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# Pandemic Awareness and General Well-Being in Adults: Comparison of the COVID-19 Isolation Period and the Normalization Period: Analytical Research

## Yetişkinlerde Pandemi Farkındalığı ve Genel İyilik Hâli: COVID-19 İzolasyon ve Normalizasyon Periyotlarının Karşılaştırılması: Analitik Araştırmalar

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**ABSTRACT Objective:** This study aims to examine pandemic awareness and general well-being in adults during the coronavirus disease-2019 (COVID-19) isolation and normalization periods. **Material and Methods:** This cross-sectional study involved 330 adult volunteers. An evaluation form structured on the internet was utilized in this study. The data were collected using the demographic information form, the Pandemic Awareness Scale (PAS), the Chalder Fatigue Scale (CFS), the Pittsburgh Sleep Quality Index, the EuroQol Quality of Life Scale (EQ-5D-3L), and the Physical Activity Index (FIT). **Results:** The study involved 330 adult participants, with an average age of 34.79±11.81 years, PAS levels were higher during the COVID-19 isolation period (p=0.008). During the normalization period, sleep quality and quality of life increased, while fatigue scores decreased. There was no relationship between pandemic awareness and fatigue, sleep, physical activity level, and quality of life during the isolation period (p>0.05). However, during normalization, a moderate relationship was found between pandemic awareness and CFS physical scores (p=0.003), mental scores (p=0.006) and total score (p=0.002). A weak relationship was found between pandemic awareness and EQ-visual analogue scale (p=0.011), whereas no relationship was found with FIT scores (p=0.381). **Conclusion:** As the isolation period ended and the normalization period began, the decrease in pandemic awareness was considered a negative result. It has been observed that pandemic awareness affects fatigue and health status during the normalization period.

**Keywords:** Awareness; coronavirus disease-2019; fatigue; quality of life; sleep

**ÖZET Amaç:** Bu çalışmanın amacı, koronavirüs hastalığı-2019 [coronavirus disease-2019 (COVID-19)] izolasyon ve normalleşme dönemlerinde yetişkinlerde pandemi farkındalığını ve genel iyilik hâlini incelemektir. **Gereç ve Yöntemler:** Bu kesitsel çalışmaya 330 yetişkin gönüllü katılmıştır. Çalışmada, internet üzerinden yapılandırılmış bir değerlendirme formu kullanılmıştır. Veriler; Demografik Bilgi Formu, Pandemi Farkındalık Ölçeği [Pandemic Awareness Scale (PAS)], Chalder Yorgunluk Ölçeği [Chalder Fatigue Scale (CFS)], Pittsburgh Uyku Kalitesi İndeksi, EuroQol Yaşam Kalitesi Ölçeği (EQ-5D-3L), Fiziksel Aktivite İndeksi [Physical Activity Index (FIT)] kullanılarak toplanmıştır. **Bulgular:** Çalışmaya 330 yetişkin katılımcı katılmıştır ve yaş ortalaması 34,79±11,81 yıl olup, PAS düzeyleri COVID-19 izolasyon döneminde daha yüksekti (p=0,008). Normalleşme döneminde uyku kalitesi ve yaşam kalitesi artarken, yorgunluk puanları azalmıştır. İzolasyon döneminde pandemi farkındalığı ile yorgunluk, uyku, fiziksel aktivite düzeyi ve yaşam kalitesi arasında bir ilişki bulunmamıştır (p>0,05). Ancak normalleşme döneminde, pandemi farkındalığı ile CFS fiziksel puanları (p=0,003), zihinsel puanları (p=0,006) ve toplam puan (p=0,002) arasında orta düzeyde bir ilişki bulundu. Pandemi farkındalığı ile EQ-görsel analog skala arasında zayıf bir ilişki bulunurken (p=0,011), FIT puanları arasında ilişki bulunmadı (p=0,381). **Sonuç:** İzolasyon dönemi sona erip normalleşme dönemi başladığında, pandemi farkındalığındaki azalma olumsuz bir sonuç olarak değerlendirildi. Pandemi farkındalığının normalleşme döneminde yorgunluğu ve sağlık durumunu etkilediği gözlemlendi.

**Anahtar Kelimeler:** Farkındalık; koronavirüs hastalığı-2019; yorgunluk; yaşam kalitesi; uyku

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According to the definition provided by the World Health Organization (WHO) on its official website, coronavirus disease-2019 (COVID-19) is an infectious disease caused by the severe acute respiratory syndrome-coronavirus-2. The virus, detected in Wuhan in 2019, spread rapidly and affected the whole world. WHO announced this situation as a pandemic (global epidemic) on March 11, 2020.[1] The 1st death due to COVID-19 in Türkiye occurred on March 17, 2020. The pandemic was called the isolation period until May 31, 2020, and the normalization period after June 1, 2020.[2,3]

Labban et al. reported that individuals with low COVID-19 awareness levels do not take adequate precautions to protect themselves from the virus.[4] In a study involving 4,700 people in Türkiye, it was emphasized that knowledge, attitudes, and behaviors regarding preventive measures such as avoiding crowded places and washing hands are very important to prevent the transmission of the disease. It has been shown that participants' attitudes and behaviors towards the epidemic are related to their psychological fatigue levels, which are thought to result from fear and anxiety about the pandemic.[5] Symptoms of pandemic fatigue include physical and mental exhaustion, decreased motivation, distractibility, intermittent emotional outbursts, and sleep disturbances.[6,7] A study examining the post-COVID-19 pandemic revealed that sleep quality is associated with mental health symptoms, such as depression, anxiety, stress, and fatigue.[8] However, the impact of pandemic awareness on general well-being remains unclear.

Although the isolation period is a necessary measure to protect public health, results have shown that it changes physical activity and eating behaviors in ways that endanger health.[9] Yang et al. examined physical activity and well-being in the elderly during the COVID-19 prevention and controlled normalization period.[10] However, no periodic comparison was made in this study. García-Garro et al. examined the quality of life, mental health, and physical activity levels of Colombian university employees during different periods of the pandemic.[11] There are studies examining the well-being of adults in different periods of the pandemic.[12,13] However, there is no periodic comparison in these studies. When the literature was examined, no study was found examining the change in pandemic awareness and well-being in adults during different periods of the epidemic. We believe that more comprehensive results regarding people's physical health can be obtained by periodically examining the epidemic. For this reason, we believe that people's physical health conditions, such as pandemic awareness, fatigue level, physical activity, sleep, and quality of life, should be examined periodically.

This study aims to examine pandemic awareness and general well-being in adults during the COVID-19 isolation and normalization periods.

## MATERIAL AND METHODS

### PARTICIPANTS

The study involved 330 adult volunteers between the age of 20-60 years.

The study utilized a structured evaluation form on the internet for cross-sectional research. The evaluation form was sent via various communication tools [messaging, WhatsApp (Meta Platforms Inc., Menlo Park, USA), etc.] and social media [Facebook and Instagram (Meta Platforms Inc., Menlo Park, USA), etc.] via the Google Forms (Google, USA) link. Volunteer participants were informed about the study. Confirmation "I agree to participate in the study" was taken from the volunteers. The 1st part of the form included questions regarding the demographic characteristics of the participants. The evaluations in the 2nd and 3rd sections of the form assessed participants' quality of life, pandemic awareness, fatigue, sleep, and physical activity during the initial isolation and normalization periods of COVID-19.

### ETHICAL APPROVAL

Before starting the research, permission was received from Republic of Türkiye Ministry of Health Scientific Research Studies Commission on COVID-19 (no: 2022-01-27T15_37_48). The study was approved by the Pamukkale University Non-Interventional Medical Ethics Committee with the decision numbered 03 dated February 08, 2022 and registered at Clinical Trials.gov (ID: NCT05206903; URL: www.clinicaltrials.gov). The study was conducted in accordance with the Declaration of Helsinki.

## DATA COLLECTION FORM

### Demographic Data

The form, prepared based on the relevant literature, consists of 14 questions, including both open-ended questions for determining age, height, and body weight, and closed-ended questions for other demographic characteristics such as gender, marital status, education level, occupation, smoking status, presence of chronic diseases, exercise habits, regular medication use, and COVID-19 history.[14]

### Pandemic Awareness Survey (PAS)

The Pandemic Awareness Survey was developed by Arpaci et al. to assess individuals' awareness of pandemic and epidemic situations.[14] The survey aims to measure individuals' knowledge levels, awareness, and attitudes regarding the pandemic. It typically evaluates topics such as the health impacts of the pandemic, hygiene measures, vaccines, and public health behaviors. The survey consists of nine questions, and its validity and reliability were established by Arpaci et al.[14] It uses a 5-point Likert scale (1=strongly disagree, 5=strongly agree). The total score, which ranges from 9 to 45, reflects the level of awareness, with higher scores indicating greater awareness. Two items in the survey (item 1 and item 3) are reverse-scored.

### EuroQol Quality of Life Scale (EQ-5D-3L)

This scale, developed by the European Society for the Study of Quality of Life (EuroQol) in 1990.[15] The validity and reliability study of the Turkish version was conducted by Kahyaoğlu et al. who reported that the scale demonstrated valid and reliable properties, with an internal consistency coefficient of 0.86.[16] The scale includes five different dimensions such as movement, self-care, usual tasks, anxiety/discomfort, and anxiety/depression. Each dimension; is rated at three levels: no problems (1), some problems (2), extreme problems (3). The last part of the scale consists of a visual analog scale that questions health status. Dimension score is between 0-1 points; The visual analog scale score varies between 0-100 points.[15] As the EQ-visual analogue scale (VAS) score approaches 100 and the EQ-5D-3L index score approaches 1, the quality of life increases

### Chalder Fatigue Scale (CFS)

This scale was developed by Chalder et al. to measure the severity of fatigue perceived by the individual, and the Turkish version of this scale was adapted by Adın et al.[17,18] The scale, which has a 4-point Likert scoring system, has 11 questions. In the survey, which allows the calculation of physical and mental fatigue scores, an increase in scores indicates that the severity of fatigue is higher.

### Pittsburgh Sleep Quality Index (PSQI)

Buysse et al. developed the questionnaire is used to evaluate sleep quality and sleep disturbance.[19] Ağargün et al. established Turkish validity and reliability of this questionnaire.[20] The total Pittsburgh Sleep Quality Index (PSQI) score between 0-4 indicates good sleep quality, and between 5-21 indicates poor sleep quality.

### Physical Activity Index (FIT)

The study used the Physical Activity Index (FIT) to assess participants' physical activity levels. The FIT score is calculated by multiplying the frequency, intensity, and duration of an activity. According to the FIT score, physical activity level between 0-20 is interpreted as sedentary, between 21-40 as weak, between 41-60 as normal, between 61-80 as good, and between 81-100 as very good *(Kasari D. Effects of exercise and fitness on serum lipids in college women [Unpublished Master's Thesis]. University of Montana, Montana; 1976)*.

## DATA ANALYSIS

The reference study's effect size was low (d=0.206).[21] A power analysis suggested that 90% power could be obtained at a 95% confidence level if at least 250 people were included in the study (d=0.50), assuming a higher effect size. An additional sample size of 330 participants was chosen to account for potential dropouts or missing data, thereby providing an extra margin of security.

The data was analyzed using IBM SPSS Statistics 25 software package (IBM Corp., New York, USA). Numbers and percentages for categorical and continuous variables were expressed as mean±standard deviation. Independent group comparisons were conducted using the Student's t-test under parametric test assumptions, with normality verified using the

Kolmogorov-Smirnov test. Pearson correlation analysis was used to investigate any relationships between continuous variables.

## RESULTS

The study involved 330 adult participants, with an average age of 34.79±11.81 years, and their demographic and clinical data are presented in Table 1.

**TABLE 1:** Descriptive information of the participants

| Variables | X̄±SD |
|---|---|
| Age (year) | 34.79±11.81 |
| Height (cm) | 168.86±8.82 |
| Weight (kg) | 71.78±15.77 |
| BMI (kg/m²) | 25.06±4.69 |
| | n (%) |
| Gender | |
| Female | 208 (63) |
| Male | 122 (37) |
| Marital status | |
| Married | 181 (54.8) |
| Single/divorced | 149 (45.2) |
| Education level | |
| Primary school | 43 (21.1) |
| Secondary school | 18 (5.5) |
| High school | 56 (17) |
| Undergraduate | 175 (53) |
| MSc/PhD | 38 (11.5) |
| Occupation | |
| Student | 89 (27) |
| Housewife | 55 (16.7) |
| Retired | 15 (4.5) |
| Employee | 155 (47) |
| Not working | 16 (4.8) |
| Smoker | |
| Yes | 88 (26.7) |
| No | 242 (73.3) |
| Chronic disease | |
| Yes | 72 (23.9) |
| No | 258 (76.1) |
| Exercise habit | |
| Yes | 90 (27.3) |
| No | 240 (72.7) |
| Using regular drug | |
| Yes | 79 (23.9) |
| No | 251 (76.1) |
| COVID-19 infection | |
| Yes | 105 (31.8) |
| No | 225 (68.2) |
| COVID-19-infected first-degree relative | |
| Yes | 237 (68.8) |
| No | 103 (31.2) |
| Death of any relative from COVID-19 | |
| Yes | 86 (26.1) |
| No | 244 (73.9) |

SD: Standart deviation; BMI: Body mass index; COVID-19: Coronavirus disease-2019

The frequency of mask use for the individuals participating in the study during the COVID-19 isolation period and normalization period is given in Figure 1. During the normalization period, the frequency of mask use decreased.

The individuals participating in the study had higher pandemic awareness levels during the COVID-19 isolation period (p=0.008). During the normalization period; physical fatigue (p=0.0001), mental fatigue (p=0.027) and total fatigue (p=0.0001) levels decreased. Sleep quality and quality of life increased during the normalization period (p=0.0001) (Table 2).

It was found no significant relationship between pandemic awareness and fatigue, sleep, physical activity, and quality of life during isolation (p>0.05). However, during normalization, a moderate relationship was found between pandemic awareness and CFS physical scores (p=0.003), mental scores (p=0.006) and total score (p=0.002). A weak relationship was found between pandemic awareness and EQ-VAS (p=0.011, Table 3).

## DISCUSSION

The current study examined the impact of pandemic awareness on adults' well-being during the COVID-19 isolation and normalization periods. Results showed that during normalization, pandemic awareness and fatigue decreased, while sleep quality and quality of life increased. Additionally, pandemic

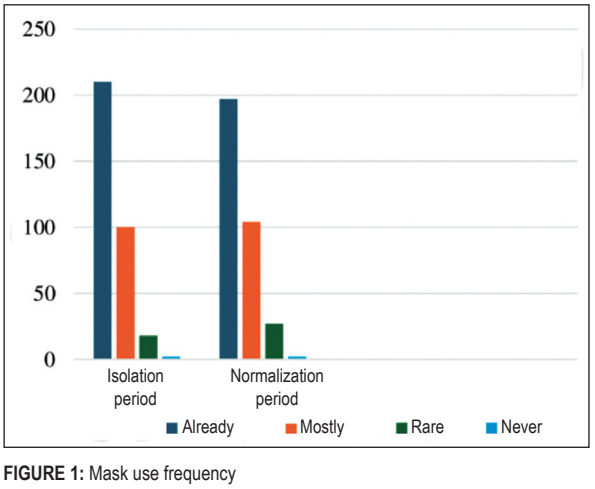


**FIGURE 1:** Mask use frequency

**TABLE 2:** Periodic comparison of pandemic awareness and general well-being

| | Isolation period | Normalization period | 95% CI Lower | 95% CI Upper | t value | p value* |
|---|---|---|---|---|---|---|
| PAS | 37.5±6.96 | 36.65±7.31 | 0.222 | 1.486 | 2.659 | 0.008 |
| CFS physical | 9.36±4.05 | 8.39±3.80 | 0.563 | 1.393 | 4.641 | 0.0001 |
| CFS mental | 4.35±1.94 | 4.15±1.83 | 0.023 | 0.382 | 2.221 | 0.027 |
| CFS total | 13.72±5.36 | 12.54±5.22 | 0.646 | 1.717 | 4.340 | 0.0001 |
| PSQI total | 5.07±3.2 | 4.61±3.05 | 0.249 | 0.671 | 4.300 | 0.0001 |
| EQ-5D-3L | 0.814±0.23 | 0.861±0.22 | -0.072 | -0.022 | -3.742 | 0.0001 |
| EQ-VAS | 66.27±29.56 | 67.74±29.96 | -4.326 | 1.386 | -1.012 | 0.312 |
| FIT | 23.45±18.64 | 23.93±20.99 | -2.270 | 1.306 | -0.530 | 0.596 |

*Student's t-test. CI: Confidence interval; PAS: Pandemic awareness survey; CFS: Chalder Fatigue Scale; PSQI: Pittsburgh Sleep Quality Index; EQ-5D-3L: EuroQol Quality of Life Scale; VAS: Visual analogue scale; FIT: Physical Activity Index

**TABLE 3:** The relationship between pandemic awareness and general well-being

| | Isolation period | | Normalization period | |
|---|---|---|---|---|
| | r value | p value | r value | p value |
| PAS-CFS physical | 0.047 | 0.390 | **0.163**** | **0.003** |
| PAS-CFS mental | 0.103 | 0.063 | **0.150**** | **0.006** |
| PAS-CFS total | 0.073 | 0.186 | **0.171**** | **0.002** |
| PAS-PSQI | -0.029 | 0.606 | -0.056 | 0.312 |
| PAS-EQ-5D-3L | 0.017 | 0.761 | 0.052 | 0.348 |
| PAS-EQ-VAS | 0.086 | 0.120 | **0.140*** | **0.011** |
| PAS-FIT | -0.029 | 0.595 | -0.048 | 0.381 |

r: Pearson correlation coefficient; *: p<0.05; **: p<0.01; PAS: Pandemic awareness survey; CFS: Chalder Fatigue Scale; PSQI: Pittsburgh Sleep Quality Index; EQ-5D-3L: EuroQol Quality of Life Scale; VAS: Visual analogue scale; FIT: Physical Activity Index

awareness was associated with fatigue and health status during the normalization period.

Our study revealed a significant decrease in pandemic awareness during the normalization period, possibly due to a reduction in strict measures during the isolation period. The European Centers for Disease Control recommend wearing face masks to reduce COVID-19 transmission from asymptomatic or presymptomatic individuals.[22] However, low awareness levels often result in individuals not taking adequate precautions to protect themselves from the virus.[4] Similarly, the current study found a decrease in mask-wearing frequency during the normalization period, indicating a decrease in pandemic awareness.

When the effect of pandemic awareness on general well-being was investigated, we found a significant association between pandemic awareness and fatigue. Mental fatigue is a feeling of restlessness and exhaustion that occurs due to high-intensity or prolonged engagement in a task that triggers physical fatigue.[23] During the normalization period, the physical and mental fatigue levels of the participants in our study decreased. Additionally, we found that adults with low fatigue levels during the normalization period had low pandemic awareness. It has been suggested that social restrictions, mask requirements, and other risk-reducing measures implemented during the pandemic may contribute to fatigue.[24] Therefore, the fatigue scores during the isolation period in our study may be higher.

According to a cohort study, the COVID-19 pandemic has resulted in a decrease in sleep quality.[25] Another study has reported that sleep quality has a significant impact on fatigue in adults during the COVID-19 pandemic.[26] The current study also supports these findings, as we observed higher levels of fatigue and PSQI scores during the COVID-19 isolation period. The pandemic has been shown to negatively impact sleep quality, quality of life, depression levels, and physical activity.[11] During the pandemic, significant changes occurred in the daily routines of adults, including social distancing, the closure of colleges, universities, and stores, as well as changes in daily schedules due to remote working, resulting in less time for social activities, leisure, and education.[27] In our study, however, an increase in quality of life was observed during the normalization period. Using the EQ-VAS score, which assesses individuals' self-

reported health status, we found that the improvement in health status during the normalization phase also positively influenced pandemic awareness.

The physical activity indexes of the adults participating in the current study did not change periodically. It could be due to the poor FIT scores (21-40) of the adults in our study. Górnicka et al. reported that COVID-19 negatively affects physical activity in adults.[28] Various restrictions to prevent the spread of COVID-19, including home confinement and social distancing, have resulted in decreased overall levels of physical activity.[27] Yang et al. examined physical activity and well-being in elderly people during COVID-19 prevention and controlled normalization periods.[10] However, this study did not include a periodic comparison. The current study's strength is that there is no other study comparing pandemic awareness and physical well-being in adults during the COVID-19 initial isolation period and normalization periods.

In studies examining the general well-being of adults during the pandemic, Mao et al. nurses, James et al. examined the police officers.[12,13] As a limitation of our study, professions were not specified for the actively working group. The adults who participated in our study were classified as students, housewives, retirees, actively working, and nonworking groups. Future studies can explore the differences between these occupational groups as the number of people increases. Additionally, the study did not investigate whether participants exhibited Type A personality traits or how they cope with such traits, which may have influenced the physical and emotional factors affecting the responses provided in the surveys. Another limitation is that participants were asked to complete the surveys with reference to the isolation and normalization periods, resulting in the use of retrospective data.

## CONCLUSION

In the current study, during the normalization period, pandemic awareness and fatigue decreased, while quality of life and sleep quality increased. As the isolation period ended and the normalization period began, the decrease in pandemic awareness was considered a negative result. Pandemic awareness during the normalization period was positively affected by people's fatigue and health status scores. We think that more work should be done in this area (conducting awareness seminars, increasing public service announcements, etc.) to ensure that awareness of the pandemic does not decrease. COVID-19 is a disease that is still manifesting itself. More follow-up studies evaluating different age groups in this field need to be conducted and the results shared.

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*During this study, no financial or spiritual support was received neither from any pharmaceutical company that has a direct connection with the research subject, nor from a company that provides or produces m and similar situations in any firm.*

### *Conflict of Interest*

*No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.*

### *Authorship Contributions*

***Idea/Concept:*** *Meryem Buke, Ayşe Ünal;* ***Design:*** *Meryem Buke, Ayşe Ünal, Filiz Altuğ;* ***Control/Supervision:*** *Filiz Altuğ;* ***Data Collection and/or Processing:*** *Meryem Buke, Ayşe Ünal;* ***Analysis and/or Interpretation:*** *Meryem Buke, Ayşe Ünal;* ***Literature Review:*** *Meryem Buke, Ayşe Ünal, Filiz Altuğ;* ***Writing the Article:*** *Meryem Buke, Ayşe Ünal, Filiz Altuğ;* ***Critical Review:*** *Meryem Buke, Ayşe Ünal, Filiz Altuğ;* ***References and Fundings:*** *Meryem Buke, Ayşe Ünal, Filiz Altuğ;* ***Materials:*** *Meryem Buke, Ayşe Ünal.*

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