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Data Descriptor

COVID-19 Lockdown Effects on Sleep, Immune Fitness, Mood, Quality of Life, and Academic Functioning: Survey Data from Turkish University Students

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Abstract: Previous studies from the Netherlands, Germany, and Argentina revealed that the 2019 coronavirus disease (COVID-19) pandemic and associated lockdown periods had a significant negative impact on the wellbeing and quality of life of students. The negative impact of lockdown periods on health correlates such as immune fitness, alcohol consumption, and mood were reflected in their academic functioning. As both the duration and intensity of lockdown measures differed between countries, it is important to replicate these findings in different countries and cultures. Therefore, the purpose of the current study was to examine the impact of the COVID-19 pandemic on immune fitness, mood, academic functioning, sleep, smoking, alcohol consumption, healthy diet, and quality of life among Turkish students. Turkish students in the age range of 18 to 30 years old were invited to complete an online survey. Data were collected from n = 307 participants and included retrospective assessments for six time periods: (1) BP (before the COVID-19 pandemic, 1 January 2020–10 March 2020), (2) NL1 (the first no lockdown period, 11 March 2020–28 April 2021), (3) the lockdown period (29 April 2021–17 May 2021), (4) NL2 (the second no lockdown period, 18 May 2021–31 December 2021), (5) NL3 (the third no lockdown period, 1 January 2022–December 2022), and (6) for the past month. In this data descriptor article, the content of the survey and the dataset are described.

Dataset: The dataset is submitted as a Supplementary File.

Keywords: COVID-19; lockdown; Türkiye; immune fitness; mood; academic functioning; sleep; alcohol; healthy diet; quality of life

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1. Summary

An increasing number of scientific studies revealed that the 2019 coronavirus disease (COVID-19) pandemic and associated lockdown periods had a significant negative impact on wellbeing and quality of life [1–4]. Also, in Türkiye, lockdowns negatively affected mood, including increased levels of stress, anxiety and depression, and loneliness [5–10].

The COVID-19 lockdown periods were shown to have the most extensive impact on the mood and wellbeing of younger adults [11–13].

A previous study from our group investigated the COVID-19 lockdown effects among Dutch students in the Netherlands [14]. It was found that during the lockdown periods, mood and quality of life were significantly poorer compared to before the COVID-19 pandemic and during no lockdown periods [15]. Increased levels of stress, fatigue, anxiety, depression, and loneliness were reported for the lockdown periods. Also, poorer immune fitness and sleep were reported. During the COVID-19 pandemic, education changed from face-to-face to online education, and a significant reduction in interactions between teachers and other students was reported [15,16]. The lockdown effects on mood, health, and lifestyle changes, such as changes in alcohol consumption, [16] were associated with poorer academic performance and lower study grades during the COVID-19 pandemic [15,16]. This study was replicated in Germany [17,18] and Argentina [19,20]. Although comparable effects were found, cross-cultural differences were noted between the countries in the magnitude of the observed effects. These were expected, given the cultural differences between the countries. In addition, the stringency of lockdown measures differed significantly between the countries [21]. Therefore, the study among Dutch students [14] was replicated in an adapted format to be used in Türkiye.

Research on the impact of the COVID-19 pandemic on academic functioning of Turkish students is limited. Casalone et al. [22] compared academic performance in Sweden (no lockdown measures) with Italy and Türkiye, and found notable differences between the countries. In line with Dutch findings, they observed that passing rates increased. Furthermore, they noted that academic performance improved if COVID-19 lockdown policies were more restrictive (e.g., Italy). An explanation for this observation could be that students could spend more time on their study due to the closure of social venues following the lockdown. Another study compared Poland, Lithuania, Türkiye, and India, and reported a negative impact of the pandemic on wellbeing and stress. Again, there were differences in the magnitude of these effects between students from Türkiye and countries with different stringencies of COVID-19 policies [23].

For the COVID-19 pandemic in Türkiye, five time periods were identified and evaluated [24,25]: (1) BP (before the COVID-19 pandemic, 1 January 2020–10 March 2020), (2) NL1 (the first no lockdown period, 11 March 2020–28 April 2021), (3) L, the lockdown period (29 April 2021–17 May 2021), (4) NL2 (the second no lockdown period, 18 May 2021–31 December 2021), and (5) NL3 (the third no lockdown period, 1 January 2022–December 2022). The COVID-19 pandemic periods, including the daily new COVID-19 cases in Türkiye, are summarized in Figure 1.

The period before the COVID-19 pandemic (BP) lasted from 1 January 2020, to 11 March 2020, when the first COVID-19 case was detected in Türkiye. The first no lockdown period (NL1) was from 11 March 2020 to April 2021. Immediately after the start of the COVID-19 pandemic, face-to-face education was switched to online education. During NL1, no lockdown was installed. However, several restrictions were implemented which varied between the 31 provinces of Türkiye. Curfews (i.e., partial lockdowns, stay-at-home orders for the evening and nighttime) were installed for those over 65 years and/or those under 20 years of age, which was followed by a curfew for all the citizens on weekends. During the beginning of NL1, shopping malls, marketplaces, restaurants, cafes, and other social venues were closed, but after two months (May 2020) these were re-opened, and curfews were ended. A curfew started again in November 2020. From March 2021, provinces considered installing a partial lockdown period, depending on the risk status for SARS-CoV-2 infection (low, medium, or high, which was re-assessed every two weeks). In other provinces, an attempt at normalization started, including ending the restrictions. As the restrictions and partial lockdown periods were not installed in all provinces, the period from 11 March 2020 to April 2021 (NL1) is considered a no lockdown period.

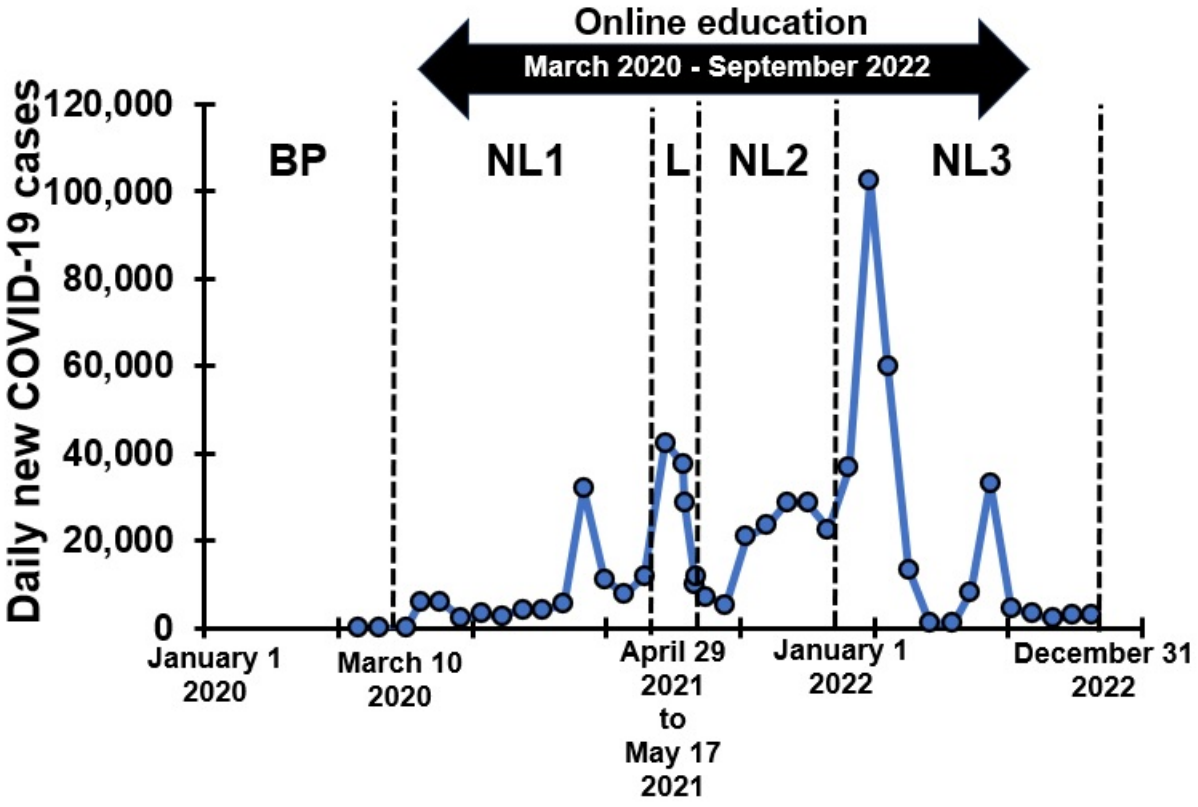

Figure 1. Schematic overview of the COVID-19 pandemic in Türkiye. Abbreviations: COVID-19 = 2019 coronavirus disease, BP = before the COVID-19 pandemic, NL1 = first no lockdown period, L = lockdown period, NL2 = second no lockdown period, NL3 = third no lockdown period.

In April 2021, the number of SARS-CoV-2 infections grew rapidly. A full lockdown (L) for all 31 provinces and all age groups was installed from 29 April 2021 until 17 May 2021. During this period, educational activities were suspended and all exams were postponed. Intercity transport was allowed to operate only at 50% of the maximum capacity. In addition to stay-at-home orders, restaurants, cafes, and other public venues were closed. An exception was made for visiting supermarkets or pharmacies.

NL2 (18 May 2021–31 December 2021) was a period of gradual normalization. Full lockdown was replaced with a partial lockdown (evening and night on both weekdays) and public venues were allowed to serve take-away food. On 1 June 2021, the gradual normalization continued, including the re-opening of public social venues (e.g., resting places, theaters, clubs, swimming pools, and sports venues), restaurants and bars, and taking into account hygiene measures (e.g., washing hands) and social distancing (1.5 m). On 1 July 2021, all restrictions were lifted. Online education returned to face-to-face teaching in September 2021. Finally, NL3 (January 2022–December 2022) was the last period covered in our survey; during this period, there were no COVID-19 restrictions.

The aim of the current study was to replicate the survey that was conducted in the Netherlands in Türkiye. In addition to the assessment of mood, alcohol consumption and smoking, quality of life, and academic performance, the current survey also assessed daily diet and the sleeping behavior of students, as previous Turkish research suggested that these changed during the COVID-19 pandemic [26–28]. Finally, immune fitness was assessed, as previous research showed that this was the best predictor of the number and severity of COVID-19 symptoms during the pandemic [29]. Immune fitness refers to "the capacity of the body to respond to health challenges (such as infections and/or fever) by activating an appropriate immune response in order to promote health and prevent and resolve disease, which is essential for improving quality of life" [30,31]. It was hypothesized

that immune fitness ratings correlate significantly with other study outcomes such as mood and quality of life.

2. Data Description

This data descriptor article describes the survey and the associated dataset. Several publications based on the collected data are currently in preparation. Other researchers may benefit from the description of the study methodology and survey content, as it can help them with the development of future surveys. In addition, the dataset can be used by other researchers for additional analyses.

2.1. Informed Consent

Before the start of the survey, potential participants viewed a page comprising background information on the purpose of the study, the inclusion criteria, and the expected duration of the survey. Information was provided on data protection and on how to contact the researchers in case of questions or comments. To start the survey, participants gave electronic informed consent. Those who agreed to participate in the study received a unique participant identification number. In the dataset, this number is labeled as Subject_ID, and is listed in column 1.

2.2. Demographic Data

The first question (column 2 of the dataset) asked the participant's University name, and in the second question, the corresponding Faculty (column 3 of the dataset). The third question asked about the level of education (class 1 to 5) (column 4 of the dataset). The next questions asked the participant's age (in years) (column 5 of the dataset), sex (as determined at birth: male or female) (column 6 of the dataset), body weight (in kg) (column 7 of the dataset), and height (in meters) (column 8 of the dataset).

2.3. Immune Fitness

Immune fitness assessed with a single-item scale ranging from 0 (poor) to 10 (excellent) [30–32]. To help explain what was meant by immune fitness, the following explanation was given: "Immune fitness can be defined as the capacity of the body to respond to health challenges (such as infections and/or fever) by activating an appropriate immune response in order to promote health and prevent and resolve disease, which is essential for improving quality of life" [30,31]. Immune fitness was assessed for five periods: (1) BP (before the COVID-19 pandemic, 1 January 2020–10 March 2020), (2) NL1 (the first no lockdown period, 11 March 2020–28 April 2021), (3) the lockdown period (29 April 2021–17 May 2021), (4) NL2 (the second no lockdown period, 18 May 2021–31 December 2021), and (5) NL3 (the third no lockdown period, 1 January 2022–December 2022). In the dataset, the past month's immune fitness is listed in columns 9 to 13.

2.4. Total Sleep Time and Sleep Quality

Total sleep time (in hours) was assessed for five periods: BP, NL1, lockdown, NL2, and NL3. The question asked, "On average, how many hours did you sleep per night?". In the dataset, the outcomes are listed in columns 14 to 18. For the same time periods, participants rated their sleep quality on a scale ranging from 0 (very poor) to 10 (excellent) [32]. In the dataset, these data are listed in columns 19 to 23.

2.5. Insomnia

Insomnia was assessed with the 2-item Insomnia Severity Index (ISI-2) [33]. The assessments were made for 5 periods: BP, NL1, lockdown, NL2, and NL3. The first item, "How satisfied/dissatisfied were you with your sleep pattern?", could be answered with one of the following answer options: very satisfied (score 0), satisfied (score 1), moderately satisfied (score 2), dissatisfied (score 3), or very dissatisfied (score 4). In the dataset, the outcomes for this item are listed in columns 24 to 28. The second item, "To what extent

did your sleep interfere with your daily functioning (e.g., daytime fatigue, mood, ability to function at work/school, concentration, memory, etc.)?", could be answered with one of the following answer options: not at all (score 0), a little (score 1), somewhat (score 2), much (score 3), or very much (score 4). In the dataset, the outcomes for this item are listed in columns 29 to 33. The ISI-2 score was computed by the sum of the two items. For the time periods, the ISI-2 scores are listed in columns 34 to 38, and range from 0 to 8. Higher ISI-2 scores imply a greater insomnia severity. Meta-analyses revealed a Cronbach's alpha > 0.8 for the ISI [34,35].

2.6. Mood

Eight items assessed mood, for five periods: BP, NL1, lockdown, NL2, and NL3. The mood items included stress, anxiety, depression, fear of COVID, fatigue, loneliness, hostility, and happiness. Mood items were rated via single-item scales, ranging from 0 (absent) to 10 (extreme) [32,36]. In the dataset, mood scores are listed in columns 39 to 78.

2.7. Quality of Life

Quality of life was assessed with a single-item scale, ranging from 0 (very poor) to 10 (excellent) [32,37]. Assessments were made for five periods: BP, NL1, lockdown, NL2, and NL3. In the dataset, quality of life scores are listed in columns 79 to 83.

2.8. Smoking Tobacco

For the 5 periods (BP, NL1, lockdown, NL2, and NL3) participants were asked how many days per week they smoked tobacco (answer options: 0 to 7 days), and the average number of cigarettes smoked per day (answer options: 0, 1–5, 6–10, 11–15, 16–20, or more than 20). In the dataset, the outcomes on smoking behavior are listed in columns 84 to 93.

2.9. Alcohol Consumption and Hangovers

Participants answered alcohol consumption questions for the five periods BP, NL1, lockdown, NL2, and NL3. Participants were asked to convert the consumed beverages into standard alcoholic drink sizes (units). One unit equaled one glass of beer (250 mL), one glass of wine, or one shot of liquor. One bottle of wine (750 mL) comprised six units of alcohol, and one bottle of liquor (750 mL) equaled 20 units. Participants reported the average number of alcoholic drinks they consumed per week (answer possibilities: 0, 1–10 units, 11–20 units, 21–30 units, 31–40 units, 41–50 units, or more than 50 units) and the number of days per week they consumed alcohol (answer possibilities 0 to 7 days). In the dataset, alcohol consumption per week is listed in columns 94 to 98, and the number of days of alcohol consumption per week are listed in columns 99 to 103. For each period, participants reported the number of hangovers they experienced per month (answer options: 0, 1–5, 6–10, 11–15, 16–20, or 21–30 days). In the dataset, the results are listed in column 105 to 109. The average next-day hangover severity for these occasions was rated on a scale ranging from 0 (absent) to 10 (extreme) [38]. In the dataset, hangover severity is listed in columns 109 to 113.

2.10. Academic Functioning

The Academic Functioning Scale (AFS) [14] was completed for the five periods BP, NL1, lockdown, NL2, and NL3. Participants were asked to rate 10 items, including general performance quality, amount of time invested in study, study grades/output, academic achievement/amount of knowledge gained, reading articles/textbooks, writing assignments, contact with teachers or supervisors, interactions with other students, balance study-private life, and the extent you enjoy being a student. The items were rated on a scale from 0 (very poor) to 10 (excellent). The AFS has three subscales, labeled (1) academic input (writing assignments, contact with teachers or supervisors, reading articles/text books, and the amount of time invested in study), (2) academic output (general performance quality, study grades/output, and academic achievement/amount of knowledge gained),

and (3) role-satisfaction (balance between study and private life, interactions with other students, and the extent you enjoy being a student). Subscale scores are computed as the average score of the included items. In the dataset, the academic functioning items and corresponding subscale scores for each period are listed in columns 114 to 178.

2.11. Start the Conversation Diet Scale (STC)

The Start The Conversation (STC) diet scale [39] aims to assess dietary behaviors. In previous research, the STC score showed significant correlations with physical activity and BMI [40,41], mental health during the COVID-19 pandemic [42], and was used to identify behaviors that cause unhealthy diet choices among students [43]. The STC comprises eight items for food intake, and both healthy and unhealthy food items are included. The frequency of dietary intake of each item is scored as 0, 1, or 2. A higher sum score of the eight items represents an unhealthier diet. The STC was completed for the past month. In the dataset, the scores on the items are listed in columns 179 to 186. The STC sum score is listed in column 187.

2.12. Healthy Diet Scale (HDS)

The Healthy Diet Scale (HDS) is a single-item scale used to estimate the percentage of the daily diet that is considered to be healthy by the participant [44]. The scale ranges from 0% (unhealthy) to 100% (healthy) in steps of 10%. The HDS was completed for 6 periods, including BP, NL1, lockdown, NL2, NL3, and the past month. In the dataset, the outcomes are listed in columns 188 to 193.

3. Methods

The survey was conducted online between 20 December 2022 and 24 June 2023. Participants were recruited via university email or social media to complete the survey. The study was reviewed and approved by The Science-Geo Ethics Review Board of Utrecht University. Electronic informed consent was provided by all participants. The study was conducted in accordance with the Declaration of Helsinki of 1975 (http://www.wma.net/en/30publications/10policies/b3/, accessed on 24 November 2023), revised in 2008. Participants were not reimbursed for participating in the study.

3.1. Participants and Sample Size

Individuals could participate in the study if they were at least 18 years old. There were no exclusion criteria. However, participants were excluded from the final dataset if they did not provide demographic data, or if their age was outside the specified inclusion range of 18 to 30 years old. No power analysis was conducted for the study. The goal was to achieve a sufficient sample size that allows comparisons between subgroups (e.g., males versus females).

3.2. Data Collection

The survey was conducted using Google Forms (https://www.google.com/forms/). The survey was conducted in the English language. Only the data of participants that completed the entire survey were collected.

3.3. Data Handling

The raw data was downloaded in an Excel format. If necessary, data were recoded, and scale and subscale scores were computed. Statistical analyses were conducted with SPSS (IBM Corp. Released 2013. IBM SPSS Statistics for Windows, Version 29.0. Armonk, NY, USA: IBM Corp.). N = 307 students completed the survey. As answering questions was mandatory, there was no missing data. Data from three participants were excluded from the final dataset due to missing data on baseline demographics (sex was not reported). Data from 2 other participants were excluded because their age (both were 43 years old) did

not fall within the inclusion criteria of being 18 to 30 years old. Data of n = 302 participants were included in the final dataset, which is attached as Supplementary Material.

3.4. Strengths and Limitations

Strengths of the study comprise the fact that the study replicated previous research, and that validated and reliable scales and questionnaires were used to assess the constructs under evaluation. The latter is important and allows cross-cultural comparisons with the previously conducted studies in the Netherlands, Germany, and Argentina. The sample size is sufficient to draw reliable conclusions and relevantly compare subgroups (e.g., sex and age effects). However, the study also has several limitations that must be considered when interpreting the data. First, the data were self-reported. As such, social desirability may have affected reporting. Second, most information was collected retrospectively. Therefore, recall bias may have influenced answering the questions. Finally, the current sample was a convenience sample. It is therefore unknown to what extent the study outcomes can be generalized to the entire Turkish student population.

4. User Notes

An SPSS.sav file of the dataset is available and has been attached as a Supplementary File to this article. The column 'Name' lists all variables, and the column 'label' column provides a description of the variables. For questions with pre-set answer options, these are listed in the column 'Values'.

Supplementary Materials: The following supporting information can be downloaded at: https://www.mdpi.com/article/10.3390/data9020035/s1, dataset.

Author Contributions: P.A.H., S.T., A.M., E.C.v.O., H.B., N.A., J.G., G.B. and J.C.V. contributed to the conceptualization, design, and methodology of the study; J.C.V. conducted the statistical analysis; P.A.H., S.T. and J.C.V. prepared the original draft. All authors have read and agreed to the published version of the manuscript.

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Institutional Review Board Statement: The studies were conducted in accordance with the Declaration of Helsinki and approved by the Science-Geo Ethics Review Board of Utrecht University (protocol code: S-23525c, date of approval: 10 May 2023).

Informed Consent Statement: Electronic informed consent was obtained from all participants involved in the study.

Data Availability Statement: The data are available as Supplementary Materials. The dataset is licensed under CC0, which means that it is open data, free for anyone to use, reuse, and distribute for both commercial and non-commercial purposes. In the event of using the dataset, it would be appreciated if the current data descriptor article is cited.

Conflicts of Interest: Over the past 3 years, J.V. has acted as a consultant/advisor for Eisai, KNMP, Med Solutions, Red Bull, Sen-Jam Pharmaceutical, and Toast! J.G. is a part-time employee of Nutricia Research, and received research grants from Nutricia research foundation, Top Institute Pharma, Top Institute Food and Nutrition, GSK, STW, NWO, Friesland Campina, CCC, Raak-Pro, and the EU. The other authors have no potential conflicts of interest to disclose.

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