











SLEEP QUALITY AND AFFECTIVE EXPERIENCES OF ADULTS LIVING IN THE STATE OF MINAS GERAIS DURING THE COVID-19 PANDEMIC

QUALIDADE DO SONO E VIVÊNCIAS AFETIVAS DE ADULTOS RESIDENTES NO ESTADO DE MINAS GERAIS DURANTE A PANDEMIA DE COVID-19

CALIDAD DEL SUEÑO Y EXPERIENCIAS AFECTIVAS DURANTE LA PANDEMIA DE COVID-19 EN ADULTOS RESIDENTES EN EL ESTADO DE MINAS GERAIS

-  Deborah Carvalho Malta¹
-  Crizian Saar Gomes²
-  Laís Santos de Magalhães Cardoso³
-  Edmar Geraldo Ribeiro³
-  Ana Paula Souto Melo⁴
-  Francielle Thalita Almeida Alves³
-  Maria Luiza Moreira de Souza³
-  Margareth Guimarães Lima⁵
-  Marilisa Berti de Azevedo Barros⁵
-  Célia Landmann Szwarcwald⁶

¹Universidade Federal de Minas Gerais - UFMG, Escola de Enfermagem - EE, Departamento de Enfermagem Materno Infantil e Saúde Pública. Belo Horizonte, MG - Brazil.

²Universidade Federal de Minas Gerais - UFMG, Faculdade de Medicina, Programa de Pós-Graduação em Saúde Pública. Belo Horizonte, MG - Brazil.

³Universidade Federal de Minas Gerais - UFMG, Escola de Enfermagem - EE, Programa de Pós-Graduação em Enfermagem. Belo Horizonte, MG - Brazil.

⁴Universidade Federal de Minas Gerais - UFMG, Faculdade de Medicina, Programa de Pós-Graduação em Medicina. Belo Horizonte, MG - Brazil.

⁵Universidade Estadual de Campinas - UNICAMP, Faculdade de Ciências Médicas, Departamento de Saúde Coletiva. Campinas, SP - Brazil.

⁶Fundação Instituto Oswaldo Cruz - FIOCRUZ, Instituto de Comunicação e Informação Científica e Tecnológica em Saúde - ICICT. Rio de Janeiro, RJ - Brazil.

Corresponding Author: Deborah Carvalho Malta
E-mail: dcmalta@uol.com.br

Authors' contributions:


Conceptualization: Deborah C. Malta, Marilisa B. A. Barros, Celia L. Szwarcwald; **Data Collection:** Deborah C. Malta; **Funding Acquisition:** Deborah C. Malta; **Investigation:** Deborah C. Malta; **Methodology:** Crizian S. Gomes, Laís S. M. Cardoso, Edmar G. Ribeiro; **Project Management:** Deborah C. Malta; **Resources Management:** Deborah C. Malta; **Software:** Crizian S. Gomes; **Statistical Analysis:** Crizian S. Gomes; **Supervision:** Deborah C. Malta; **Validation:** Deborah C. Malta; **Visualization:** Deborah C. Malta; **Writing - Original Draft Preparation:** Crizian S. Gomes, Laís S. M. Cardoso, Edmar G. Ribeiro, Ana P. S. Melo, Francielle T. A. Alves, Maria L. Moreira, Margareth G. Lima; **Writing - Review and Editing:** Deborah C. Malta, Marilisa B. A. Barros, Célia L. Szwarcwald, Crizian S. Gomes, Laís S. M. Cardoso, Edmar G. Ribeiro, Ana P. S. Melo, Francielle T. A. Alves, Maria L. Moreira, Margareth G. Lima.

Funding: Fundo Nacional de Saúde, Secretaria de Vigilância em Saúde, Ministério da Saúde (TED: 66/2018).

Submitted on: 03/10/2022

Approved on: 11/11/2021

Responsible Editor:

 Luciana Regina Ferreira da Mata

How to quote this article:

Malta DC, Gomes CS, Cardoso LSM, Ribeiro EG, Melo APS, Alves FTA, Lima MG, Barros MBA, Szwarcwald CL. Sleep quality and affective experiences of adults living in the state of Minas Gerais during the COVID-19 pandemic. REME - Rev Min Enferm. 2022[cited ____];26:e-1483. Available from: _____ DOI: 10.35699/2316-9389.2022.38721

ABSTRACT

Objectives: to verify whether adherence to the social distancing measure and sociodemographic characteristics are associated with perceived changes, during the COVID-19 pandemic, in sleep quality and affective experiences of Brazilians living in Minas Gerais. **Method:** a cross-sectional study that analyzed data from an online questionnaire applied to adults and older adults living in the state of Minas Gerais. Prevalence values and prevalence ratios, both adjusted and adjusted, were estimated for the variables investigated. **Results:** between 35% and 55% of the respondents reported changes in affective experiences, such as loneliness, sadness and anxiety, as well as changes in sleep during the social isolation period. In general, those alterations were more frequent among those who adhered to intense or total isolation, female individuals and younger people. **Conclusion:** in this study, important changes were observed in sleep quality and in the affective experiences of the population of Minas Gerais, affecting more females, younger people and individuals who adhered to intense social isolation. It is important to offer mental health care in order to avoid the negative impacts of social distancing in pandemic situations.

Keywords: COVID-19; Physical Distancing; Mental Health; Health Surveys; Adult.

RESUMO

Objetivos: verificar se a adesão à medida de distanciamento social e características sociodemográficas se associam com as alterações percebidas, durante a pandemia de COVID-19, na qualidade do sono e nas vivências afetivas de brasileiros residentes em Minas Gerais. **Método:** estudo transversal que analisou dados de questionário on-line aplicado a adultos e idosos residentes no estado de Minas Gerais. Foram estimadas prevalências e razões de prevalências, brutas e ajustadas, para as variáveis investigadas. **Resultados:** entre 35% e 55% dos respondentes referiram alterações nas vivências afetivas, como solidão, tristeza e ansiedade, e alterações do sono durante o período de isolamento social. Em geral, essas alterações foram mais frequentes entre aqueles que realizaram o isolamento de forma intensa ou total, indivíduos do sexo feminino e pessoas mais jovens. **Conclusão:** no presente estudo, foram observadas alterações importantes na qualidade de sono e nas vivências afetivas da população mineira, atingindo mais as pessoas do sexo feminino, pessoas mais jovens e que fizeram isolamento social intenso. É importante ofertar cuidados em saúde mental a fim de evitar os impactos negativos do distanciamento social em situações de pandemia.

Palavras-chave: COVID-19; Distanciamento Físico; Saúde Mental; Inquéritos Epidemiológicos; Adulto.

RESUMEN

Objetivos: verificar si la adherencia a la medida de distanciamiento social y las características sociodemográficas están asociadas a los cambios percibidos en la calidad del sueño y las experiencias afectivas de los brasileños residentes en Minas Gerais durante la pandemia de COVID-19. **Método:** estudio transversal que analizó datos de un cuestionario online aplicado a adultos y ancianos residentes en el estado de Minas Gerais. Se estimaron las prevalencias y las razones de prevalencia, brutas y ajustadas, de las variables investigadas. **Resultados:** entre el 35% y el 55% de los encuestados refieren alteraciones en las vivencias afectivas como soledad, tristeza, ansiedad, y alteraciones del sueño durante el período de aislamiento social. En general, estos cambios fueron más frecuentes entre los que estaban intensa o totalmente aislados, las mujeres y los individuos más jóvenes. **Conclusión:** en el presente estudio observamos alteraciones importantes en la calidad del sueño y en las vivencias afectivas de la población de Minas Gerais, afectando más al sexo femenino, a las personas más jóvenes y a las que habían estado en intenso aislamiento social. Es importante prestar atención a la salud mental para evitar los efectos negativos del distanciamiento social en situaciones de pandemia.

Palabras clave: COVID-19; Distanciamiento Físico; Salud Mental; Encuestas Epidemiológicas; Adulto.

INTRODUCTION

The social isolation imposed by the Coronavirus Disease 2019 (COVID-19) pandemic, which ranged from guidance to adopt physical distancing between people, temporary closure of schools and commercial shops to control and closure of borders (municipal, state and national), has been described as the “world’s greatest psychological experiment”.¹ It is estimated that, in 2020, the impact of the COVID-19 pandemic triggered a 27.6% increase in the prevalence of major depressive disorder and a 25.6% increase in the prevalence of anxiety disorder worldwide.²

Distancing from friends and family members, changing routines,³ fear, uncertainty and boredom can trigger anxiety disorders,⁴ sadness, loneliness and depression.^{5,6} It is estimated that the countries that were most affected by the COVID-19 pandemic in 2020 had the greatest increases in the prevalence of depressive and anxiety disorders and that women were more affected than men due to overlapping roles and concentration in the domestic environment with additional caregiving responsibilities, in addition to being more likely to be financially disadvantaged.² In addition to the aforementioned mental health problems, when exposed to stressful situations, most people may have sleep problems, directly affecting their emotional and mental functioning and their concentration to perform daily tasks.⁷

Concern about the mental health of the population intensifies especially during pandemic and/or social crises, triggering greater public health problems. This finding causes psychological and social disturbances that affect the coping ability at varying levels of intensity and propagation. It is noteworthy that mental health care should be as paramount as primary health care, and the COVID-19 pandemic has shown the impact of crises on mental health⁽²⁾.

Considering that the implementation of the social distancing strategy to contain spread of the coronavirus exerted a strong impact on people’s emotional dimension, it becomes necessary to analyze the impacts of social distancing on the emotional dimension in the Brazilian states. This is important to contribute to the implementation of early interventions aimed at reducing more severe mental disorders and, thus, helping people return to normal life, as well as assisting in the formulation of recommendations for future distancing periods. Such being the case, this study proposed to collaborate with the investigation of such impacts in the state of *Minas Gerais*.

This study therefore aims at identifying the association between adherence to the social distancing measure and sociodemographic characteristics, seeking to understand the perceived changes in sleep quality and affective experiences of Brazilians living in *Minas Gerais*, during the COVID-19 pandemic. It is expected to contribute to understanding how the pandemic affected the well-being of the *Minas Gerais* population.

METHODS

Study design, data collection and population

This article used data from the survey entitled “ConVid Survey of Behaviors” (<https://convid.fiocruz.br>), conducted by the Oswaldo Cruz Foundation (Fiocruz) in partnership with *Universidade Federal de Minas Gerais* (UFMG) and *Universidade Estadual de Campinas* (Unicamp). This research had the following objectives: to describe the adherence intensity of the Brazilian population to the social restriction measures; to investigate changes in work situation and income; to assess the difficulties carrying out routine activities; to analyze health conditions; and to describe changes in behavior adopted during the COVID-19 pandemic.

A virtual health survey, ConVid was conducted with adult individuals (aged at least 18 years old) living in Brazil. The data were collected from April 24th to May 24th, 2020, via self-completion of an online questionnaire. The information collected was stored on the server of the Oswaldo Cruz Foundation Institute for Scientific and Technological Communication and Information in Health (ICICT/FIOCRUZ).

The participants were invited through a chain sampling procedure.⁹ With this process, the network of invited people increased rapidly, totaling 45,161 interviews throughout Brazil. All persons aged 18 or over living in Brazilian territory and with access to the Internet during the COVID-19 pandemic were considered eligible. Questions validated in health surveys previously applied in Brazil were used. The questions on mood were adapted from the World Health Survey; in turn, to investigate sleep problems, a single sleep self-assessment question was used, adapted from the set of questions on sleep from the Population-Based Health Survey in Campinas, 2014-2015 (ISA-CAMP). More information on the ConVid survey methods can be found in another publication.¹⁰

This study used a subsample of this research, consisting of adult individuals living in the state of *Minas Gerais* (n=6,517).

Study variables

Outcomes

The outcome variables were related to the respondents' sleep and affective experiences during the pandemic. The self-report of changes in sleep quality was evaluated based on the following question and respective answer alternatives: "Has the pandemic affected the quality of your sleep?: a) 'No effect at all, I continue sleeping well'; b) 'I started having sleep problems with the pandemic'; c) 'I already had sleep problems and they remained unchanged'; d) 'I already had sleep problems and they got worse'; and e) 'I already had sleep problems, but they improved'". Individuals who chose options "b" and "d" were considered as having sleep problems.

The affective experiences were evaluated based on the following questions: a) "During the pandemic period, how often did you feel isolated or alone?"; b) "During the pandemic period, how often did you feel sad, downcast or depressed?"; c) "During the pandemic, how often did you feel worried, anxious or nervous?". The answers included the following alternatives: a) "Never"; b) "A few times"; c) "Many times"; and d) "Always". A change in the affective experiences was considered when the "Many times" or "Always" options were chosen.

Explanatory variables

Adherence to social distancing was evaluated based on the following question: "During the coronavirus pandemic, to what extent did you (or do you still) restrict contact with people?". The answer options included the following: a) No restriction: "I didn't do anything, I led a normal life"; b) Little restriction: "I tried to be careful, stay away from people, reduce contact a little, not visit the elderly, but I continued working and going out"; c) Severe restriction: "I stayed home, I only went out to shop at supermarkets and pharmacies"; d) Total restriction: "I strictly stayed home, going out only for health care needs".

The sociodemographic characteristics analyzed were as follows: gender (male and female), age group (18-29 years old; 30-39 years old; 40-49 years old; 50-59 years old; 60 years old or more) and schooling (complete Elementary School or less; complete High School; complete Higher Education or more).

Data analysis

As this is a non-probability sample, post-stratification procedures by Federation Unit, gender, age group, race/skin color and schooling level were used for the statistical

data analysis in order to obtain the same distribution of the Brazilian population identified in the National Household Sample Survey (*Pesquisa Nacional de Amostra por Domicílios*, PNAD) in 2019, by the Brazilian Institute of Geography and Statistics (*Instituto Brasileiro de Geografia e Estatística*, IBGE).

The relative frequencies and respective 95% confidence intervals (CI95%) of the variables were calculated. To verify the association between the explanatory variables and the investigated outcomes, the unadjusted Prevalence Ratio (PR) and the adjusted Prevalence Ratio (PRadj) were used as association measures, obtained through Poisson Regression with robust variance.

Data analysis was performed in Stata (StataCorp LP, College Station, United States) version 14, using the survey (svy) module to consider the design effect and the post-stratification weights.

Ethical aspects

The research was approved by the National Research Ethics Committee (Opinion number: 3,980,277) and was based on Resolutions No. 466/2012 and No. 510/2016 of the National Health Council. The participants filled out the Free and Informed Consent Form (FICF) and all the answers were anonymous and without any type of identification of the participants.

RESULTS

Characterization

Among the 6,517 adults participating in the study in *Minas Gerais*, 52.4% were female, 22.4% were between 18 and 29 years old, and 22.0% were 60 or older. Most had complete High School (74.1%) (data not shown). A total of 70.1% reported having stayed strictly at their homes or only going out to shop at the supermarket and pharmacy ("total" and "intense" social distancing, respectively). Nearly 57% stated having stayed at their homes and only going out to buy essential products, such as food and medications. This percentage was 52.3% in men and 61.4% in women. A total of 13% reported staying strictly at their homes, only going out when they needed to seek the health service: 8.9% among men and 16.7% among women (Figure 1).

Sleep changes

Nearly 42% of the adults evaluated reported changes in sleep during the pandemic, with higher prevalence in

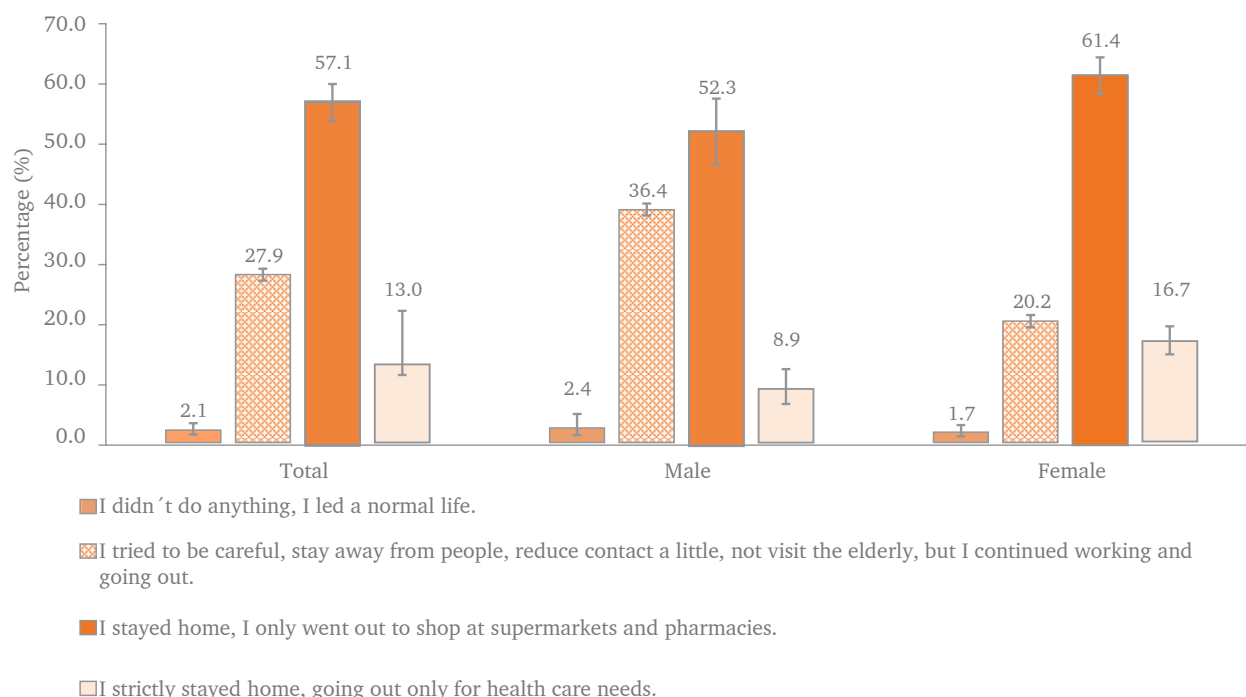


Figure 1 - Intensity of the adherence to social distancing during COVID-19 pandemic, by gender. ConVid, Surveys of Behaviors, *Minas Gerais*, 2020.

people who underwent intense (PR_{adj} : 3.61) or total (PR_{adj} : 3.60) restriction; in women (PR_{adj} : 1.35) and in younger people. While 27.48% of the aged individuals (at least 60 years old) reported changes in sleep, such changes reached 47.50% (PR_{adj} : 1.81) of the adults aged from 18 to 29 years old. There was no difference according to schooling level (Table 1).

Affective experiences

During the pandemic, 52.9% of the adults felt isolated many times or always, which represented more than 3 times the percentage of those who adhered to full restriction (PR_{adj} : 3.50). The prevalence of isolation feelings was many times or always associated with the female gender (PR_{adj} : 1.19) and with age 30-39 years old (PR_{adj} : 1.30) and 50-59 years old (PR_{adj} : 1.50). There was no difference according to schooling level (Table 2).

Feeling sad or depressed many times or always during the pandemic was reported by 37.4% of the participants. Higher prevalence of sadness was observed in: Adherence to intense (PR_{adj} : 2.70) and total (PR_{adj} : 2.76) restriction measures; women (PR_{adj} : 1.79); and younger age (18-29 years old: PR_{adj} : 2.14; 30-39 years old: PR_{adj} : 1.85; 30-49 years old: PR_{adj} : 1.80; 30-59 years old: PR_{adj} : 1.61) (Table 3).

In relation to feeling worried, anxious or nervous, 51.5% reported having had this feeling many times or always, corresponding to people who adhered to total restriction (PR_{adj} : 2.18); women (PR_{adj} : 1.56) and young adults (18-29 years old: PR_{adj} : 2.54) as the most affected (Table 4).

DISCUSSION

According to the survey results, nearly 70% of the individuals adhered to intense or total social distancing and the highest prevalence was observed among women, when compared to men. Nearly 42% of the respondents reported changes in sleep, and the most affected were those who reported having adhered to intense or total social distancing, women and adults. In relation to the affective experiences, more than 50% of the respondents reported feeling isolated and anxious, and approximately 40% felt sad or depressed many times or always. In general, the highest prevalence values for all outcomes were observed among individuals who adhered to intense or total social distancing and among women. Young adults reported feeling anxious, sad or depressed in a greater proportion than individuals in the older age groups. There was no association between the investigated outcomes and schooling level.

Table 1 - Sleep quality during the COVID-19 pandemic, according to social distancing measures and sociodemographic characteristics. ConVid, Surveys of Behaviors, *Minas Gerais*, 2020

| Sleep changes | | | |
|--|------------------------|--------------------------------|-------------------------------|
| | Yes % (CI 95%) | Unadjusted PR % (CI 95%) | Adjusted PR* % (CI 95%) |
| Total | 42.08 (39.13-45.08) | | |
| Adherence to isolation measures | | | |
| No restriction | 12.08 (4.07-30.78) | 1.00 | 1.00 |
| Little restriction | 33.36 (27.79-39.43) | 2.76 (0.97-7.87) | 2.49 (0.87-7.18) |
| Intense restriction | 47.60 (43.8-51.44) | 3.94 (1.39-11.09) | 3.61 (1.28-10.19) |
| Total restriction | 41.27 (34.16-48.77) | 3.42 (1.19-9.74) | 3.60 (1.26-10.31) |
| Gender | | | |
| Male | 34.73 (29.75-40.07) | 1.00 | 1.00 |
| Female | 48.78 (45.71-51.86) | 1.40 (1.19-1.65) | 1.35 (1.16-1.58) |
| Age group | | | |
| 18-29 years old | 47.50 (42.37-52.68) | 1.72 (1.33-2.24) | 1.81 (1.38-2.36) |
| 30-39 years old | 47.91 (40.90-55.00) | 1.74 (1.32-2.30) | 1.91 (1.44-2.55) |
| 40-49 years old | 49.88 (42.09-57.68) | 1.81 (1.37-2.41) | 2.01 (1.51-2.67) |
| 50-59 years old | 38.12 (31.96-44.69) | 1.39 (1.04-1.85) | 1.54 (1.16-2.05) |
| 60 years old or more | 27.48 (21.49-34.41) | 1.00 | 1.00 |
| Schooling | | | |
| Elementary School - Complete or less | 34.32 (25.59-44.25) | 1.00 | 1.00 |
| Complete High School | 43.48 (39.83-47.20) | 1.27 (0.95-1.69) | 1.11 (0.85-1.46) |
| Higher Education - Complete or more | 41.31 (39.75-42.89) | 1.20 (0.91-1.59) | 0.94 (0.72-1.22) |

Source: The authors. Data from "ConVid Survey of Behaviors". * PR adjusted by the other variables.

Studies on mental health implications related to COVID-19 pandemic point to significant negative repercussions. These implications can be more lasting and prevalent than the individual's own COVID-19 involvement,¹¹ in addition to being related to fear of being infected, uncertainties about disease control and severity, its dissemination, unpredictability of duration, consequences, nature and still little known origins.^{12,13} In

Table 2 - "Felt isolated" affective experiences during COVID-19 pandemic, according to social distancing measures and sociodemographic characteristics. ConVid, Surveys of Behaviors, *Minas Gerais*, 2020

| Felt isolated | | | |
|--|--------------------------------------|-----------------------------|-------------------------------|
| | Many times / Always % (CI 95%) | Unadjusted PR % (CI 95%) | Adjusted PR* % (CI 95%) |
| Total | 52.98 (49.91-56.03) | | |
| Adherence to isolation measures | | | |
| No restriction | 16.89 (4.87-44.69) | 1.00 | 1.00 |
| Little restriction | 50.53 (43.93-57.11) | 2.99 (0.94-9.48) | 2.93 (0.90-9.54) |
| Intense restriction | 54.38 (50.52-58.19) | 3.22 (1.08-10.15) | 3.16 (0.98-10.22) |
| Total restriction | 57.87 (50.29-65.09) | 3.42 (1.08-10.86) | 3.50 (1.07-11.47) |
| Gender | | | |
| Male | 47.61 (42.20-53.07) | 1.00 | 1.00 |
| Female | 57.88 (54.79-60.91) | 1.21 (1.07-1.38) | 1.19 (1.05-1.34) |
| Age group | | | |
| 18-29 years old | 50.06 (44.88-55.23) | 1.08 (0.89-1.29) | 1.13 (0.93-1.37) |
| 30-39 years old | 58.05 (50.98-64.80) | 1.25 (1.03-1.51) | 1.30 (1.05-1.60) |
| 40-49 years old | 54.58 (46.62-62.31) | 1.17 (0.95-1.45) | 1.23 (0.98-1.53) |
| 50-59 years old | 57.50 (50.35-64.36) | 1.24 (1.02-1.50) | 1.30 (1.06-1.60) |
| 60 years old or more | 46.47 (39.59-53.48) | 1.00 | 1.00 |
| Schooling | | | |
| Elementary School - Complete or less | 53.75 (43.28-63.91) | 1.00 | 1.00 |
| Complete High School | 51.94 (48.18-55.68) | 0.97 (0.78-1.19) | 0.96 (0.78-1.18) |
| Higher Education - Complete or more | 57.88 (56.28-59.47) | 1.08 (0.88-1.31) | 0.99 (0.82-1.21) |

Source: The authors. Data from "ConVid Survey of Behaviors". * PR adjusted by the other variables.

addition to that, concerns about oneself and family and friends during the COVID-19 pandemic had a tendency to increase the emotional and physical burden, collaborating with development, worsening or recurrence of mental disorders or physical diseases.¹⁴

Another consequence of the stress resulting from the pandemic falls on sleep quality, whose changes may represent a reduction or increase in this quality due to

Table 3 - “Sad or depressed” affective experiences during COVID-19 pandemic, according to social distancing measures and sociodemographic characteristics. ConVid, Surveys of Behaviors, *Minas Gerais*, 2020

| Sad or depressed | | | |
|--|--------------------------------|--------------------------|-------------------------|
| | Many times / Always % (CI 95%) | Unadjusted PR % (CI 95%) | Adjusted PR* % (CI 95%) |
| Total | 37.38 (34.60-40.24) | | |
| Adherence to isolation measures | | | |
| No restriction | 13.78 (5.09-32.28) | 1.00 | 1.00 |
| Little restriction | 29.90 (24.71-35.66) | 2.17 (0.83-5.66) | 2.05 (0.79-5.29) |
| Intense restriction | 41.85 (38.2-45.59) | 3.04 (1.18-7.82) | 2.70 (1.06-6.89) |
| Total restriction | 37.56 (30.8-44.83) | 2.72 (1.04-7.12) | 2.76 (1.07-7.14) |
| Gender | | | |
| Male | 26.08 (21.77-30.90) | 1.00 | 1.00 |
| Female | 47.68 (44.63-50.76) | 1.83 (1.52-2.20) | 1.79 (1.49-2.14) |
| Age group | | | |
| 18-29 years old | 48.48 (43.33-53.67) | 2.03 (1.58-2.62) | 2.14 (1.66-2.76) |
| 30-39 years old | 40.47 (33.89-47.42) | 1.69 (1.27-2.25) | 1.85 (1.40-2.47) |
| 40-49 years old | 39.04 (31.95-46.61) | 1.63 (1.21-2.20) | 1.80 (1.34-2.42) |
| 50-59 years old | 34.58 (28.78-40.89) | 1.45 (1.08-1.93) | 1.61 (1.22-2.12) |
| 60 years old or more | 23.86 (18.81-29.76) | 1.00 | 1.00 |
| Schooling | | | |
| Elementary School - Complete or less | 28.83 (21.21-37.85) | 1.00 | 1.00 |
| Complete High School | 38.85 (35.38-42.43) | 1.35 (0.99-1.83) | 1.15 (0.87-1.53) |
| Higher Education - Complete or more | 36.90 (35.38-38.45) | 1.28 (0.95-1.72) | 0.98 (0.74-1.28) |

Source: The authors. Data from “ConVid Survey of Behaviors”. * PR adjusted by the other variables.

changes in routine and apprehension in the face of a scenario marked by uncertainty.¹⁵ A Chinese study revealed that 36.38% of the participants slept poorly during the COVID-19 pandemic and that greater perceived stress was significantly associated with higher anxiety levels, which, in turn, were associated with lower sleep quality.¹⁶

National data from the ConVid survey revealed that nearly 40% of the participating Brazilian adults reported having frequent feelings of sadness or depression, and

Table 4 - “Anxious” affective experiences during COVID-19 pandemic, according to social distancing measures and sociodemographic characteristics. ConVid, Surveys of Behaviors, *Minas Gerais*, 2020

| Anxious | | | |
|--|--------------------------------|--------------------------|-------------------------|
| | Many times / Always % (CI 95%) | Unadjusted PR % (CI 95%) | Adjusted PR* % (CI 95%) |
| Total | 51.49 (48.42-54.56) | | |
| Adherence to isolation measures | | | |
| No restriction | 23.97 (10.8-45.07) | 1.00 | 1.00 |
| Little restriction | 46.46 (40.06-52.97) | 1.94 (0.92-4.06) | 1.73 (0.84-3.57) |
| Intense restriction | 55.36 (51.45-59.2) | 2.31 (1.11-4.80) | 2.01 (0.99-4.12) |
| Total restriction | 49.66 (42.2-57.13) | 2.07 (0.98-4.35) | 2.18 (1.05-4.49) |
| Gender | | | |
| Male | 39.63 (34.58-44.91) | 1.00 | 1.00 |
| Female | 62.29 (59.25-65.24) | 1.57 (1.37-1.81) | 1.56 (1.38-1.78) |
| Age group | | | |
| 18-29 years old | 67.53 (62.23-72.41) | 2.41 (1.93-3.01) | 2.54 (2.03-3.18) |
| 30-39 years old | 63.08 (55.88-69.74) | 2.25 (1.78-2.85) | 2.43 (1.91-3.08) |
| 40-49 years old | 54.39 (46.31-62.24) | 1.94 (1.50-2.50) | 2.09 (1.63-2.69) |
| 50-59 years old | 43.23 (36.69-50.02) | 1.54 (1.19-2.00) | 1.67 (1.30-2.15) |
| 60 years old or more | 28.02 (22.57-34.21) | 1.00 | 1.00 |
| Schooling | | | |
| Elementary School - Complete or less | 41.50 (32.16-51.49) | 1.00 | 1.00 |
| Complete High School | 52.82 (49.02-56.58) | 1.27 (0.99-1.63) | 1.06 (0.85-1.33) |
| Higher Education - Complete or more | 53.05 (51.45-54.64) | 1.28 (1.01-1.62) | 0.95 (0.77-1.18) |

Source: The authors. Data from “ConVid Survey of Behaviors”. * PR adjusted by the other variables.

that more than 50% reported frequent feelings of anxiety and nervousness at the beginning of the pandemic.¹⁷ More than 40% of the respondents started having some sleep problem and approximately 50% had an aggravated problem. These feelings, sensations and disorders were more prevalent in young adults, women and individuals with a previous diagnosis of depression.¹⁷ The drastic reduction

in social interaction due to the governments' response to the pandemic can exert adverse effects on the health of the population, from insomnia and reduced immune function to an increased risk of cardiovascular events, such as coronary diseases and strokes.¹⁸

Higher prevalence of sleep disorders and affective experiences in women was also found in a study conducted at the global level.² With the pandemic, pre-existing inequalities were amplified and exposed social, political and economic vulnerabilities, which mirror the disadvantaged situation of women in relation to men¹⁹ and contribute to an environment of mental illness. This scenario reasserted that women earn lower wages, are more prone to informal jobs, take more time to return to the labor market and account for the greater proportion of being heads of single-parent families, which denotes their lower capacity to absorb positive economic impacts when compared to men.²⁰ In addition to that, social distancing can intensify coexistence of women who suffer domestic violence with their aggressor in the same environment, exposing them even more to the risk of sexual abuse and other types of violence.¹⁹

Regarding age, a study conducted by the Harvard Graduate School of Education with a USA population, 43% of the young individuals reported increased loneliness since the beginning of the COVID-19 pandemic.²¹ This same study pointed out that the prevalence of loneliness was higher among young adults even before the pandemic: 61% of the young adults reported feeling severe loneliness when compared to 24% of the respondents aged 55-65.²¹ Similarly, an online survey by the Centers for Disease Control and Prevention (CDC) indicated that the highest percentage of respondents who reported symptoms of anxiety, depression and suicidal ideation during the pandemic corresponded to the group of individuals aged 18-24.²² Young people may feel lonely, anxious and depressed for many reasons, including disconnection of their family arrangements for identity and belonging issues, as they are dealing with defining and stressful decisions related to work and affective relationships. Moreover, many of them may not yet have developed the self-affirming ability of older adults.²¹

The results herein found indicate the need to ensure the provision of care services to affective experiences and sleep quality adapted to the pandemic context, especially for the most affected groups. The programs and measures to support the population in pandemic times should consider that, contrary to the assumption that loneliness is a special concern of the elderly, young people and adults also suffer a high impact of loneliness in their lives when

subjected to restrictions of their social relations. Although the feeling of loneliness tends to be more common in everyday life with increasing age, among young people and adults, the pandemic may represent the first experience of loneliness and distancing from loved ones⁽²³⁾.

It is noted that, with the protective measures implemented to contain the advance of COVID-19, many health services - including those specialized in mental health - have suffered interruptions in the care they provide,²⁴ which can further aggravate the situation. There was an estimated 93% of interruptions worldwide, while the need for psychological care increased.²⁴ Although many countries (70%) adopt Telemedicine - including mental health care - there are worrying inequalities in the implementation of these interventions: 80% of the high-income countries use such strategies to fill gaps in mental health, when compared to less than 50% of the low-income countries.²⁴

The impact of the pandemic on mental health and affective experiences persists even after easing the social distancing measures and in the post-pandemic era. Thus, it is estimated that, in the current scenario, there will be increasing rates of depression and anxiety, as well as of disorders and changes in affective behaviors. Therefore, it is indispensable that global health systems demonstrate efforts to support these psychological demands, with a special focus on the groups most affected by distancing. In addition to that, there is a need for longitudinal studies that determine the magnitude of the association of the persistent psychological situation caused by the COVID-19 pandemic⁽²⁵⁾.

As a limitation of this study, data collection through the Internet can be mentioned and, for a reason of access to this tool, not all population strata could be contemplated. However, this limitation was minimized by applying post-stratification weights based on the PNAD data. In data collection, it was not possible to use specific instruments to evaluate depression and anxiety; thus, the data are restricted to reports of frequency of sadness and anxiety feelings. In addition, the data were collected at the beginning of the pandemic in Brazil; therefore, they represent a specific moment in the situation, which is subjected to changes according to the evolution of the health and social situations. It is noteworthy that, although the sample was not probabilistic, the study managed to cover participants from all Brazilian regions, to reach a large number of participants and to use post-stratification weights to minimize selection bias.

CONCLUSION

We observed important changes in sleep quality and in the affective experiences of the population of *Minas Gerais*, with women, younger adults and those who adhered to intense or total social isolation as the most affected. Changes can range from emotional difficulties to severe mental illness. Therefore, it is important to pay attention to the symptoms, in order to avoid the negative impacts of social distancing on the socio-affective dimension. Community-level intervention and prevention efforts can help address several mental health conditions associated with the COVID-19 pandemic.

REFERENCES

- Hoof EV. Lockdown is the world's biggest psychological experiment - and we will pay the price. 2020[cited 2022 Feb 22]. In: World Economic Forum [Internet]. Geneva: World Economic Forum; 2022. Available from: <https://www.weforum.org/agenda/2020/04/this-is-the-psychological-side-of-the-covid-19-pandemic-that-were-ignoring/>
- COVID-19 Mental Disorders Collaborators. Global prevalence and burden of depressive and anxiety disorders in 204 countries and territories in 2020 due to the COVID-19 pandemic. *Lancet* [Internet]. 2021[cited 2022 Aug 15];398(10312):1700-12. Available from: [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(21\)02143-7/fulltext#%20](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(21)02143-7/fulltext#%20)
- Cluver L, Lachman JM, Sherr L, Wessels I, Krug E, Rakotomalala S, et al. Parenting in a time of COVID-19. *Lancet* [Internet]. 2020[cited 2022 Feb 6];395(10231):e64. Available from: [http://dx.doi.org/10.1016/S0140-6736\(20\)30736-4](http://dx.doi.org/10.1016/S0140-6736(20)30736-4)
- Lima CKT, Carvalho PMM, Lima IAS, Nunes JAVO, Saraiva JS, Souza RI, et al. The emotional impact of coronavirus 2019-Ncov (new coronavirus disease). *Res Psychiatry* [Internet]. 2020[cited 2022 Jan 21];287:112915. Available from: <http://doi.org/10.1016/j.psychres.2020.112915>
- Pancani L, Marinucci M, Aureli N, Riva P. Forced social isolation and mental health: A study on 1006 Italians under COVID-19 quarantine. *PsyArXiv Preprints* [Internet]. 2020[cited 2022 Jan 21]. Available from: <http://doi.org/10.31234/osf.io/uacjf>
- Wang C, Pan R, Wan X, Tan Y, Xu L, Ho CS, et al. Immediate psychological responses and associated factors during the initial stage of the 2019 coronavirus disease (COVID-19) epidemic among the general population in China. *Int J Environ Res Public Health* [Internet]. 2020[cited 2022 Jan 21];17(5):1729. Available from: <https://www.mdpi.com/1660-4601/17/5/1729>
- Altena E, Baglioni C, Espie CA, Ellis J, Gavrilloff D, Holzinger B, et al. Dealing with sleep problems during home confinement due to the COVID-19 outbreak: Practical recommendations from a task force of the European CBT-I Academy. *J Sleep Res* [Internet]. 2020[cited 2022 Jan 21];29(4):e13052. Available from: <https://pubmed.ncbi.nlm.nih.gov/32246787/>
- Lei S, Jiang F, Su W, Chen C, Chen J, Mei W, et al. Clinical characteristics and outcomes of patients undergoing surgeries during the incubation period of COVID-19 infection. *E Clinical Medicine* [Internet]. 2020[cited 2022 Jan 21];21:100331. Available from: [https://linkinghub.elsevier.com/retrieve/pii/S2589-5370\(20\)30075-4](https://linkinghub.elsevier.com/retrieve/pii/S2589-5370(20)30075-4)
- Costa BRL. Bola de neve virtual: o uso das redes sociais virtuais no processo de coleta de dados de uma pesquisa científica. *RIGS - Rev Inter Gest Social* [Internet]. 2018[cited 2022 Jan 21];7(1). Available from: <https://periodicos.ufba.br/index.php/rigs/article/view/24649/16131>
- Szwarcwald CL, Souza Júnior PRB, Damacena GN, Malta DC, Barros MBA, Romero DE, et al. ConVid - Pesquisa de Comportamentos pela Internet durante a pandemia de COVID-19 no Brasil: concepção e metodologia de aplicação. *Cad Saúde Pública* [Internet]. 2021[cited 2022 Jan 21];37(3):e00268320. Available from: <https://doi.org/10.1590/0102-311X00268320>
- Ornell F, Schuch JB, Sordi AO, Kessler FHP. Pandemia de medo e COVID-19: impacto na saúde mental e possíveis estratégias. *Debates Psiquiatr* [Internet]. 2020[cited 2022 Jan 21];10(2):12-6. Available from: <https://revistardp.org.br/revista/article/view/35>
- Asmundson GJG, Taylor S. Coronaphobia: fear and the 2019-nCoV outbreak. *J Anxiety Disord* [Internet]. 2020[cited 2022 Jan 21];70:102196. Available from: <http://dx.doi.org/10.1016/j.janxdis.2020.102196>
- Zandifar A, Badrfam R. Iranian mental health during the COVID-19 epidemic. *Asian J Psychiatr* [Internet]. 2020[cited 2022 Jan 21];51:101990. Available from: <http://dx.doi.org/10.1016/j.ajp.2020.101990>
- Brooks SK, Webster RK, Smith LE, Woodland L, Wessely S, Greenberg N, et al. The psychological impact of quarantine and how to reduce it: Rapid review of the evidence. *Lancet* [Internet]. 2020[cited 2022 Jan 21];395(10227):912-20. Available from: [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(20\)30460-8/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)30460-8/fulltext)
- Reeth OV, Weibel L, Spiegel K, Leproult R, Dugovic C, Maccaric S. Interactions between stress and sleep: from basic research to clinical situations. *Sleep Med Rev* [Internet]; 2020[cited 2022 Jan 21];4(2):201-20. Available from: <https://www.sciencedirect.com/science/article/abs/pii/S1087079299900977>
- Zhao X, Lan M, Li H, Yang J. Perceived stress and sleep quality among the non-diseased general public in China during the 2019 coronavirus disease: a moderated mediation model. *Sleep Med Rev* [Internet]. 2020[cited 2022 Jan 21];77:339-45. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7240276/>
- Barros MBA, Lima MG, Malta DC, Szwarcwald CL, Azevedo RCS, Romero D, et al. Relato de tristeza/depressão, nervosismo/ansiedade e problemas de sono na população adulta brasileira durante a pandemia de COVID-19. *Epidemiol Serv Saúde* [Internet]. 2020[cited 2022 Jan 21];29(4):e2020427. Available from: <https://www.scielo.br/j/ress/a/nFWPcDjfnCLD84Qx7Hf5ynq/>
- Understanding the Effects of Social Isolation on Mental Health. Tulane University School of Public Health and Tropical Medicine [Internet]. 2020[cited 2022 Mar 18]. Available from: <https://publichealth.tulane.edu/blog/effects-of-social-isolation-on-mental-health/>
- Burki T. O impacto indireto do COVID-19 nas mulheres. *Lancet Infect Dis* [Internet]. 2020[cited 2022 Mar 18];20(8):904-5. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7836874/>
- United Nations. UN Women. UN Secretary-General's policy brief: The impact of COVID-19 on women; 2020[cited 2022 Mar 18]. Available from: <https://www.unwomen.org/en/digital-library/publications/2020/04/policy-brief-the-impact-of-covid-19-on-women>
- Weissbourd R, Batanova M, Lovison V, Torres E. Loneliness in America: How the Pandemic Has Deepened an Epidemic of Loneliness and What We Can Do About It. Making Caring Common Project; 2021[cited 2022 Jan 12]. Available from: https://static1.squarespace.com/static/5b7c56e255b02c683659fe43/t/6021776bdd04957c4557c212/1612805995893/Loneliness+in+America+2021_02_08_FINAL.pdf

22. Czeisler ME, Lane RI, Petrosky E, Wiley JF, Christensen A, Njai R. Mental Health, Substance Use, and Suicidal Ideation During the COVID-19 Pandemic: United States, June 24-30, 2020 [Internet]. Atlanta: Centers for Disease Control and Prevention; 2020[cited 2022 Mar 18];69(32):1049-57. Available from: https://www.cdc.gov/mmwr/volumes/69/wr/mm6932a1.htm?s_cid=mm6932a1_w
 23. Beam CR, Kim AJ. Psychological sequelae of social isolation and loneliness might be a larger problem in young adults than older adults. *Psychol Trauma* [Internet]. 2020[cited 2022 Jan 21];12(Supl 1):S58-S60. Available from: <https://content.apa.org/record/2020-41443-001>
 24. World Health Organization. COVID-19 disrupting mental health services in most countries, WHO survey [Internet]. Geneva: WHO; 2022[cited 2022 Jan 21]. Available from: <https://www.who.int/news/item/05-10-2020-covid-19-disrupting-mental-health-services-in-most-countries-who-survey>
 25. Costa ACDS, Menon V, Phadke R, Dapke K, Miranda AV, Ahmad S, et al. Mental health in the post COVID-19 era: future perspectives. *Einstein (São Paulo)* [Internet]. 2022[cited 2022 Mar 18];20:eCE6760. Available from: 10.31744/einstein_journal/2022CE6760
-