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# THE RELATIONSHIP BETWEEN PSYCHOLOGICAL DISTRESS, LONELINESS AND QUALITY OF LIFE IN ADULTS DURING THE COVID-19 PANDEMIC: A CROSS-SECTIONAL RESEARCH

## COVID-19 PANDEMİ SÜRECİNDE YETİŞKİNLERDE PSİKOLOJİK SIKINTI, YALNIZLIK VE YAŞAM KALİTESİ ARASINDAKİ İLİŞKİ: KESİTSEL BİR ARAŞTIRMA

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**ABSTRACT**

**Objective:** This cross-sectional study aimed to determine the relationships between psychological distress, loneliness, and quality of life in adults during the COVID-19 pandemic.

**Method:** The study was conducted in Turkey with 488 adults, ages 18-64, between August and December 2020. Data were collected online, using a sociodemographic information form and COVID-19 questionnaire, the Short Form Health Survey (SF-36), the Kessler Psychological Distress Scale (K10), and the UCLA Loneliness Scale (ULS-8). Data were analyzed using descriptive statistics, Pearson correlation analysis, and Hierarchical Regression Analyses.

**Results:** It was determined that 19.7% of the participants were at risk for mild, 13.5% for moderate and 34.4% for severe psychological distress. A significant relationship was found between the physical component of quality of life and gender, income status, decreased income during the pandemic, chronic disease, mental illness, physical activity, sleep duration, psychological distress, and loneliness ($R^2$=0.391, p<0.001). A significant relationship was found between the mental component of quality of life and age, gender, income status, mental illness, fear of COVID-19, taking personal precautions in the pandemic, physical activity, psychological distress and loneliness ($R^2$=0.359, p<0.001). The level of psychological distress and loneliness were significant determinants of both the physical and mental components of the quality of life, and the quality of life decreased as the level of psychological distress and loneliness increased.

**Conclusion:** It is thought that various interventions (advanced epidemic management policies, psychosocial and mental health services) should be organized to improve mental health and quality of life, both of which are affected by the COVID-19 pandemic process.

**Keywords:** Adults, COVID-19, Loneliness, Psychological Distress, Quality of Life.

**ÖZET**

**Amaç** Bu kesitsel çalışmanın amacı, COVID-19 pandemi sürecinde yetişkinlerde psikolojik sıkıntı, yalnızlık ve yaşam kalitesi arasındaki ilişkiyi belirlemektir.

**Yöntem:** Çalışma, Ağustos-Aralık 2020 tarihleri arasında Türkiye'de 18-64 yaş arası 488 yetişkin ile yürütülmüştür. Veriler, sosyodemografik bilgi formu ve COVID-19 anketi, Kısa Form Sağlık Anketi (SF-36), Kessler Psikolojik Sıkıntı Ölçeği (K10) ve UCLA Yalnızlık Ölçeği (ULS-8) kullanılarak çevrimiçi olarak toplandı. Veriler tanımlayıcı istatistikler, Pearson korelasyon analizi ve Hiyerarşik Regresyon Analizleri kullanılarak analiz edildi.

**Bulgular:** Katılımcıların %19,7'sinin hafif, %13,5'inin orta ve %34,4'ünün ağır psikolojik sıkıntı riski altında olduğu belirlendi. Yaşam kalitesinin fiziksel bileşeni ile cinsiyet, gelir durumu, pandemi sürecinde gelir azalması, kronik hastalık, ruhsal hastalık, fiziksel aktivite, uyku süresi, psikolojik sıkıntı ve yalnızlık arasında anlamlı bir ilişki bulundu ($R^2$=0,391, p<0,001). Yaşam kalitesinin zihinsel bileşeni ile yaş, cinsiyet, gelir durumu, zihinsel hastalık, COVID-19 korkusu, pandemide kişisel önlem alma, fiziksel aktivite, psikolojik sıkıntı ve yalnızlık arasında anlamlı bir ilişki bulundu ($R^2$=0,359, p<0,001). Psikolojik sıkıntı ve yalnızlık düzeyi, yaşam kalitesinin hem fiziksel hem de ruhsal bileşenlerinin önemli belirleyicileriydi ve psikolojik sıkıntı ve yalnızlık düzeyi arttıkça yaşam kalitesi azalıyordu.

**Sonuç:** COVID-19 pandemi sürecinden etkilenen kişilerin ruh sağlığı ve yaşam kalitesinin iyileştirilmesi için çeşitli müdahalelerin (ileri salgın yönetim politikaları, psikososyal ve ruh sağlığı hizmetleri) düzenlenmesi gerektiği düşünülmektedir.

**Anahtar Kelimeler:** COVID-19, Psikolojik Sıkıntı, Yalnızlık, Yaşam Kalitesi, Yetişkinler.

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## INTRODUCTION

Although the aim of public health interferences was to protect human health from the unusual Coronavirus (COVID-19), its precaution effects had physiological, economic, social, and psychological challenges for the lives of people (Bostan et al. 2020; Kharshiing et al. 2021; Usher et al. 2020; Wilder-Smith and Freedman 2020). Some restrictions were imposed on travel to and from China and neighboring countries (e.g, Iran), where the illness had spread extensively at the onset of the COVID-19 pandemic in Turkiye, so as to prevent the entry and further spread of the virus. As a result of this, face-to-face education was ceased and replaced by distance learning, whereas shopping centers and places of business like hair salons were closed, and meetings and congresses were cut off. A lockdown was required on individuals more vulnerable to the virus and those at more fragile ages (below 20 and over 65 years) by law of the Republic of Turkiye Ministry of the Interior (RTMI) and published in the Official Gazette of the Turkish Republic (Official Gazette of the Republic of Turkiye 2020; RTMI 2020a, b). When the number of cases declined in the summer months, restrictions were partially lifted but soon after, new Partial Lockout orders were enforced following a new surge of cases (RTMI 2021).

The prolonged duration of the pandemic in spite of numerous measures taken from the early date resulted in a new batch of precautions as well as large-scale changes in people's living standards (Usher et al. 2020). The uncertainty ongoing in outbreaks linked with the fear of getting sick, restrictions, and bio-psycho-social and economic challenges also generated diverse adverse outcomes. It was indicated in a research executed in Turkiye that during the COVID-19 pandemic, individuals experienced important changes in their daily routines. These important changes of routines adversely influence individuals in respect to bio-psycho-social and financial aspects. These aspects caused unavoidable facts such as depression, anxiety, fear, stress, worry, loneliness, and other psychological issues (Ferreira et al. 2021; Kharshiing et al. 2021; Kotwal et al. 2021; Losada-Baltar et al. 2021; Ozdemir et al. 2020; Prout et al. 2020; Qui, Li, Moyle W, Weeks and Jones 2020; Rehman et al. 2021).

The imposed limitations on this population as a part of managing the COVID-19 pandemic, and the quarantine applications cause individuals to be apart from their loved ones, thus they experience a loss of freedom and boredom. In addition to this, suffering from a fear of contracting the disease, worries about dealing with the unforeseeable period ahead, and a wide loneliness sense are factors that resulted in psychological distress (Losada-Baltar et al. 2021; Duan and Zu 2020). These kinds of psychological issues are depicted as symptoms of depression and anxiety and a conceptual state of emotional suffering in the literatüre (Altun, Özen and Kuloğlu 2019). It is thought that loneliness is an internal emotion and also a subjective feeling that is correspondent with social isolation, which is the opposite of social support. An individual's recognition of reduced social contact involves the feeling of having no one to share social and emotional experiences with or not being able to accomplish desired interactions. These two concepts are linked with a reduced state of well-being (Losada-Baltar et al. 2021). Principally, life quality is an indicator of maintaining health and well-being at the physical, psychological, social, and environmental levels (Algahtani, Hassan, Alsaif and Zrieq 2021; WHO 1996). It is shown in the studies that during the COVID-19 pandemic besides past pandemics, loneliness feelings and psychological distress damage the individuals' life qualities (Al Dhaheri et al. 2021; Chen et al. 2020; Duan and Zu 2020; Ferreira et al. 2021; Sayin Kasar and Karaman 2021; Khan et al. 2021; Kotwal et al. 2021; Losada-Baltar et al. 2021; Pieh, Budimir and Probst 2020; Usher et al. 2020; Yetim and Celik 2020). However, in the literature, no study treating the matter of how and to what degree the social restrictions imposed in Turkiye during the COVID-19 pandemic has been observed and also there has been no study on how its management process has affected the mental health, feelings of loneliness and individuals' life qualities.In the study it is tried to determine the relationships between individuals' mental health, lonelines feelings, and life quality during the COVID-19 pandemic, with a strong belief that will mentor prevention, treatment, and rehabilitation efforts planned to protect mental health and boost life quality. Herein, our study investigated the connections between the psychological distress isolation state, and adults' life qualities during the COVID-19 pandemic. The research questions were addressed as follows: of adults during the COVID-19 pandemic,

- What is the level of psychological distress?
- What is their level of loneliness?

- What is their quality of life level?
- Is there a relationship between psychological distress and loneliness levels and quality of life?
- What are the factors affecting their quality of life?

## MATERIALS AND METHODS

### Study Design and Sample

This study was designed as a cross-sectional design. In the study, the STROBE checklist for cross-sectional studies was utilized. A formula for an unfamiliar population was adopted for the sample selection. It was seen that the calculations revealed at a 95% confidence interval and the sample group had to be 384 adults (Esin 2014).

The admittance criteria for the sample;

- Being between the ages of 18-64
- Being literate
- Residing in Turkiye during the COVID-19 pandemic
- Having access to a computer and smartphone and the internet in order to be able to complete the questionnaires
- Voluntarily consenting to participate in the study

Those not meeting the admittance criteria or not consenting to be a volunteer in the study were eliminated from the research. The questionnaires were filled out by 506 individuals in total; due to lack of meeting the admittance criteria. 488 individuals integrated this study.

### Data Collection

The data were obtained online in Turkiye through a Google form over the period August-December 2020.We attained the participants in the study by using the snowball sampling method. By means of WhatsApp/Facebook groups on their telephones or by sending emails to participants' email addresses, they were able to see the questionnaires. After approving the "Informed Subject Consent Form" sent to the participants providing detailed study information, the participants filled out the questionnaires. Participants presented their signed consent online. Their full names were not required, thereby the confidentiality of data was protected.

### Ethical Considerations

University Non-interventional Research Ethics Committee (Date: 07.07.2020, Decision No. 11/251) approved the ethical permission. Moreover, Ministry of Health granted for "COVID-19 Scientific Research Studies".

### Measures

In order to gather the data, sociodemographic information form and COVID-19 questionnaire, the Kessler Psychological Distress Scale (K10), the Short Form Health Survey (SF-36), and the UCLA Loneliness Scale (ULS-8) were used. The SF-36 was the dependent variable of the study. On the other hand, sociodemographic, COVID-19 characteristics of individuals, health status, and the K10 and ULS-8 scores were its independent variables.

#### *Sociodemographic Information Form and COVID-19 Questionnaire*

The authors prepared a form consisting of 19 questions, including the individuals' age, gender, education, civil status, family income, employment, employment during the pandemic and its effect on income, the number of children (if any), existing chronic/mental diseases, cigarette smoking, physical activity, daily sleep time, whether or not any family members had died due to COVID-19, whether or not the participant contracted COVID-19, fear of contracting the disease or fear that family members would get it, the participants' ideas on COVID-19 restrictions, and whether or not enough precautions were being taken about personal prevention during the COVID-19 pandemic.

#### *Short Form Health Survey (SF-36)*

The Short Form Health Survey (SF-36) was fostered by Ware & Sherbourne (1992) with the aim of measuring life quality. Here, life quality is assessed by weighing the physical, social, and psychological health components. The validity and reliability studies of the Turkish version of The SF-36 was executed by Koçyiğit et al. (1998) and Cronbach's alpha scores were found as 0.73-0.75.There were 36 items and 8 sub-dimensions in the scale. There were 10 items in. "Physical function" sub-dimention and

2 items in "Social function". In addition, "Role restrictions because of physical issues" had 4 items, "Role restrictions due to emotional issues" had 3 items, "Mental health" had 5 items, "Energy/vitality had 4 items, "Pain" had 2 items and "General perception of health" had 5 items. An assessment based on the last 4 weeks was supplied by the instrument. It cannot also be denied that an assessment based on two special scales, such as the Physical Component Summary (PCS) and the Mental Component Summary (MCS) were proposed by the SF-36. Physical function, physical role, body pain, and general health sub-dimensions make up the PCS, whereas the vitality, social function, emotional role, and mental health sub-dimensions form the MCS. The scoring system here is between 0 (worst) and 100 (best) (Koçyiğit et al. 1998).

***Kessler Psychological Distress Scale (K10)***

Kessler Psychological Distress Scale (K10) was developed in 1992 in order to be used in mental health screening (Cronbach alpha=0.95) (Kessler et al. 2020). The Turkish version of the validity and reliability study was conducted by Altun et al. (2019). Carried out the Turkish version of the validity and reliability study. The statements on the scale query , how the responder had been feeling over the last 4 weeks and the answers to the questions were all taken into consideration.The scale scoring system was rated as follows "never have (1 point)," "seldom (2 points), "sometimes (3 points)", "mostly (4 points)," and "continuously (5 points)."The maximum score was 50, indicating severe discomfort; the minimum score was 10, indicating no discomfort.The scores between 20-24 represented slight psychological distress, the scores between 25–29 showed moderate distress, and the scores between 30-50 showed severe depression or anxiety disorder (Altun, Özen and Kuloğlu 2019; Kessler et al. 2020).

***UCLA Loneliness Scale (ULS-8)***

Russel et al. (1978) developed the scale with 20 items. Then, its 8-item form (ULS-8) was revised by Hays and DiMatteo (1987) (Altun et al. 2019). Doğan et al. (2011), (Cronbach's alpha=0.72) tested the Turkish version of the ULS-8 in terms of validity and reliability. And also they tested the scale queries, the individual's thoughts and emotions related to social relations and how often they experience these. The scale is a 4-point Likert-type of scale in which responses are rated as: "Absolutely not appropriate (1 point)," "Not appropriate (2 points)," "Appropriate (3 points)," and "Completely appropriate (4 points)." The minimum score is 8; the maximum score is 32. The higher the score is, the higher the loneliness level is (Altun, Özen and Kuloğlu 2019).

**Statistical Analysis**

Data were analyzed using the Statistical Package for Social Sciences (SPSS 22.0, I.B.M., Armonk, NY, U.S.A.). In order to determine whether they were normally distributed or not, the data were tested for Skewness/Kurtosis and it was confirmed that there was normal distribution. Descriptive statistics (percentages, means, standard deviation, min, max), Pearson's correlation analysis, the Student's t-test, and the One-way ANOVA test were used in order to do the data analysis. So as to detect the variables affecting the life quality, Hierarchical Regression Analysis was done.The SF-36 PCS and SF-36 MCS scales in the single-variable analyses,and in addition to ULS-8 and K10 scores and considerably associated variables were taken as independent variables in the hierarchical regression analysis. In the hierarchical regression analysis first step, the sociodemographic variables were entailed as independent variables in the model, while in the second step, the status of health, health behaviors, and variables linked with COVID-19 were added to the model. The K10 and ULS-8 scores were added to the model in the third step by yielding the final form. The results were assessed at a 95% confidence interval and significance was obtained as $p<0.05$.

## RESULTS

The participants' mean age was 37.52±12.32; 65.2% were women, 64.3% were university graduates, 59.4% were married and 60% were in the middle-income bracket.7% of the participants had a chronic disease, 4.3% of them had mental illness and 7.8% had contracted COVID-19. Other sociodemographics of the participants and their health and COVID-19 characteristics are shown in Tables 1 and 2.

**Table 1.** Sociodemographic Characteristics of Participants (n=488)

| **Variables** | **Min-Max** | **Mean±SD** |
|---|---|---|
| Age | 18 - 64 | 37.52±12.32 |
| Sleep duration | 3 - 12 | 7.27 ±1.23 |
| | **n** | **%** |
| **Gender** | | |
| Female | 318 | 65.2 |
| Male | 170 | 34.8 |
| **Education Level** | | |
| Non-educated | 2 | 0.4 |
| Elementary School | 43 | 8.8 |
| Middle School | 27 | 5.5 |
| High School | 102 | 20.9 |
| College and more | 314 | 64.3 |
| **Marital Status** | | |
| Married | 290 | 59.4 |
| Single | 173 | 35.5 |
| Divorced | | |
| **Employment Status** | | |
| Working | 298 | 61.1 |
| Unemployed | 190 | 38.9 |
| **Work Status Change in COVID-19 Period** | | |
| Working from home | 108 | 22.1 |
| Going to work | 175 | 35.9 |
| Discharged | 5 | 1.0 |
| Furloughed | 26 | 5.3 |
| Unemployed | 174 | 35.7 |
| **Income** | | |
| Very bad | 8 | 1.6 |
| Bad | 28 | 5.7 |
| Middle | 293 | 60.3 |
| Good | 154 | 31.6 |
| Very Good | 5 | 1.0 |
| **Income Change in COVID-19 Period** | | |
| Not changed | 262 | 53.7 |
| Decreased | 221 | 45.3 |
| Increased | 5 | 1.0 |
| **Presence of Children** | | |
| None | 219 | 44.9 |
| 1 | 71 | 14.5 |
| 2 | 140 | 28.7 |
| 3 | 44 | 9.0 |
| More than 3 | 14 | 2.9 |
| **Total** | 488 | 100 |

Min: Minimum, Max: Maximum, SD: Standard Deviation

**Table 2.** Participants' Health Status, Health Behaviors and Characteristics Related to the COVID-19 Pandemic (n=488)

| Variables | n | % |
|---|---|---|
| **Having chronic disorder** | | |
| Yes | 34 | 7.0 |
| No | 454 | 93.0 |
| **Having mental disorder** | | |
| Yes | 21 | 4.3 |
| No | 467 | 95.7 |
| **Smoking** | | |
| Every day | 131 | 26.8 |
| Occasionally | 43 | 8.8 |
| Previously used/discontinued | 34 | 7.0 |
| Never | 280 | 57.4 |
| **Doing physical activity** | | |
| Yes | 203 | 41.6 |
| No | 285 | 58.4 |
| **Being infected with COVID-19** | | |
| Yes | 38 | 7.8 |
| No | 450 | 92.2 |
| **Having relative who died due to COVID-19** | | |
| Yes | 345 | 70.7 |
| No | 143 | 29.3 |
| **Fear of relatives or themselves being infected with COVID-19** | | |
| Yes | 184 | 37.7 |
| No | 304 | 62.3 |
| **Thoughts on the restrictions imposed during the COVID-19 pandemic** | | |
| "I find the restrictions correct and sufficient and I apply them." | 178 | 36.5 |
| "I find the restrictions correct and sufficient, I find it difficult to apply." | 31 | 6.4 |
| "I do not find the restrictions correct and sufficient, I do not apply them." | 9 | 1.8 |
| "I find the restrictions insufficient." | 270 | 55.3 |
| **Thoughts on taking adequate personal precautions during the COVID-19 pandemic** | | |
| "Yes, I have been taking adequate personal precautions" | 465 | 95.3 |
| "No, I do not take adequate personal precautions" | 23 | 4.7 |
| **Total** | 488 | 100 |

The SF-36 PCS mean score was 256.22±63.92; the SF-36 MCS mean score was 222.62±49.46. The ULS-8 mean score was 13.06±3.92; the K10 scale mean score was 25.17±9.31. According to the K10 scale, it was found that 19.7% of the participants had mild psychological distress,'13.5% of them had moderate psychological distress, and 34.4% of them had possible severe depression/anxiety disorder (Table 3).

Between SF-36 PCS and income ($r=0.153$, $p<0.01$) a very weak positive correlation was determined. Also, a negative moderate correlation with K10 ($r=-0.521$, $p<0.01$), and a negative weak correlation with ULS-8 ($r=-0.308$, $p<0.01$) were detected. Between SF-36 PCS and age ($r=0.31$, $p<0.01$), a very weak positive correlation was detected, a negative moderate correlation with K10 ($r=-0.560$, $p<0.01$), and a negative weak correlation with ULS-8 ($r=-0.281$, $p<0.01$) were found. Correlations between other variables are presented in Table 4.

**Table 3.** Mean scores of SF-36, K10, ULS-8 (n=488)

| **Scales** | **Min - Max** | **Mean ± SD** |
|---|---|---|
| **SF-36** | | |
| **PCS Subscales** | | |
| Physical Functioning (PF) | 10 - 100 | 83.90±15.94 |
| Role Physical (RP) | 0 -100 | 51.43±35.61 |
| Bodily Pain (BP) | 0 -100 | 72.42± 22.29 |
| General Health (GH) | 5 - 90 | 48.45± 15.54 |
| **PCS Total** | 82.50-371.20 | 256.22±63.92 |
| **MCS Subscales** | | |
| Role Emotional (RE) | 0 -100 | 46.45±30.06 |
| Vitality (VT) | 25 - 85 | 57.64±9.79 |
| Social Functioning (SF) | 0 -100 | 63.47±24.13 |
| Mental Health (MH) | 20 - 84 | 55.04±12.92 |
| **MCS Total** | 103.00-333.00 | 222.62±49.46 |
| **ULS 8** | 8 - 29 | 13.06±3.92 |
| **K10** | 10 - 50 | 25.17±9.31 |
| **Psychological distress status according to K10** | **n** | **%** |
| Absence of psychological distress (0-09) | 19 | 3.9 |
| Likely to be well (10-19) | 139 | 28.5 |
| Likely to have a mild disorder (20-24) | 96 | 19.7 |
| Likely to have a moderate disorder (25-29) | 66 | 13.5 |
| Likely to have a severe disorder (30-50) | 168 | 34.4 |

SF-36: Short Form Health Survey, PCS: Physical Component Summary, MCS: Mental Component Summary

K10: Kessler Psychological Distress Scale, ULS-8: UCLA Loneliness Scale

**Table 4.** Correlations between sociodemographic characteristics, K10, ULS-8, SF-36 PCS, SF-36 MCS (n=488)

| **Variables** | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| Age (1) | | | | | | | |
| Education (2) | -0.364** | | | | | | |
| Income (3) | -0.034 | 0.225** | | | | | |
| Sleep Duration (4) | -0.049 | -0.082 | -0.020 | | | | |
| K10 (5) | -0.294** | 0.163** | -0.147** | -0.125** | | | |
| ULS-8 (6) | 0.033 | 0.005 | -0.123** | -0.008 | 0.326** | | |
| SF-36 PCS (7) | 0.075 | 0.043 | 0.153** | 0.074 | -0.521** | -0.308** | |
| SF-36 MCS (8) | 0.231** | -0.083 | 0.080 | 0.029 | -0.560** | -0.281** | 0.620** |

** p < 0.05; **p < 0.01*

K10: Kessler Psychological Distress Scale, ULS-8: UCLA Loneliness Scale, SF-36: Short Form Health Survey, PCS: Physical Component Summary, MCS: Mental Component Summary

In the single-variable analyses, life quality summary scale and the significantly associated variables were included in the hierarchical regression analysis. Between the SF-36 PCS and gender (b=-0.310, p<0.001), between income (b=0.132, p<0.01), and decreased income during the pandemic (b=-0.153, p<0.001), between the existence of chronic disease (b=-0.109, p<0.05), and the existence of a mental illness (b=-0.157, p<0.001), between the performance of a physical activity (b=0.208, p<0.001),and

daily sleep duration (b=0.085, p<0.05), between the K10 score (b=-0.362, p<0.001) and the ULS-8 score (b=-0.152, p<0.001) significant correlations were determined. 39.1% of the total variance on the SF-36 PCS ($R^2$= 0.391, p<0.001) is explained by these variables. Once the other variables are considered, it can be observed that the K10 and ULS-8 scores reveal 13.9% of the total variance on the PCS (Table 5).

Between the SF-36 MCS and age (b=0.153, p<0.05), between gender (b=-0.235, p<0.001), and income (b=0.096, p<0.05), between the existence of mental illness (b=-0.088, p<0.001), and COVID-19 fear (b=-0.096, p<0.05), between taking personal measures during the pandemic (b=-0.091, p<0.05), and performing physical activity (b=0.176, p<0.001), between the K10 score (b=-0.437, p<0.001), and the ULS-8 score (b=-0.135, p<0.001), a significant correlation was discovered. 35.9% of the total variance on the SF-36 MCS ($R^2$= 0.359, p<0.001) can be clarified by these variables. Once the other variables are considered, it can be observed that the K10 and ULS-8 scores reveal 17.6% of the total variance (Table 5).

**Table 5.** Hierarchical regression analysis of factors associated with SF-36 Physical Component Summary and SF-36 Mental Component Summary (n=488)

| **Step/ Variables** | SF-36 Physical Component Summary | | | SF-36 Mental Component Summary | | |
|---|---|---|---|---|---|---|
| | **$R^2$** | **$\Delta R^2$** | ***β*** | **$R^2$** | **$\Delta R^2$** | ***β*** |
| **Model 1** | | | | | | |
| Age | 0.139*** | 0.124 | -0.011 | 0.115*** | 0.100 | 0.153* |
| Gender | | | -0.310*** | | | -0.235*** |
| Education | | | 0.014 | | | -0.034 |
| Marital status | | | -0.050 | | | -0.053 |
| Employment status | | | -0.027 | | | -0.012 |
| Income | | | 0.132** | | | 0.096* |
| Income change in Covid-19 period | | | -0.153*** | | | -0.055 |
| Presence of children | | | 0.079 | | | 0.071 |
| **Model 2** | | | | | | |
| Having chronic disorder | 0.252*** | 0.226 | -0.109* | 0.183*** | 0.155 | -0.030 |
| Having mental disorder | | | -0.157*** | | | -0.088* |
| Being infected with COVID-19 | | | -0.066 | | | 0.002 |
| Fear of relatives or themselves being infected with COVID-19 | | | -0.078 | | | -0.096* |
| Thoughts on taking adequate personal precautions during the COVID-19 pandemic | | | -0.058 | | | -0.091* |
| Smoking | | | -0.054 | | | -0.078 |
| Doing physical activity | | | 0.208*** | | | 0.176*** |
| Sleep duration | | | 0.085* | | | 0.034 |
| **Model 3** | | | | | | |
| K10 | 0.391*** | 0.368 | -0.362*** | 0.359*** | 0.334 | -0.437*** |
| ULS-8 | | | -0.152*** | | | -0.135*** |
| | F = 16.732. *p* <0.001 | | | F = 14.584. *p* <0.001 | | |

* *p* < 0.05; ** *p* < 0.01; ***p < 0.001

SF-36: Short Form Health Survey, K10: Kessler Psychological Distress Scale, ULS-8: UCLA Loneliness Scale

## DISCUSSION

According to this study, COVID-19 pandemic adversely affected psychological distress and loneliness levels. Hence, individuals' life quality level in the community is also affected. Participants' life quality was detected to be lower than average, and their psychological distress and loneliness levels were thought to be significant predictors of both physical and mental life quality components. Moreover, while life quality declined, psychological distress and loneliness increased. According to this study, the rate of the participants who were under the risk of mild psychological distress was 9.7%, it was 13.5% for moderate psychological distress and 34.4% for possible severe depression/anxiety disorder. Study results show similarity to those of some other studies in which psychological distress levels of individuals during the COVID-19 pandemic were assessed (Duran and Erkin 2021; Ozdemir et al. 2020; Prout et al. 2020). In a study conducted in Turkiye where data began to be collected 2 months after the first case emerged, it was found that 21.8% of adults were experiencing moderate and severe depression, and the rate of experiencing moderate and severe anxiety was 24.7% (Ozdemir et al. 2020).

It can be said that the results for the period of data collection were similar to our findings in the present study. On the other hand, in our study, psychological discomfort rate among the individuals was higher than the one that was reported before the pandemic (Butterworth, Watson and Wooden 2020), and also greater than what was reported in other recent pandemics (Liu et al. 2012; Wu, Chan and Ma 2005). The literature shows that levels of psychological discomfort vary according to the degree of isolation and depending upon which stage the progressing COVID-19 pandemic was in (Ferreira et al. 2021; Kotwal et al. 2021; Losada-Baltar et al. 2021; Qui, Li, Moyle W, Rehman et al. 2021; Weeks and Jones 2020). Although just modest stress and psychological distress symptoms were observed in the early days of the pandemic and at the beginning of social restrictions (Qui, Li, Moyle W, Weeks and Jones 2020; Rehman et al. 2021), when some implementations, such as the quarantine, curfew, and other restrictions were started on the population, breakthroughs in the number of individuals experiencing psychological distress (Losada-Baltar et al. 2021), depression and anxiety and in symptoms related to these conditions were detected (Kotwal et al. 2021).

The first case of Coronavirus detected in Turkiye, where the present study was conducted, was recorded on March 11, 2020, after which restrictions and precautions began to be implemented. Throughout data collection, the Republic of Turkiye Ministry of the Interior published many circulars and supplementary memorandums regarding measures to be taken during the COVID-19 pandemic (RTMI 2020a, b; RTMI 2021a, b, c) with the circulars, the Ministry imposed weekend or weekday restrictions and curfews on the general population and on individuals of designated ages (age 65 and over and below age 20) (RTMI 2020b), mandated the closing of enterprises outside of those providing basic staples and food, or regulations on working hours, hotel accommodations, public spaces, activities with extensive attendance, education facilities, and intercity travel (RTMI 2020a, b; RTMI 2021a, b). Depending on the restrictions imposed within study period, levels of psychological distress consistent with those reported in the literature were shown by the participants (Ferreira et al. 2021; Kotwal et al. 2021; Losada-Baltar et al. 2021; Qui, Li, Moyle W, Weeks and Jones 2020; Rehman et al. 2021). When the results are taken into account, it can be said prolonged pandemic duration and restrictions have negative effect on individuals' mental health and thus it requires speedy and effective measures in order to restrain the progress of symptoms of mental disorder. It is believed that the media, primary health services, and public health centers must all take an active role in raising awareness in this context. The traditional social restrictions initiated in the management of pandemics harm the ability of individuals to maintain their daily routines (Usher et al. 2020). It is for this reason that consciousness about individual protection and vaccination must be improved (Taylor, Landry, Paluszek, Groenewoud, Rachor and Asmundson 2020). At the same time, identifying the factors that influence the practice of hygiene, individual preventive behaviors (Zhou, Lai, Zhang and Tan 2020) as well as those causing loneliness, and understanding their effect on individuals is of great importance (Boursier, Gioia, Musetti, and Schimmenti 2020). As far as the literature is concerned, the establishment of applicable government strategies besides such initiatives will bring superior results in order to free individuals from loneliness and protect their mental health and their life quality (Khan et al. 2021). Provoked loneliness feelings have been due to the practices of quarantine and social restrictions commonplace during the COVID-19 pandemic (Duan and Zu 2020; Killgore, Taylor, Cloonan, and Dailey 2020; Kotwal et al. 2021; Losada-Baltar et al. 2021).

In the research we carried out, the observation of loneliness levels was not too high, yet this might be due to partial isolation restrictions, which were during our data gathering process (some cities and towns applied short terms of quarantine, flexible working hours and restrictions in public spaces) (RTMI 2020a, RTMI 2021a, b, c). In our study, as loneliness levels rose, we found that psychological distress increased significantly. It has been found by the researchers in the studies published in the literature that due to forced isolation during the COVID-19 pandemic individuals experienced both loneliness and psychological distress (Duan and Zu 2020; Kotwal et al. 2021; Losada-Baltar et al. 2021; Potas, Koçtürk, and Toygar 2021; Usher et al. 2020;). In our possible minimum and maximum score analysis on the SF-36 scale (Chen et al. 2020) the participants' life quality and their physical and mental state were detected below the average in this study and displayed lower levels in the psychological dimension. At the same time, the participants' life quality was below when compared to the Turkish population reports (Demiral et al. 2006). As a matter of fact, it was claimed by the researchers that individuals' life quality during the COVID-19 pandemic degraded to the levels below the records before the breakout (Ferreira et al. 2021).

In this study, we indicated that powerful predictors of both the physical and mental components of life quality were loneliness and psychological distress. We also determined that as the individuals' loneliness feelings and psychological distress escalated, their life quality declined both physically and mentally. During the COVID-19 pandemic, a correlation between low life quality and moderate and severe depression, anxiety, and loneliness has been noted (Sayin Kasar and Karaman 2021; Suryavanshi et al. 2020).

It was alleged by Khan et al. (2021) that during the COVID-19 pandemic psychological stress damaged life quality, but there was a negative correlation between psychological stress and social distancing rules. It was stated by the authors that there was a correlation with government strategies and psychological stress in the pandemic management that kept social distancing rules at a level causing a minimum physical, psychological, social, and economic stress for individuals, giving them security sense (Khan et al. 2021).

In the study we performed we determined that powerful determinants of both physical and mental components of life quality were participants' gender, income level, mental illness existence, and their status of engaging in physical activity. Moreover, we also determined that significant determinants of mental component of life quality were COVID-19 fear, age, one's protective measure belief, while reduced income during the pandemic, chronic disease existence, and sleep duration in a day were significant predictors of the life quality physical component.

As regards age and gender factors, it has been stated that during the COVID-19 pandemic women and young adults indicate frailty with regard to being at risk of experiencing low level life quality (Al Dhaheri et al. 2021). This conclusion is reinforced by present study findings because as age increased, life quality increased from mental component aspect. It has been stated by the researchers that during the COVID-19 pandemic, anxiety symptoms and depression, or exhibited worsening in these symptoms were shown by the individuals who felt fear, anxiety, and hopelessness, and those were in general young adults whose life quality had been adversely influenced during this period (Kabeloğlu and Gül 2021; Pieh, Budimir and Probst 2020). In addition, it was also noted that life quality level rose with increasing age (Chen et al. 2020; Potas, Koçtürk, and Toygar 2021). In the current study we carried out, life quality was adversely influenced by being a female factor, the reason for this was that women's life quality was lower than their male counterparts. It is realized that authors showed that men had higher life quality levels than women not only before (Yetim and Celik 2020) but also after the COVID-19 outbreak (Kabeloğlu and Gül 2021).

Meanwhile, it has been reported by the researchers that during COVID-19 pandemic, women had higher depression and anxiety levels and also they had lower mental health and sleep quality rates (Kabeloğlu and Gül 2021), and their psychosocial life quality was low, too (Kim and Kang 2020). During the pandemic, when women encountered with extra responsibilities involving their home and children, they were negatively influenced by this soared workload not only with their mental health (Al Dhaheri et al. 2021; Arafa, Mohamed, Saleh and Senosy 2021; Kabeloğlu and Gül 2021; Prout et al. 2020; Wenham, Smith and Morgan 2020), but also with their life quality (Al Dhaheri et al. 2021).

It has been noticed that as the levels of income soar, life quality soars, too, in not only its physical but also mental components; regarding to life quality physical aspect during the pandemic, individuals who experienced income loss were adversely influenced. Likewise, it was claimed by Qi et

al. (2020) in their study that not only physical but merely mental terms affected life quality of individuals with low income and a rise tendency in the levels of perceived stress was obtained (Qi et al. 2020). It was written by Kim and Kang (2020) in their study that higher life quality levels were indicated by the employees who had a high-income status. On the other hand, it was also alleged that one of the factors that affected life quality during COVID-19 was becoming unemployed (Algahtani, Hassan, Alsaif and Zrieq 2021; Ferreira et al. 2021). It was indicated by the authors that an important determinant of the physical component of life quality was having a chronic disease and that physical aspect of life quality was damaged by a chronic disease existence. This finding is supported by many authors in the literatüre (Algahtani, Hassan, Alsaif and Zrieq 2021; Ferreira et al. 2021; Ozdemir et al. 2020; Ping et al. 2020). Some determinants of low life quality were found to be being female, unemployed, or having a chronic disease in a study done in Portugal with individuals in quarantine during the COVID-19 pandemic.

In the current study we detected that having a mental illness damaged life quality, as it is stressed emphasized in the literatüre (García-Fernández et al. 2021; Magalhaes et al. 2021). Due to the global effect of the COVID-19 pandemic, the uncertainty about its end and its adverse effect on human life from the psychosocial and economic standpoint, as regards generating depression, anxiety, and stress, particulary in those already troubled with mental illness (García-Fernández et al. 2021; Magalhaes et al. 2021), the psychological weight it charges upon individuals (Al Dhaheri et al. 2021; Arafa, Mohamed, Saleh and Senosy, 2021; Kabeloğlu and Gül 2021; Killgore, Taylor, Cloonan, and Dailey 2020; Prout et al. 2020; Suryavanshi et al. 2020), is much more remarkable.

We determined in our study that COVID-19 fear was a noticeable indicator of life quality mental component. Life quality among those with COVID-19 fear is much lower from the mental aspect. Likewise, it has been revealed by the researchers that anxieties about COVID-19 adversely influence life quality (Kharshiing et al. 2021; Ping et al. 2020). In the current study, it was determined by us that assuming one's taking all probable protective measures during the pandemic has an adverse influence on the life quality mental dimension. In a study that looked into the attitudes and factors associated with personal protective measures such as handwashing and complying with social distancing rules, the authors reported that individuals who worried about their health more commonly tended to stay at home and do not believe the COVID-19 case/death statistics announced on the media (Parfenova, 2020). In this context, we found in the present study that feeling overwhelmed with the mental and physical task of implementing personal preventive precautions was an important stress factor that could create a lack of confidence about whether the individual could protect him/herself.

The results obtained from our study showed that physical activity engagement is a factor which enhances not only the physical but also mental aspects of life quality. A result similar to ours was reported in the literature by many researchers who stated that despite social restrictions, physical activity or maintaining a physical activity schedule increased quality of life from the aspect of both its mental and physical components (Ferreira et al. 2021; Ozdemir et al. 2020; Qi et al. 2020).

The study participants' daily sleep durations varied between 3-12 hours; the mean was 7.27 ±1.23 hours. It was reported by the researchers that increasing daily sleep time was a factor that escalated life quality physical dimension level. Similarly, other authors conducting studies during the pandemic reported that sleep quality and psychological stress were inversely related (Duran and Erkin 2021). Researchers say that sleep strengthens the immune system during a pandemic, and it is emphasized that sleep is a preventive factor that helps to protect the individual from disease (Ono and Souza 2020).

**Limitations**

There were limitations to our study in the data collection stage because of voluntary participation and because the information was collected via Facebook, WhatsApp, and other social media apps. These limitations resulted in creating a sample that included 65.2% females and 64.3% university graduates. The results were therefore limited to the sample and are not generalizable. Since the data were collected based on self-reporting, the responses of the participants reflect their statements. On the other hand, though there are several restrictions as mentioned, the study reveals information about the correlations between adult psychological issues, their loneliness state, and their life quality during the COVID-19 pandemic, which can be utilized as guidance in the program developments in order to improve life quality within this period.

## CONCLUSION

Our study results showed that our participants' life quality was less than average and that their high psychological distress and loneliness levels damaged their life quality. In addition, some of the factors adversely affecting life quality physical dimension were being a woman, experiencing an income reduction during the pandemic and suffering from an existing chronic or mental illness, whereas physical activity engagement and daily sleep time increase had a positive impact.Concerning life quality mental dimension , factors having an adverse impact were being female, having a pre-existing mental illness, fear of COVID-19, and believing that enough personal protective measures had been taken in the pandemic, whereas augmenting age , income and physical activity were factors having positive influence in this regard.

In accordance with the results of our study, healthcare providers should improve interventions to help individuals sustain and develop their life quality and to maintain psychosocial support for those groups in the population critically affected by the COVID-19 pandemic. This study displays the importance of boosting social awareness about the factors impacting loneliness feelings, mental health, and life quality during the pandemic. Proposing psychoeducation programs devoted to this target to community mental health centers and mental health teams would be effective. The media plays an important role in bolstering awareness. Additionally, integrating psychological care, early diagnosis, and mental illness treatment services into primary care services will facilitate the penetration of psychological care into large segments of the population. Furthermore, pandemic management policies should be designed to protect individuals from a disruption of their daily routines, ensure their maximum safety and reinforce their feelings of security. Educating the public about vaccinations and personal protective measures should be a goal to pursue in spreading knowledge, fostering a sense of responsibility, ensuring the maintenance of daily life routines, and preventing loneliness issues. Taking such steps may be effective in protecting individuals from feelings of loneliness, and ensuring their mental health and life quality.

**Conflict of interest**
None.

**Author Contributions**
Plan and desing: ND, Nİ, YA, TA, ÖE; Data collection: ND, Nİ, YA,; Analysis and comments: Nİ; Review and check: ND, Nİ, YA, TA, ÖE; Writing: ND, Nİ, YA.

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