

IMPACT OF PANDEMIC ON COVID-19 QUALITY OF LIFE AND EFFECTING FACTORS AMONG ADULTS WITH LONG COVID: FAMILY HEALTH CENTERS BASED STUDY

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Abstract

Aim: The aim of the study was to evaluate impact of pandemic on COVID-19 quality of life and effecting factors among adults with long COVID. **Methods:** The study included 440 individuals applying at family health centers for any reason. Participants were asked to complete a survey after their written consent was received. The survey consisted of two parts: the first related to socio-demographic information; the second including “COVID-19 Quality of Life Scale” and the “Perception Health Scale” . Mean, median, Kruskal Wallis and Mann-Whitney U tests and Sperman Correlation analysis were used in analysis. **Results:** Of the participants, 40.9% were male, 59.1% were female as well as 33.2% had at least one long COVID symptoms, 44.5% were reported that symptoms continued for 1-3 months. In addition, the median age was 41 years, the body mass index was 24.6 kg/m². The median time since first infected was 7 month. The median COV19-QoL and Perception of Health Scale scores were 3.0 and 40.0 respectively. Among the prolonged COVID symptoms, fatigue/tiredness was shown with 53.2%. Other common symptoms were muscle pain (27.1%), headache/dizziness (24.1%), difficulty thinking or concentrating (20.9%), difficulty in breathing and heart palpitation (20.0%). The COV19-QoL median score significantly differed by education level, existing chronic conditions, COVID-19 treatment type, number of experienced long COVID symptoms and continuation of the symptoms $p<0.05$. There was significant correlation between COV19-QoL and age, time since first infected and perceived health score ($p<0.05$) . **Conclusion:** Aging, low education, existing chronic conditions, hospitalization, number of long symptoms, continuation of symptoms, and perception of health were risky factors for impact of the pandemic on COVID-19 quality of life. Specific rehabilitation services and programmes seems to be urgent need in overcoming this issue and to improve health. **Key words:** Long COVID, COVID-19, quality of life, adults, family health

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Results: Of the participants, 40.9% were male, 59.1% were female as well as 33.2% had at least one long COVID symptoms, 44.5% were reported that symptoms continued for 1-3 months. In addition, the median age was 41 years, the body mass index was 24.6 kg/m². The median time since first infected was 7 month.

The median COVID-19-QoL and Perception of Health Scale scores were 3.0 and 40.0 respectively. Among the prolonged COVID symptoms, fatigue/tiredness was shown with 53.2%. Other common symptoms were muscle pain (27.1%), headache/dizziness (24.1%), difficulty thinking or concentrating (20.9%), difficulty in breathing and heart palpitation (20.0%).

The COVID-19-QoL median score significantly differed by education level, existing chronic conditions, COVID-19 treatment type, number of experienced long COVID symptoms and continuation of the symptoms $p < 0.05$. There was significant correlation between COVID-19-QoL and age, time since first infected and perceived health score ($p < 0.05$).

Conclusion: Aging, low education, existing chronic conditions, hospitalization, number of long symptoms, continuation of symptoms, and perception of health were risky factors for impact of the pandemic on COVID-19 quality of life. Specific rehabilitation services and programmes seems to be urgent need in overcoming this issue and to improve health.

Key words: Long COVID, COVID-19, quality of life, adults, family health

What's known

Long COVID is unexpected aspect of the pandemic and it's prevalence is substantial rate. In the literature, the factors that cause long COVID symptoms not known.

Researches on general health related quality of life was limited in long COVID.

What's new

Impacts of pandemic on COVID-19 quality of life were greater among adults with long COVID survivors. Risky groups have been discussed.

INTRODUCTION

The public health agenda of the 21st century, has been marked by the coronavirus 19 (COVID-19) disease which started at the end of 2019 and continues in 2021, and is transmitted from person to person.¹

An unknown pneumonia picture characterized by severe acute respiratory tract infection symptoms has been reported from China in the early stages of the disease.² In this pneumonia picture, in addition to the pulmonary system, nephrological³, cardiac^{4,5}, neurological⁶, hematopoietic⁷ and ophthalmic⁸ involvements are observed. It has been shown that disease severity can range from mild to critical, 81% of cases are mild to moderate, 14% are severe and 5% are critical.⁹

Typically, symptoms of COVID-19 appear in individuals for 14 days from the onset of symptoms, after which symptoms subside or completely resolve, and contagiousness decreases.^{9,10} However, clinical evidence demonstrates the persistence of clinical symptoms after infection called post-COVID conditions – with varying consistency and duration between infected individuals.¹¹⁻¹⁵ The long COVID that develops in post-COVID conditions is a wide variety of new, recurring or lasting symptoms that may last for weeks or even months, which those first infected may experience more than four weeks later. Long COVID can be seen even in asymptomatic individuals. These conditions can have different types and combinations of health problems for different durations. Commonly reported combinations include fatigue or weakness, brain fog (difficulty thinking or concentrating), fever, headache, loss of smell or taste, dizziness when standing, palpitations, chest pain, difficulty breathing or shortness of breath, cough, joint and muscle pain, symptoms worsening after physical or mental activities are shown.¹⁶ Six months after the onset of acute illness, 36.6%, 14.5%, and 5.2% of COVID-19 patients reported prolonged symptoms in the moderate, severe, and very severe categories, respectively. In particular, fatigue, shortness of breath and brain fog have been shown to be among the main debilitating symptoms that lead to a decrease in quality of life.¹⁷ On the other hand, it is stated that prolonged COVID symptoms are a strong predictor on general health perception.¹⁸

Considering all these reasons, individuals with a wide range of long COVID-19 symptoms need early monitoring and close follow-up.¹⁹ In population-based studies, the prevalence of long COVID is estimated between

13.3-30.0%^{12,20} and given the size of the pandemic, it is not yet clear how this low prevalence will guide the burden of disease in the future.

On the other hand, the cause of persistent symptoms and the long-term health effects of these symptoms on quality of life and long-term health are not clear, and there is no standard guideline for the management of this problem. As a vulnerable group of the COVID-19 disease, comprehensive epidemiological investigation and clinical evaluation for individuals with long COVID are important to prevent future sequelae and start early rehabilitation.

The aim of this study was to evaluate the impact of pandemic on COVID-19 quality of life and effecting factors among adults with long COVID.

MATERIAL AND METHODS

This population-based cross-sectional study was conducted during May and June 2021. Participants were selected from 22 family health centers (FHCs) in the city center. The study included individuals aged 20-59 years who applied to FHCs for any reason, were diagnosed with COVID-19 at least four weeks ago, and showed long COVID-19 symptoms. Twenty volunteers from each FHCs were included in the study.

Further inclusion criteria were 1) being male or female, 2) having no vision, hearing, or speaking problems, and (3) speaking Turkish.

Verbal and written consent was obtained from those who agreed to participate in the study with the approval of the ethics committee of the study.

At the first stage, the participants were asked about their socio-demographic characteristics and parameters related to COVID-19 disease. This section of the questionnaire required respondents to give information on age, gender, marital status, educational status, working status, chronic conditions, smoking behaviour, height, weight, time since first infected, type of treatment, symptoms experienced after COVID-19 and duration of symptoms. In the second stage, questions including COVID-19 quality of life and health perception scale were applied to the participants.

COVID-19 Quality of Life (COV19-QoL) Scale

In this study, the COV19-QoL scale was used which developed by Repišti et al. (2020)²¹ and adapted to Turkish culture by Sümen and Adıbelli.²² The six items in the scale examine the impact of the COVID-19 pandemic on quality of life, anxiety, depression, personal safety, and physical and mental health. In the self-report scale, a 5-point Likert (1-strongly disagree– 5-strongly agree) rating is made. The scale score is calculated by dividing the total score to the number of items. There is no reverse item in the scale. A higher score indicates that the impact of the pandemic on a person's quality of life is greater. While the internal consistency coefficient of the original scale was 0.85²¹ it was found to be 0.88 in this study.

Perception of Health Scale (PHS)

The Health Perception Scale was developed in 2007 by Diamond et al.²³ and adapted into Turkish by Kadioğlu and Yıldız²⁴, it is a five-point Likert-type scale consisting of 15 items. The scores that can be obtained from the scale vary between 15 and 75. High total scores indicate a high level of perception of health, and low scores indicate a low level of perception of health.

Statistical Analysis

Data were analysed using the IBM SPSS V22 software. Normality of distribution was tested using the Kolmogorov-Smirnov test. A Kruskal-Wallis test and Man-Whitney U was used to compare the non-normally distributed data. The relationship between variables was examined using a Spearman's correlation analysis. Non-normally distributed data were presented as median (minimum–maximum). The significance level was accepted as $p < 0.05$.

RESULTS

The study included 440 individuals. Among these participants, 40.9% were male, 59.1% were female as well as 33.2% had at least one long COVID symptoms, 44.5% were reported that symptoms continued for 1-3 months. Characteristics of the participants are presented in Table 1.

Among the prolonged COVID symptoms, fatigue/tiredness was shown with 53.2%. Other common symptoms were muscle pain (27.1%), headache/dizziness (24.1%), difficulty thinking or concentrating (20.9%), difficulty in breathing and heart palpitation (20.0%) (Figure 1).

The median age was 41 years. The body mass index (BMI) was 24.6 kg/m². The median time since first infected was 7 month. The median COV19-QoL and Perception of Health Scale scores were 3.0 and 40.0 respectively (Table 2).

The COV19-QoL median score was 3.3 among individuals with under high school education, and the effect of the pandemic on the quality of life was the greatest level ($p < 0.05$). The median COV19-QoL score for those with existing chronic disease was 3.3 and was significantly higher than those without chronic disease ($p < 0.001$). The median COV19-QoL score in hospitalized patients was 4.3, while it was 2.6 in home-isolated patients. There was a significant difference between COV19-QoL median scores according to COVID-19 treatment type ($p < 0.001$). The proportion of participants who experienced five or more symptoms was 8.6%, with a median COV19-QoL score of 3.6 and significantly higher than those with fewer symptoms ($p < 0.001$). In the group, 10.5% of participants experienced symptoms for 7 months or longer with the significantly highest COV19-QoL median score was 4.5 ($p < 0.001$). COV19-QoL levels did not vary by gender, marital status, working and smoking status ($p > 0.05$) (Table 3).

There was significant correlation between COV19-QoL and age, time since first infected and PHS score ($p < 0.05$) (Table 4).

DISCUSSION

As of July 2021, more than 182 million confirmed COVID-19 cases worldwide have been reported.²⁵ Individuals experienced long COVID symptoms had a decline in quality of life after COVID-19 illness.^{26,27} Therefore, understanding effects of long COVID symptoms in life is essential both an individual and populational level.

This study fills an important knowledge gap in measuring the impact of pandemic on COVID-19 quality of life in terms of long COVID.

In this study, it was determined that the impact of the pandemic on the COVID-19 quality of life was high (median score 3.0), and health perception was moderate (median score 40.0) among participants. This finding was expected and suggests that long COVID symptoms deteriorates quality of life and health perception. This study supports evidence from previous observation.¹¹

It has been reported that the prevalence of persistent symptoms in COVID-19 disease is more common in individuals over the age of 40 and the quality of life decreases with aging.²⁸ This previous finding broadly supports the current study that the impact of the pandemic on the COVID-19 quality of life increased with aging. A possible explanation for this might be that relationship between aging and existing chronic disease.

This present study observed that the greatest impact of the pandemic on the COVID-19 quality of life were seen in individuals with less than high school education. As the level of education increased, the impact of the pandemic on the quality of life decreased. Of course, the positive effect of higher education level on the health and well-being is undeniable.

In the study, respondents were asked to explain whether they were suffering from existing chronic conditions (such as diabetes, heart disease, respiratory disease) before the infected with COVID-19. Approximately 40% of the participants stated that they suffered from any chronic disease. The greater impact of the pandemic on COVID-19 quality of life is particularly evident in those with existing chronic diseases. The combination of comorbid conditions with COVID-19 disease, may slow recovery time, decrease quality of life and are not surprising results. Indeed, it has been reported that the existing chronic diseases were highly predictive in the quality of life of long COVID-19 survivors.²⁹

Previous studies have often focused on quality of life in hospitalized patients due to ongoing persistent symptoms after being discharged that may lead to delay in regaining previous health.^{30,31} In the present study, consistent with the literature, the impact of the pandemic on the COVID-19 quality of life was quite evident in hospitalized individuals. In COVID-19 disease, individuals with severe disease are hospitalized. Disease severity may be affected by underlying comorbidities and advanced age. The current result highlights the need for a long-term follow-up clinical care and rehabilitation programs for hospitalized patients.

More than one symptom combination appear in the long COVID picture commonly.¹⁶ In this study, as the combination of symptoms increased, a significant increase was observed in the impact of the pandemic on the COVID-19 quality of life. Also this study supports evidence from previous observations that fatigue was the most commonly reported symptom.^{11,31,32} Long COVID-19 includes both ongoing symptomatic COVID-19 (from 4 to 12 weeks) and post-COVID-19 syndrome (12 weeks or more).³³ The most important clinically relevant finding was that symptoms lasted 1-3 months in about half of the participants and long duration of symptoms increased the impact of the pandemic on covid-19 quality of life. The observed increase could be attributed to combination of symptoms. The longer the symptoms last, the greater the impact of the pandemic on COVID-19 quality of life.

Although the relationship between suffering from long-term COVID symptoms and how long ago individuals were infected is unknown, it is clear that, time since first infected significantly related with quality of life in this study. Quality of life worsens when persistent symptoms are prolonged.¹¹ Perceived health was negatively correlated with COV19-QoL. As the perception of health increased, the impact of the pandemic on the quality of life decreased.

Limitations

The current investigation was limited by adults presenting at family health centers.

Implications for practice

This study appears to be the first on this subject in the literature. The issue of long COVID has received considerable critical attention in today. For this reason, this study should be considered vital to investigate adults with long COVID in terms of monitoring, follow-up and rehabilitation.

CONCLUSION

Aging, low education, existing chronic conditions, hospitalization, number of long symptoms, continuation of symptoms, and perception of health increased the impact of the pandemic on COVID-19 quality of life. Specific rehabilitation services and programmes seems to be urgent need in overcoming this issue and to improve health.

DISCLOSURE

All of the authors declare no conflict of interest concerning the research, authorship or publication of this article.

ETHICAL APPROVAL

This study was conducted in accordance with the Helsinki Declaration and ethical approval was obtained from the Non-Invasive Research Ethics Committee of Hitit University.

INFORMED CONSENT

Informed consent was obtained from all individual participants included in the study.

DATA AVAILABILITY STATEMENT

Data sharing is not applicable to this article as no datasets were generated or analysed during the current study.

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