observed in 84.8% of the patients, 15.2% had no symptoms. The symptoms detected among the participants were cough (26.3%), headache (26.3%), and high fever (24.1%). The frequency of symptoms was higher in women than in men, and myalgia, arthralgia, nausea, and vomiting were also more frequent. The symptom of chills was more common in adults at 40 years and over compared to those under 40.

Conclusion: In case of cough, headache, or high fever among adults, a healthcare provider should be consulted and screening for other symptoms. In terms of follow-up, symptom management, and treatment of the disease, women, and individuals 40 years and over should be prioritized, carefully followed up, and provided with the necessary isolation. There are also asymptomatic cases of COVID-19 disease. Isolation of asymptomatic patients is also important because of the high contagiousness of the disease.

Keywords: COVID-19, symptoms, primary care, home care

Introduction

2019-nCov, a new coronavirus first appeared in Wuhan, China in late 2019 (1,2). The World Health Organization (WHO) named it Severe Acute Respiratory Syndrome-Coronavirus-2 (SARS-CoV-2) and the disease it causes as Corona Virus Disease 2019 (COVID-19). The WHO defined COVID-19 as a public health problem that needs urgent action around the world (2). The symptomatic case of COVID-19 was reported as a person who developed signs and symptoms suggestive of COVID-19, but the disease was also observed to progress in a symptomatic and asymptomatic manner (3). COVID-19, which is a highly contagious infection with high fatality and virulence, spreads largely through droplets and direct contact. It is known that the incubation period lasts an average of 5.5 days however, it has an incubation period that can extend up to 14 days (4,5).

A wide range of symptoms from mild to severe disease has been reported in people with COVID-19, the most common symptoms include fever (83-99%), cough (59-82%), fatigue (44-70%), anorexia (40-84%), shortness of breath (31-40%) and myalgias (11-35%) are shown. Apart from these, other nonspecific symptoms such as a sore throat, nasal congestion, headache, diarrhea, nausea and vomiting, loss of taste (ageusia), or loss of smell (anosmia) have been reported (3). A study reported fever in 100%, dyspnea in 92%, cough in 85%, and myalgia or fatigue fever in 54% of patients in intensive care units (ICU); and these rates in non-ICU patients were reported as 96%, 37%, 71%, and 39%, respectively (6). In another study, fever and cough were found to be the most common symptoms (7). However, studies have emphasized that the disease may be asymptomatic in some individuals and therefore carry the risk of contagion. Therefore, the importance of social isolation is emphasized until an effective vaccine is found (8).

While the symptoms of dry cough, sore throat, and fever disappear by themselves in most COVID-19 patients, it causes various fatal complications such as organ failure, septic shock, pulmonary edema, severe pneumonia, and acute respiratory distress syndrome (ARDS) in some patients (9). Patients with suspected COVID-19 or confirmed COVID-19 patients with a good general condition, and patients with contact are tracked and treated in the home setting (10,11). This study aims to determine common symptoms in COVID-19 confirmed patients who were followed up at home by primary health care services.

Methods

This descriptive study was conducted in a rural district of Kırklareli, Turkey between July 2020 and December 2020. Polymerase Chain Reaction (PCR) test of a total of 346 people among those who were registered in the Family Health Center (FHC) between the study dates was confirmed to be positive, and they were followed up at home in the scope of the home patient follow-up protocol. No sample was selected in the study, and the study was carried out with 315 patients. In this study, those who were 18 years of age and above, who were followed up at home by FHC, who volunteered to participate in the study, and who had a confirmed positive PCR test were included. Patients who did not meet the inclusion criteria were excluded from the study.

Homecare Protocol for Patients with Confirmed COVID-19: According to the home monitoring of COVID-19 patients protocol of the Republic of Turkey Ministry of Health in confirmed COVID-19 cases; confirmed COVID-19 cases, who are thought to not require hospitalization, are below 50 years of age, with a mild clinical picture, without any risk factors (hypertension, diabetes, etc.) that aggravate the course of COVID-19, without any of the poor prognostic factors (LYM<800/µL, serum CRP>10x Upper limit of normal value, FERR>500ng/mL, D-Dimer>1000 ng/mL) are followed-up at the home environment with suitable treatment until their symptoms improve (except for individuals with a social indication). Patients who are hospitalized and meet the discharge criteria can complete their recovery period at home. Patients whose case status is updated as "Discharged, Follow-up at Home" should be isolated in the specified places during their isolation period (11). These cases use Hydroxychloroquine 200 mg tablet (2x200 mg)

and/or Favipiravir 200 mg tablet (2x1600 mg loading and 2x600 mg maintenance) for 5 days according to Adult Patient Treatment Guideline of the Ministry of Health (12).

The data were collected with the help of a questionnaire form developed by the researchers based on the literature (3,6,8,9). People who were had a PCR test confirmed positive and reported at least one symptom at the time of the study were defined as "symptomatic cases" and those who had no symptoms as "asymptomatic cases". In addition, pre-symptomatic cases were considered asymptomatic cases if they reported no symptoms at the time of the investigation. The patients who were followed up daily were asked questions in the questionnaire form about sociodemographic characteristics such as age, gender, place of residence, social security, immunization status, some descriptive characteristics such as the presence of chronic disease, epidemiological history of coronavirus disease, and symptoms. These symptoms were questioned within the first 3 days after the patient was diagnosed with COVID-19, and the findings of the previous two days were also recorded. Also, the analgesic or antipyretic use of the patients was questioned according to the recommendations of the doctor, and the data were recorded considering this. For example, the use of antipyretic by one patient due to high fever (higher than 37.5 degrees Celsius) was recorded as having high fever symptoms. Each patient was interviewed only once. When the patients could not be reached, they were called again at different times, and the data of the patients whose approval was obtained were recorded in the database.

Number (n), percentage (%), mean and standard deviation (± SD) for descriptive measures were used in the analysis. Age was grouped by stratification from the value closest to the median. Pearson Chi-Square and Fisher's Exact Tests were used for the comparison of the symptoms by gender and age groups. A p-value of <0.05 was accepted as statistically significant. Analyzes were made with the IBM-SPSS 22.0 package program.

The approval from the Ethics Committee of Kırklareli University Institute of Health Sciences was obtained within the scope of the study. To carry out the research, permission was obtained from the Turkish Ministry of Health within the scope of Scientific Research Studies on COVID-19. Before the data collection via telephone interviews, the volunteers were asked if they would like to participate in the study, and their verbal approval was obtained.

Results

The distribution of the descriptive characteristics of the participants is given in Table 1. The average age of the participants was 43.13±16.33 years (min=18, max=92, median=41), and 53.7% were male. 87% of the adult participants were living in rural areas, 98.1% had health insurance and 54.9% were working in an income-generating job. It was found that 5.1% of adults had adult immunization. 2.5% of them had the influenza vaccine and 2.5% had the pneumococcal vaccine. 25.4% of the participants had a chronic disease, 7.9% had comorbidity, where hypertension (16.8%) and diabetes (7.0%) were the most common among these diseases. While 84.8% of the participants had at least one symptom, 15.2% had no symptoms. While there was no significant difference between age groups in COVID-19 patients (p=0.185), women were found to be significantly more symptomatic than men (p=0.010). No difference was found between other descriptive features and symptom occurrence.

Table 2 shows the distribution of symptoms observed in COVID-19 confirmed adults by gender and age. Common symptoms among participants were cough (26.3%), headache (26.3%), high fever (24.1%), fatigue (21.9%), arthralgia (21.9%), myalgia (19.4%), sore throat (19.0%) and malaise (17.5%). The minor symptoms included a runny nose, chills, anosmia, ageusia, dry throat, dyspnea, diarrhea, chest pain, nausea and vomiting, and phlegm.

Ninety point four percent of women, 79.9% of men, 81.8% of adults under 40, and 87.2% of adults aged 40 and over had symptoms. The frequency of symptoms in women was found to be statistically significantly higher than in men (p=0.010). When the types of symptoms were examined by gender, myalgia (p=0.013), arthralgia (p=0.028), and nausea and

vomiting (p=0.049) were found to be significantly more frequent in women than in men.

Table 1. Distribution of the descriptive characteristics of the participants

Variables	All (n=315) n (%)	Asymptomatic (n=48, 15.2%) n (%)	Symptomatic (n=267, 84.8%) n (%)	*p*-value[*]
Age (years)				
<40	143 (45.4)	26 (18.2)	117 (81.8)	0.185
≥40	172 (54.6)	22 (12.8)	150 (87.2)	
Sex				
Female	146 (46.3)	14 (9.6)	132 (90.4)	**0.010**
Male	169 (53.7)	34 (20.1)	135 (79.9)	
Residence				
Urban	41 (13.0)	3 (7.3)	38 (92.7)	0.130
Rural	274 (87.0)	45 (16.4)	229 (83.6)	
Health insurance				
No	6 (1.9)	2 (33.3)	4 (66.7)	0.228[**]
Yes	309 (98.1)	46 (14.9)	263 (85.1)	
Employment status				
No	142 (45.1)	17 (12.0)	125 (88.0)	0.144
Yes	173 (54.9)	31 (17.9)	142 (82.1)	
Immunization				
No	299 (94.9)	45 (15.1)	254 (84.9)	0.719[**]
Yes	16 (5.1)	3 (18.8)	13 (81.3)	
Influenza vaccine				
No	307 (97.5)	46 (15.0)	261 (85.0)	0.351[**]
Yes	8 (2.5)	2 (25.0)	6 (75.0)	
Pneumococcal vaccine				
No	307 (97.5)	47 (15.3)	260 (84.7)	1.000[**]
Yes	8 (2.5)	1 (12.5)	7 (87.5)	
Presence of chronic diseases				
No	235 (74.6)	41 (17.4)	194 (82.6)	0.062
Yes	80 (25.4)	7 (8.8)	73 (91.3)	
Hypertension				
No	262 (83.2)	44 (16.8)	218 (83.2)	0.088
Yes	53 (16.8)	4 (7.5)	49 (92.5)	
Diabetes				
No	293 (93.0)	45 (15.4)	248 (84.6)	1.000[**]
Yes	22 (7.0)	3 (13.6)	19 (86.4)	
Chronic heart disease				
No	297 (94.3)	48 (16.2)	249 (83.8)	NA
Yes	18 (5.7)	0 (0.0)	18 (100.0)	
Chronic lung disease				
No	310 (98.4)	47 (15.2)	263 (84.8)	NA
Yes	5 (1.6)	1 (20.0)	4 (80.0)	
Chronic renal disease				
No	311 (98.7)	48 (15.4)	263 (84.6)	NA
Yes	4 (1.3)	0 (0.0)	4 (100.0)	
Comorbidities				
No	290 (92.1)	47 (16.2)	243 (83.8)	0.146
Yes	25 (7.9)	1 (4.0)	24 (96.0)	

*Pearson Chi-Square Test. **Fishers Exact Test.*

Headache (28.0%), high fever (23.8%), cough (21.7%), arthralgia (18.9%) were the most common symptoms in adults under 40; and cough (30.2%), fatigue (25.0%), headache (25.0%), high fever (24.4%) and arthralgia (24.4%) in adults at or over the age of 40. Chills were more common in those aged 40 or over than in those under 40 years of age (p=0.005) (Table 2).

Table 2. The distribution of symptoms observed in COVID-19 confirmed adults by gender and age

Symptoms	All	Sex			Age		
		Female	Male		<40 years	≥40 years	
	n (%)	n (%)	n (%)	*p*-value*	n (%)	n (%)	*p*-value*
Cough							
No	232 (73.7)	105 (71.9)	127 (75.1)	0.516	112 (78.3)	120 (69.8)	0.086
Yes	83 (26.3)	41 (28.1)	42 (24.9)		31 (21.7)	52 (30.2)	
Headache							
No	232 (73.7)	101 (69.2)	131 (77.5)	0.094	103 (72.0)	129 (75.0)	0.551
Yes	83 (26.3)	45 (30.8)	38 (22.5)		40 (28.0)	43 (25.0)	
High fever							
No	239 (75.9)	114 (78.1)	125 (74.0)	0.394	109 (76.2)	130 (75.6)	0.894
Yes	76 (24.1)	32 (21.9)	44 (26.0)		34 (23.8)	42 (24.4)	
Fatigue							
No	246 (78.1)	115 (78.8)	131 (77.5)	0.789	117 (81.8)	129 (75.0)	0.145
Yes	69 (21.9)	31 (21.2)	38 (22.5)		26 (18.2)	43 (25.0)	
Arthralgia							
No	246 (78.1)	106 (72.6)	140 (82.8)	**0.028**	116 (81.1)	130 (75.6)	0.237
Yes	69 (21.9)	40 (27.4)	29 (17.2)		27 (18.9)	42 (24.4)	
Myalgia							
No	254 (80.6)	109 (74.7)	145 (85.8)	**0.013**	118 (82.5)	136 (79.1)	0.441
Yes	61 (19.4)	37 (25.3)	24 (14.2)		25 (17.5)	36 (20.9)	
Sore throat							
No	255 (81.0)	114 (78.1)	141 (83.4)	0.228	117 (81.8)	138 (80.2)	0.721
Yes	60 (19.0)	32 (21.9)	28 (16.6)		26 (18.2)	34 (19.8)	
Malaise							
No	260 (82.5)	120 (82.2)	140 (82.8)	0.880	121 (84.6)	139 (80.8)	0.376
Yes	55 (17.5)	26 (17.8)	29 (17.2)		22 (15.4)	33 (19.2)	
Runny nose							
No	268 (85.1)	119 (81.5)	149 (88.2)	0.098	121 (84.6)	147 (85.5)	0.833
Yes	47 (14.9)	27 (18.5)	20 (11.8)		22 (15.4)	25 (14.5)	
Chills							
No	272 (86.3)	128 (87.7)	144 (85.2)	0.525	132 (92.3)	140 (81.4)	**0.005**
Yes	43 (13.7)	18 (12.3)	25 (14.8)		11 (7.7)	32 (18.6)	
Anosmia							
No	285 (90.5)	128 (87.7)	157 (92.9)	0.115	127 (88.8)	158 (91.9)	0.359
Yes	30 (9.5)	18 (12.3)	12 (7.1)		16 (11.2)	14 (8.1)	
Ageusia							
No	293 (93.0)	134 (91.8)	159 (94.1)	0.424	130 (90.9)	163 (94.8)	0.181
Yes	22 (7.0)	12 (8.2)	10 (5.9)		13 (9.1)	9 (5.2)	
Dry throat							
No	293 (93.0)	132 (90.4)	161 (95.3)	0.092	137 (95.8)	156 (90.7)	0.077
Yes	22 (7.0)	14 (9.6)	8 (4.7)		6 (4.2)	16 (9.3)	
Dyspnoea							
No	295 (93.7)	134 (91.8)	161 (95.3)	0.206	137 (95.8)	158 (91.9)	0.153
Yes	20 (6.3)	12 (8.2)	8 (4.7)		6 (4.2)	14 (8.1)	
Diarrhea							
No	296 (94.0)	136 (93.2)	160 (94.7)	0.571	133 (93.0)	163 (94.8)	0.513
Yes	19 (6.0)	10 (6.8)	9 (5.3)		10 (7.0)	9 (5.2)	
Chest pain							
No	300 (95.2)	138 (94.5)	162 (95.9)	0.578	134 (93.7)	166 (96.5)	0.244
Yes	15 (4.8)	8 (5.5)	7 (4.1)		9 (6.3)	6 (3.5)	
Nausea & vomiting							
No	305 (96.8)	138 (94.5)	167 (98.8)	**0.049****	137 (95.8)	168 (97.7)	0.521**
Yes	10 (3.2)	8 (5.59)	2 (1.2)		6 (4.2)	4 (2.3)	
Phlegm							
No phlegm	307 (97.5)	140 (95.9)	167 (98.8)	0.151**	139 (97.2)	168 (97.7)	1.000**
Yes	8 (2.5)	6 (4.1)	2 (1.2)		4 (2.8)	4 (2.3)	

*Pearson's Chi-Square Test. **Fisher's Exact Test.*

Discussion

While 84.8% of the participants had at least one symptom, 15.2% had no symptoms, and the frequency of symptoms in women was higher than in men. A meta-analytical study where higher rates were reported than in our study reported that the leading clinical symptoms of COVID-19 patients were fever (88.5%), cough (68.6%), myalgia or fatigue (35.8%), expectoration (28.2%), dyspnea (21.9%), headache or dizziness (12.1%), diarrhea (4.8%), and nausea and vomiting (3.9%). All symptoms were at a higher rate in males (5). Asymptomatic cases were also reported in COVID-19 patients who were reported as positive by PCR tests (8,13). Another study found that approximately one-fifth of individuals were asymptomatic and their viral loads were similar to those in symptomatic patients (14). In another study, it was reported that younger patients had fewer symptoms and milder disease states, and older male patients had more severe symptoms after hospitalization (15). Dai et al. (16) showed that women and younger patients were more common in asymptomatic cases, and being male and older was effective in symptomatic cases. Considering that COVID-19 disease progresses with mild symptoms in our patients who are followed up and/or treated at home, it can be said that our results are compatible with the literature.

It has been emphasized that high fever is the most common symptom among the major symptoms of COVID-19 disease (6,7,17). In our study, it was found that high fever and chills were observed in patients diagnosed with COVID-19 disease and chills were significantly higher in those below 40 years of age compared to those at or above 40 years of age. Sun et al. (18) reported that the fever symptom was observed in 82.1% of the patients. Tian et al. (19) reported fever in 82.1%, while Tenforde et al. (20) reported fever in 55%, chills in 52% of outpatients, and fever in 68%, and chills in 60% of inpatients. It is stated in the literature that fever clinics should be included in hospitals for the examination of suspected patients with fever in the effective fight against COVID-19

disease (21). However, small groups of individuals with one or more fever symptoms during the pandemic process are defined as the suspected case group in terms of COVID-19 disease (22). It is emphasized that drug therapy is important in the treatment of COVID-19 patients to reduce high fever (23). Considering that this finding, which has been observed at different frequencies in the literature, is consistent with our study and that severe cases are hospitalized, it is seen that our results support the literature findings.

In the study, it was determined that the patients experienced fatigue and malaise symptoms, and these findings did not differ by gender and age group. Myalgia and arthralgia were observed at a significantly higher rate in women than in men. It has been shown in similar studies that these symptoms are common in COVID-19 patients (6,8,18,19,24). Mei et al. (15) reported more fatigue and muscle pain in men than in women; Tenforde et al. (20) found that fatigue and body pain were higher in outpatient patients; while Dai et al. (16) reported higher rates of women being asymptomatic. The fact that myalgia symptoms are more common in women has been associated with the body muscle structure of women and body deformations due to menopause. These other symptoms may be due to the characteristics of the participants which lead to a decrease in daily life activities, self-care, and quality of life. It is recommended that COVID-19 patients treated at home should be supported with social support systems for the management of these symptoms, and pain management should be included in their treatment and care.

Although not significant by gender and age groups, symptoms of sore throat, dry throat, cough, sputum, dyspnea, and chest pain were observed in our study. Kim et al. (8) reported sore throat in one-fifth of symptomatic COVID-19 patients in the study; Tenforde et al. (20) reported that approximately half of the outpatients had a complaint of cough. Common symptoms in COVID-19 patients in the literature include cough, sputum, dyspnea, and chest pain (8,19,24-26). Huang et al. (6) reported dyspnea symptoms in more than half of the patients and

observed that this symptom appeared 8 days after the disease diagnosis and progressed as ARDS on the 9th day. Sun et al. (18), in their study, found that 14.8% of the patients had ARDS. It is observed that the course of COVID-19 disease, which manifests with dyspnea in the first days, gradually worsens and patients need mechanical ventilation (6). Tenforde et al. (20) emphasized that inpatients experienced more dyspnea than outpatients with COVID-19. It is stated that patients with symptoms of fever along with cough and dyspnea should seek medical attention immediately (22). Despite these findings, which are observed with low frequency, unlike the literature, necessary treatment interventions should be made for the management of symptoms. It is also thought that effective treatment of dyspnea and chest pain symptoms in these patients will provide anxiety control for the patient.

In our study, it was determined that COVID-19 patients experienced headache symptoms, which is in line with the literature. Wan et al. (24) reported headaches in approximately one-third of all patients and a quarter of severe cases. In a similar study, the headache symptom was found in two-thirds of outpatients, and about half of inpatients (20). It has also been reported in other studies that COVID-19 patients also experienced headache symptoms (6,8,9). Since the headache experienced will negatively affect the daily life activities of the patients, it is necessary to control the pain of patients.

The studies reported that gastrointestinal symptoms such as nausea, vomiting, and diarrhea were also observed in COVID-19 infected patients (13,15). Similar to two meta-analytical studies, diarrhea, nausea, and vomiting were reported among minor symptoms in our study (5,18). Moreover, nausea and vomiting were found to be significantly higher in women than in men. Similarly, another study reported that patients experienced nausea and vomiting, and diarrhea was among the uncommon symptoms of COVID-19 disease (25). In another study, it was determined that 15.7% of symptomatic COVID-19 patients had symptoms of diarrhea (8). Since the symptoms of nausea, vomiting, and diarrhea

experienced by the patients will negatively affect the nutrition of the patients, causing a decrease in body resistance and loss of fluid and electrolytes, it is important to control these symptoms of COVID-19 patients in terms of symptom management.

Although there was no difference in gender and age groups in the study, it was determined that COVID-19 patients experienced runny noses, ageusia, and anosmia symptoms. A study reported acute ageusia or anosmia, although more common among women and young people, in 15.3% of patients in the early stage of COVID-19 and 15.7% of patients with an asymptomatic or mild disease (27). Another study reported that anosmia was more common in symptomatic COVID-19 patients with a mild course of the disease, and a runny nose or nasal congestion was observed in patients with anosmia. In the same study, it was reported that further studies are needed regarding the specificity of the loss of smell and taste seen in COVID-19 disease (8). These findings can be considered as part of the important symptoms and clues for the diagnosis of COVID-19 in the early stage of the disease.

Study Strengths: In clinical studies conducted in the hospital, it is reported that the disease of COVID-19 confirmed cases progresses with severe symptoms, and these symptoms may be more severe with accompanying diseases. This study revealed the symptoms most frequently experienced by asymptomatic or symptomatic patients with a mild disease who were tracked at home by an FHC. These symptoms constitute the strength of our study, as they will contribute to the determination of symptom management and treatment in primary care. This research, conducted within the scope of primary health care services during the dynamic COVID-19 pandemic period, is significant in terms of its contribution to the literature.

Limitations: The most important limitation of the study was that the symptoms were based on the statements of the participants. Moreover, retrospective information about disease symptoms may have been affected by the memory factor. The stage of the disease was not known on the day of the questionnaire applied

to patients diagnosed with COVID-19 who were followed up at home. Whether there were symptoms in the following days could not be confirmed because patients were interviewed only once in the first 3 days. This may have affected the frequency of symptoms.

Conclusion

Approximately nine out of ten COVID-19 confirmed patients had at least one symptom, while more than one out of ten was asymptomatic patients. In terms of follow-up, symptom management, and treatment of the disease, women, and individuals at the age of 40 and over should be prioritized, carefully followed up, and provided with necessary isolation. Although it is easy to diagnose COVID-19 confirmed patients after their symptoms begin to appear, patients who have an asymptomatic disease carry a great risk

for society due to its high contagiousness. Therefore, the isolation of asymptomatic patients is also important. Follow-ups should be done within the scope of international and national home care for patients with confirmed COVID-19 protocols, and the isolation should not be terminated before the PCR test turns negative. During home follow-up, the households with whom the patient lives should be informed about the disease, mode of transmission, use of personal protective equipment, and other means of protection. When necessary, COVID-19 confirmed patients and their families should be given psychological support, social support systems should be activated and optimum conditions should be provided. Healthcare workers must be alert in their contact with COVID-19 confirmed patients and take necessary precautions to prevent the risk of transmission.

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