

Impact of Covid-19 in Global Health and Psychosocial Risks at Work

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Objective: The main objective is to understand and characterize the impact of Covid-19 pandemic on mental health and psychosocial risks at work in professionally active adults. **Methods:** This specific work includes 4708 professionally active participants from all over the country, of which 3354 are women (71.2%), aged between 19 and 86 years, with an average age of 45.8 years (SD = 12.56). **Results:** The global impact of Covid-19 is explained by socio-demographic factors (sex, age, and education), by work-related and volume of work and health that is reflected in most symptoms. We found sex, age, education level, and professional area differences related to global impact of Covid-19. **Conclusion:** The Covid-19 pandemic accounts for the challenge to identify the important factors to promote resilience of citizens, professionals, and organizations.

Keywords: Covid-19, health, healthy workplace, mental health, psychosocial risks at work

The Covid-19 pandemic had an unprecedented impact worldwide not only in populations' health and healthcare systems, but also in countries socio-demographics, economy, education, and labor.

The lockdown has caused drastic changes challenging work and family; these changes deserve in depth analysis.

People working from home were exposed to specific psychosocial risks such as isolation, confusing boundaries between work and family, increased risk of conflicts and domestic violence, among others. The fear of losing their jobs, wage cuts and reductions, layoffs, and benefits reduction caused job insecurity for many workers; insecurity, economic loss, and unemployment can have serious impact on mental health.¹

These and other psychosocial risks can either arise or increase during the Covid-19 and if not properly assessed and managed, they can increase stress, decrease productivity, and lead to physical and mental health problems.²

Psychological responses include low mood, low motivation, anxiety, burnout, depression and suicide, and physical reactions, such as gastrointestinal problems, changes in appetite and weight, dermatological reactions, fatigue, cardiovascular disease, musculoskeletal

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Clinical significance: Our results deepen the knowledge about the global impact of Covid-19, namely the impact of socio-demographic, work-related and health factors. The Covid-19 pandemic has provided us with the challenge to identify the important factors to promote resilience of citizens, professionals and organizations and consequently raise awareness of the need to promote healthy workplaces and healthy and robust professionals from an environmental and biopsychosocial perspective.

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Learning Objectives

- Discuss the new findings on the impact of the COVID-19 pandemic on mental health and work-related psychosocial risks in professionally active adults.
- Summarize the identified psychosocial risks of work and their correlated factors.
- Discuss differences in the observed risks and associations by gender, education, and professional area.

disorders, headaches, and other pains. Furthermore, common behavioral changes may occur, such as sedentarism, changes in sleeping habits, increased use of tobacco, alcohol and drugs, dependences on technology, etc. In addition, a poor psychosocial work environment can have a considerable impact on productivity in the workplace, through increased absenteeism, decreased work commitment, and reduced work performance (both in terms of quality and quantity of work). The accumulation of stress and fatigue reduce work accuracy and increase human errors, consequently increasing the risk of injuries and work accidents. Organizations can prevent and mitigate psychosocial risks and mental health problems during the Covid-19 pandemic through actions the following areas: 1. Environment and equipment; 2. Workload, workspace, and work schedules; 3. Violence and harassment; 4. Work–life balance; 5. Job security; 6. Management leadership; 7. Communication, information, and training; 8. Health promotion and prevention of negative coping behaviors; 9. Social support; 10. Psychological support.^{1,3}

Many people consider the teleworking experience during the Covid-19 pandemic very positive or at least better than they expected and would like to continue some teleworking in the future. Identified challenges include low technologic literacy, team cohesion maintenance, and communication while working at a distance, poor limits setting between working and non-working hours. Benefits identified include less traveling time/traffic jams, more time with love ones, higher autonomy, and greater flexibility.⁴

Women and professionals living in intergenerational households report being less available to return to face-to-face work, since they are concerned about their children' health if they go to school and the increased contamination probability at the workplace, transportation, etc.⁵

Other studies show a decrease in overall physical and mental well-being after working from home, associated with lower levels of physical exercise, less healthy food intake, lower communication with coworkers, children at home, distractions during work, adjusted working hours, dissatisfaction with the quality of physical space, and with environmental factors.^{2,6}

People with chronic diseases such as diabetes, hypertension, cardiovascular disease, obesity, and chronic pulmonary obstruction are more vulnerable to SARS-CoV-2 and tend to have higher levels of morbidity and mortality when they get sick. The reasons are diverse: reduced access to health services, either because they are places of risk or because they are less available to non-Covid patients.⁷ Consequently lockdown measures affected the routines and health, especially of chronic patients, leading to the health deterioration and increased comorbidities.⁸

Mental health is also highly affected with the Covid-19. The main reported mental health problems are stress, anxiety, depression,

TABLE 1. Variables Range

| Study | Range |
|-----------------------------------|----------------------------------|
| Work psychosocial risks | |
| W_stress_B_Covid | 0 (very low) to 5 (very high) |
| W_interruptions_B_Covid | 0 (very low) to 5 (very high) |
| W_multitask_B_Covid | 0 (very low) to 5 (very high) |
| W_conflicts_B_Covid | 0 (very low) to 5 (very high) |
| W_responsibilities_B_Covid | 0 (very low) to 5 (very high) |
| W_moral_sexual_harassment_B_Covid | 1 (no) and 2 (yes) |
| W_intelect_heavy | 0 (very low) to 5 (very high) |
| W_physically_heavy | 0 (very low) to 5 (very high) |
| WorkComparisonB&ACOVID | 1 (less or equal) and 2 (higher) |
| Symptoms evolution with COVID | |
| Insomnia_worse_covid | 1 (no) and 2 (yes) |
| Depression_worse_covid | 1 (no) and 2 (yes) |
| Anxiety_worse_covid | 1 (no) and 2 (yes) |
| BurnOut_worse_covid | 1 (no) and 2 (yes) |
| Headaches_worse_covid | 1 (no) and 2 (yes) |
| Fatigue_worse_covid | 1 (no) and 2 (yes) |
| Average CALAMITY checklist | 0 (less) to 10 (high) |

insomnia, denial, anger, and fear. Children and elderly, women, front-line workers, people with existing mental illness are among the most vulnerable in this context. Suicides related to Covid-19 have also been increasingly common.^{3,9}

Health professionals are among those who suffer most from psychological stress and have the highest risk of burnout, and consequently have the risk of long-term symptoms,¹⁰ namely chronic stress, depression and anxiety, increased substance consumption, risk behaviors, and absenteeism.¹¹

In a study by Lahav,¹² the author concluded that many of the participants reported experiencing at least one psychiatric symptom related to Covid-19. Being younger, woman, not being in a relationship, having a below average income, being diagnosed with the disease, living alone during the outbreak, having a close one in a high-risk group and a negative self-assessment of their health status, were associated with high levels of stress and distress. Individuals previously exposed to trauma presented with high anxiety, depression, and post-traumatic stress compared with individuals without such a history or with survivors on noncontinuous traumatic events.

After considering the demographic characteristics, the state of health, other Covid-19 experiences, and symptoms of anxiety, the greater insecurity at work was related to greater depressive symptoms. People with greater job insecurity and financial concerns tend to be at greater risk in terms of mental health, particularly anxiety and depression.¹³

Psychosocial stress increases disease susceptibility risk; the severity of Covid-19 is disproportionately common in patients from low socioeconomic status, minorities who already suffer from multi-morbidity, and other socioeconomic and cultural disadvantages. The higher susceptibility conferred by low SES can be explained in part by living in dwellings with large households, not having the option to quarantine adequately, unsafe working conditions, poor ventilation, and air quality, etc.¹⁴

The pandemic has created greater challenges for women in comparison to men. Women have lost more jobs,¹⁵ there are more women than men in key jobs exposed to infections and with psychological stress; women have had more work problems and burdens than men due to increased childcare and domestic responsibilities, and on the other hand, teleworking has increased the amount of child and domestic care.¹⁶ A study by Collins et al,¹⁷ that included couples with children in which both spouses were teleworking concludes that women had to reduce their working hours more than men. Several studies highlight the likely impact of this sex inequality in the medium and long term.¹⁸ Women reveal lower

productivity and lower job satisfaction during the Covid-19 pandemic and lockdown period.¹⁹

The main objective of the paper is to understand and characterize the impact of the Covid-19 pandemic on mental health and psychosocial risks at work in professionally active adults. Sex, age, education level, and professional area differences are also studied.

METHOD

Participants

Online surveys targeted several groups: (1) the general population; (2) sleep disorder patients (SDP); (3) professionals COVID-involved: medical doctors and nurses; (4) professionals COVID-affected: teachers, psychologists, and dentists.

This specific work includes 4708 professionally active participants, of which 3354 are women (71.2%), aged between 19 and 86 years old, with an mean age of 45.8 years (standard deviation = 12.56), from all over the country. Civil status: 50.7% married, 24.8% bachelor, 13.6% union, 9.6% divorced, and 1.2% widow. Three thousand two hundred fifty participants (69.3%) are health-care professionals, 813 participants (19.9%) are commerce, services, and industry professionals, 525 participants (11.2%) are education professionals, and 120 participants (2.6%) are science and technology related professionals. One thousand seventy seven (22.8%) participants reported sleep disorders.

Instrument

The total survey had 177 questions, as follows: demographics, health status; work; confinement characteristics, mood, attitudes, and behaviors; calamity checklist; sleep; physical activity; multimedia use; nutrition; toxics, and additions.

For the present paper was used sociodemographic variables, work psychosocial risks (stress, interruptions, multitask, conflicts, responsibilities, moral/sexual harassment, intellectual, and physical heavy), symptoms evolution with Covid-19 (insomnia, depression, anxiety, burnout, headaches, and fatigue), work volume before and after the Covid-19 pandemic, and an average Calamity Experience Check List (CECL) which is the average of four VAS from 1 (low) to 10 (high) describing several mood states: depression, anxiety, irritability, and worries versus uncertainty (Table 1).²⁰

TABLE 2. Descriptive Statistics for the Study Variables

| | N | M | SD |
|-----------------------------------|------|------|------|
| Work psychosocial risks | | | |
| W_stress_B_Covid | 2687 | 3.00 | 1.08 |
| W_interruptions_B_Covid | 4610 | 2.36 | 1.22 |
| W_multitask_B_Covid | 4669 | 3.21 | 1.22 |
| W_conflicts_B_Covid | 4601 | 2.22 | 1.18 |
| W_responsibilities_B_Covid | 4665 | 3.58 | 1.14 |
| W_moral_sexual_harassment_B_Covid | 4672 | 1.08 | 0.28 |
| W_intelect_heavy | 4659 | 3.40 | 1.14 |
| W_physically_heavy | 4245 | 2.35 | 1.24 |
| WorkComparisonB&ACOVID | 4485 | 1.49 | 0.50 |
| Symptoms evolution with COVID | | | |
| Insomnia_worse_covid | 3855 | 1.27 | 0.45 |
| Depression_worse_covid | 3855 | 1.09 | 0.28 |
| Anxiety_worse_covid | 3855 | 1.22 | 0.42 |
| BurnOut_worse_covid | 3855 | 1.15 | 0.36 |
| Headaches_worse_covid | 3855 | 1.09 | 0.28 |
| Fatigue_worse_covid | 3855 | 1.20 | 0.40 |
| Average CALAMITY checklist | 4346 | 4.82 | 2.05 |

SD, standard deviation.

TABLE 3. Pearson Correlations for the Study Variables

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|---------------------------------------|---|--------|--------|--------|--------|--------|--------|---------|--------|--------|--------|--------|--------|--------|--------|--------|
| 1. WorkComparisonB&ACOVID | – | 0.15** | 0.03** | 0.11** | 0.19** | 0.09** | 0.07** | 0.21** | –0.01 | 0.05** | 0.01 | 0.03 | –0.01 | 0.01 | 0.07** | 0.01 |
| 2. Insomnia_worse_covid | – | – | 0.18** | 0.29** | 0.20** | 0.19** | 0.14** | 0.32*** | 0.04* | 0.02 | 0.05** | 0.08** | 0.03* | 0.07* | 0.05** | 0.10** |
| 3. Depression_worse_covid | – | – | – | 0.29** | 0.17** | 0.13** | 0.12** | 0.34** | 0.05** | 0.04** | 0.01 | 0.08** | 0.00 | 0.10** | 0.03 | 0.03 |
| 4. Anxiety_worse_covid | – | – | – | – | 0.21** | 0.19** | 0.15** | 0.44** | 0.08** | 0.03 | 0.08** | 0.08** | 0.02 | 0.07** | 0.05** | 0.04** |
| 5. BurnOut_worse_covid | – | – | – | – | – | 0.14** | 0.08** | 0.30** | 0.08** | 0.07** | 0.06** | 0.12** | 0.02 | 0.12** | 0.09** | 0.10** |
| 6. Headaches_worse_covid | – | – | – | – | – | – | 0.15** | 0.18** | 0.05** | 0.04* | 0.04** | 0.05** | 0.02 | 0.08** | 0.04* | 0.07** |
| 7. Fatigue_worse_covid | – | – | – | – | – | – | – | 0.17** | 0.05** | 0.01 | 0.02 | 0.03** | 0.03 | 0.04* | 0.03 | 0.06** |
| 8. Average CALAMITY checklist | – | – | – | – | – | – | – | – | 0.18** | 0.10** | 0.12** | 0.10** | 0.01 | 0.11** | 0.04** | 0.06** |
| 9. W_stress_B_Covid | – | – | – | – | – | – | – | – | – | 0.42** | 0.53** | 0.45** | 0.44** | 0.17** | 0.46** | 0.27** |
| 10. W_interruptions_B_Covid | – | – | – | – | – | – | – | – | – | – | 0.43** | 0.35** | 0.24** | 0.10** | 0.29** | 0.17** |
| 11. W_multitask_B_Covid | – | – | – | – | – | – | – | – | – | – | – | 0.35** | 0.44** | 0.11** | 0.44** | 0.27** |
| 12. W_conflicts_B_Covid | – | – | – | – | – | – | – | – | – | – | – | – | 0.24** | 0.33** | 0.27** | 0.30** |
| 13. W_responsibilities_B_Covid | – | – | – | – | – | – | – | – | – | – | – | – | – | 0.60** | 0.51** | 0.27** |
| 14. W_moral_sexual_harassment_B_Covid | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 0.09** | 0.10** |
| 15. W_intelect_heavy | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 0.27** |
| 16. W_physicaly_heavy | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |

****P* < 0.001.
 ***P* < 0.01.
 **P* < 0.05.

Procedure

Survey legend platform was used. Surveys were anonymous, for adults (more than 18 years) allowing data analysis and statistical use. The first page included: purpose, authors, Ethical reference, contact person, and supporting entities. It was online during the 1st COVID-19 wave, from April to August 2020.

The overall project was approved by CENC’s Ethical Committee 1/2020, the consent was obtained from the participants. There was no funding, public or private, and no conflict of interests.

RESULTS

Table 2 indicates the descriptive values of the different psychosocial risks at work, workload, different symptoms, and CECL. The weight of responsibility, intellectual effort, multitask,

and stress are psychosocial risks at work with higher averages (M is more than 3.00). There is an increase in workload with the Covid-19 pandemic. The most frequently mentioned disorders are insomnia, anxiety, and fatigue. The mean value of CECL is 4.82 in a measure that varies between 0 and 10.

The great majority of the variables under study are statistically correlated (*P* < 0.05). The higher correlations are between: CECL and insomnia (*r* = 0.32), depression (*r* = 0.34), anxiety (*r* = 0.44), and burnout (*r* = 0.30). The identified psychosocial risks of work are stress, multitasking, and responsibilities. The associated significant correlations are: (1) between stress and the following: interruptions (*r* = 0.42), multitask (*r* = 0.53), conflicts (*r* = 0.45), responsibilities (*r* = 0.44), and intellectual effort (*r* = 0.46); (2) between multitask and the following: interruptions (*r* = 0.43),

TABLE 4. Mean Differences Between the Gender of the Participants

| | Male | | Female | | <i>F</i> |
|-----------------------------------|----------|-----------|----------|-----------|-----------|
| | <i>M</i> | <i>SD</i> | <i>M</i> | <i>SD</i> | |
| Work Psychosocial risks | | | | | |
| W_stress_B_Covid | 2.90 | 1.13 | 3.04 | 1.06 | 16.07*** |
| W_interruptions_B_Covid | 2.29 | 1.20 | 2.40 | 1.22 | 7.83** |
| W_multitask_B_Covid | 3.05 | 1.27 | 3.27 | 1.19 | 31.84*** |
| W_conflicts_B_Covid | 2.09 | 1.20 | 2.27 | 1.18 | 21.01*** |
| W_responsibilities_B_Covid | 3.61 | 1.17 | 3.57 | 1.12 | 0.943 |
| W_moral_sexual_harassment_B_Covid | 1.07 | .26 | 1.09 | 0.28 | 1.68 |
| W_intelect_heavy | 3.34 | 1.19 | 3.43 | 1.13 | 6.07** |
| W_physicaly_heavy | 2.25 | 1.23 | 2.39 | 1.23 | 11.03*** |
| WorkComparisonB&ACOVID | 1.38 | 0.49 | 1.54 | 0.50 | 92.90*** |
| Symptoms evolution with COVID | | | | | |
| Insomnia_worse_covid | 1.19 | 0.40 | 1.31 | 0.46 | 51.07*** |
| Depression_worse_covid | 1.08 | 0.27 | 1.09 | 0.29 | 1.90 |
| Anxiety_worse_covid | 1.15 | 0.36 | 1.26 | 0.44 | 52.47*** |
| Burnout_worse_covid | 1.12 | 0.32 | 1.17 | 0.38 | 15.05*** |
| Headaches_worse_covid | 1.04 | 0.19 | 1.11 | 0.31 | 52.95*** |
| Fatigue_worse_covid | 1.17 | 0.38 | 1.21 | 0.41 | 7.95** |
| Average CALAMITY checklist | 4.28 | 2.05 | 5.03 | 2.01 | 123.80*** |

SD, standard deviation.
 ****P* < 0.001.
 ***P* < 0.01.
 **P* < 0.05.

TABLE 5. Mean Differences Between the Age of the Participants

| | Up to 35 Years Old | | More than 36 Years Old | | F |
|-----------------------------------|--------------------|------|------------------------|------|----------|
| | M | SD | M | SD | |
| Work psychosocial risks | | | | | |
| W_stress_B_Covid | 2.93 | 1.05 | 3.02 | 1.09 | 5.45* |
| W_interruptions_B_Covid | 2.44 | 1.23 | 2.34 | 1.21 | 5.81** |
| W_multitask_B_Covid | 3.32 | 1.20 | 3.17 | 1.23 | 11.52*** |
| W_conflicts_B_Covid | 2.25 | 1.17 | 2.21 | 1.19 | 1.29 |
| W_responsibilities_B_Covid | 3.33 | 1.20 | 3.66 | 1.10 | 75.59*** |
| W_moral_sexual_harassment_B_Covid | 1.08 | 0.27 | 1.08 | 0.28 | 0.09 |
| W_intelect_heavy | 3.46 | 1.14 | 3.38 | 1.14 | 3.71* |
| W_physically_heavy | 2.40 | 1.25 | 2.33 | 1.23 | 2.39 |
| WorkComparisonB&ACOVID | 1.57 | 0.50 | 1.47 | 0.50 | 37.14*** |
| Symptoms evolution with COVID | | | | | |
| Insomnia_worse_covid | 1.27 | 0.44 | 1.28 | 0.45 | 0.12 |
| Depression_worse_covid | 1.08 | 0.28 | 1.09 | 0.29 | 0.33 |
| Anxiety_worse_covid | 1.25 | 0.43 | 1.22 | 0.41 | 2.80 |
| Burnout_worse_covid | 1.18 | 0.39 | 1.15 | 0.35 | 7.43** |
| Headaches_worse_covid | 1.10 | 0.31 | 1.08 | 0.27 | 4.65* |
| Fatigue_worse_covid | 1.20 | 0.40 | 1.20 | 0.40 | 1.90 |
| Average CALAMITY checklist | 5.06 | 1.98 | 4.74 | 2.06 | 19.40*** |

SD, standard deviation.
 ***P < 0.001.
 **P < 0.01.
 *P < 0.05.

responsibilities ($r = 0.44$), intellectual effort ($r = 0.44$); (3) between responsibilities and harassment ($r = 0.60$) and intellectual effort ($r = 0.51$) (Table 3).

Table 4 presents results of sex differences related to psychosocial risks at work, and the impact of Covid-19 on work intensity, negative evolution of symptoms, and CECL. There are statistically significant differences for many of the variables studied, with women presenting higher values of psychosocial risks at work related to stress, interruptions, multitask, conflicts, intellectual, and physical effort. Women who reported higher work load during the Covid-19

pandemic, have a higher CECL and more symptoms of insomnia, anxiety, burnout, and headaches when compared with men.

Table 5 presents results regarding age differences related to psychosocial risks at work, and the impact of Covid-19 on work intensity, negative evolution of symptoms, and CECL. There are statistically significant differences for most of the variables under study, with younger participants (35 years or younger) showing higher values of interruption-related, multitask, and intellectual effort, while older participants (36 years or older) reporting more stress and responsibilities than younger participants. Younger participants

TABLE 6. Mean Differences Between the Educational Level of the Participants

| | Up to Graduation Degree | | Master's Degree or PhD | | F |
|-----------------------------------|-------------------------|------|------------------------|-------|----------|
| | M | SD | M | SD | |
| Work psychosocial risks | | | | | |
| W_stress_B_Covid | 3.03 | 1.09 | 2.94 | 1.06 | 6.22** |
| W_interruptions_B_Covid | 2.33 | 1.22 | 2.43 | 1.21 | 7.42** |
| W_multitask_B_Covid | 3.16 | 1.23 | 3.28 | 1.120 | 10.64*** |
| W_conflicts_B_Covid | 2.20 | 1.18 | 2.25 | 1.19 | 2.13 |
| W_responsibilities_B_Covid | 3.66 | 1.11 | 3.44 | 1.17 | 39.81*** |
| W_moral_sexual_harassment_B_Covid | 1.07 | 0.26 | 1.10 | 0.30 | 7.37** |
| W_intelect_heavy | 3.33 | 1.16 | 3.54 | 1.10 | 35.43*** |
| W_physically_heavy | 2.41 | 1.23 | 2.23 | 1.19 | 21.65*** |
| WorkComparisonB&ACOVID | 1.46 | 0.50 | 1.54 | 0.40 | 1.72 |
| Symptoms evolution with COVID | | | | | |
| Insomnia_worse_covid | 1.27 | 0.45 | 1.28 | 0.45 | 0.13 |
| Depression_worse_covid | 1.09 | 0.29 | 1.08 | 0.28 | 0.27 |
| Anxiety_worse_covid | 1.22 | 0.42 | 1.23 | 0.42 | 0.18 |
| Burnout_worse_covid | 1.15 | 0.35 | 1.17 | 0.38 | 4.45* |
| Headaches_worse_covid | 1.09 | 0.28 | 1.08 | 0.28 | 0.26 |
| Fatigue_worse_covid | 1.21 | 0.41 | 1.19 | 0.20 | 1.99 |
| Average CALAMITY checklist | 4.82 | 2.07 | 4.80 | 2.01 | 0.10 |

SD, standard deviation.
 ***P < 0.001.
 **P < 0.01.
 *P < 0.05.

TABLE 7. Mean Differences Between the Professions of the Participants

| | Health Professionals | | Other Professionals | | F |
|-----------------------------------|----------------------|------|---------------------|------|-----------|
| | M | SD | M | SD | |
| Work psychosocial risks | | | | | |
| W_stress_B_Covid | 2.94 | 1.06 | 3.13 | 1.12 | 29.86*** |
| W_interruptions_B_Covid | 2.39 | 1.21 | 2.29 | 1.23 | 6.51** |
| W_multitask_B_Covid | 3.18 | 1.20 | 3.29 | 1.26 | 7.95** |
| W_conflicts_B_Covid | 2.27 | 1.18 | 2.09 | 1.19 | 22.942*** |
| W_responsibilities_B_Covid | 3.54 | 1.14 | 3.69 | 1.11 | 16.81*** |
| W_moral_sexual_harassment_B_Covid | 1.09 | .29 | 1.06 | .25 | 8.53** |
| W_intelect_heavy | 3.43 | 1.11 | 3.35 | 1.22 | 4.89* |
| W_physical_heavy | 2.53 | 1.23 | 1.87 | 1.12 | 260.03*** |
| WorkComparisonB&ACOVID | 1.49 | 0.50 | 1.49 | 0.50 | 0.15 |
| Symptoms evolution with COVID | | | | | |
| Insomnia_worse_covid | 1.29 | 0.45 | 1.23 | 0.42 | 13.99*** |
| Depression_worse_covid | 1.08 | 0.27 | 1.11 | 0.31 | 9.52** |
| Anxiety_worse_covid | 1.21 | 0.41 | 1.25 | 0.43 | 6.70*** |
| Burnout_worse_covid | 1.19 | 0.40 | 1.07 | 0.35 | 101.49*** |
| Headaches_worse_covid | 1.09 | 0.28 | 1.09 | 0.28 | 0.02 |
| Fatigue_worse_covid | 1.20 | 0.40 | 1.20 | 0.40 | 0.13 |
| Average CALAMITY checklist | 4.83 | 2.03 | 4.76 | 2.09 | 0.679 |

***P < 0.001.
 **P < 0.01.
 *P < 0.05.

report more often working with the onset of the Covid-19 pandemic, have a higher average CECL, and are the ones with more burnout symptoms and headaches when compared with older participants.

Table 6 presents results related to the differences in education level related to the psychosocial risks of work, and the impact of Covid-19 on work intensity, the negative evolution of symptoms and the CECL. There are statistically significant differences for most work-related variables. Professionals with lower education levels (even compulsory education) show higher values of psychosocial risks of work related to stress, responsibility, and physical effort. The professionals with higher education most frequently report interruptions, multitask, harassment and intellectual effort, and work more with the emergence of the Covid-19 pandemic. In terms of symptoms and CECL, there are no statistically significant differences related to education, except for the burnout, more referred by professionals with higher education.

Table 7 presents results related to differences in professional areas related to psychosocial risks at work, and the impact of Covid-19 on work intensity, negative evolution of symptoms, and CECL. There are statistically significant differences for most of the variables under study. Regarding the psychosocial risks of work related to interruptions, conflicts, harassment, and intellectual and physical effort the health professionals present higher average values. The professionals from other areas most frequently report stress, multitask, and responsibilities. Regarding symptoms, health professionals report more insomnia and burnout and the other professionals more depression and anxiety.

The linear regression model presented in Table 8 has as dependent variable the CECL and has an explanatory value of 36%. The model under study is robust F = 98.68 (18, 3201), P < 0.001.

The CECL is explained by socio-demographic factors (sex, age, and education), by work-related factors (stress, harassment, and physical and intellectual effort), and by the volume of work and health status reflected in insomnia, depression, anxiety, burnout, and fatigue.

DISCUSSION

Our results confirm and allow an in-depth understanding of the impact of the Covid-19 pandemic on mental health and psychosocial risks at work in professionally active adults. Sex, age,

education level, and professional area differences are related to this impact.

The results allow the identification of the highest psychosocial risks at work, namely the weight of responsibility, the intellectual effort, multitask, and stress. The presence of these risks associated with work tasks, emotional and cognitive demands, and health and well-being is a risk factor for workers, making them

TABLE 8. Linear Regression of Psychological Symptoms

| | Unstandardized Coefficients | | Standardized Coefficients | |
|-----------------------------------|-----------------------------|-------|---------------------------|----------|
| | B | SE | β | t |
| (Constant) | -1.56 | 0.32 | | -4.87*** |
| Age | -0.02 | 0.003 | -0.09 | -5.86*** |
| Gender | 0.30 | 0.07 | 0.07 | 4.60*** |
| Education | -0.19 | 0.07 | -0.05 | -2.98** |
| W_Stress | 0.18 | 0.07 | 0.04 | 2.51** |
| W_Interruptions | 0.00 | 0.08 | 0.00 | 0.01 |
| W_Multitask | 0.08 | 0.07 | 0.02 | 1.16 |
| W_Conflicts | 0.16 | 0.09 | 0.03 | 1.81 |
| W_Responsibilities | -0.13 | 0.07 | -0.03 | -1.92 |
| W_IntelectualHeavy | 0.13 | 0.07 | 0.03 | 1.956* |
| W_physicalHeav | 0.19 | 0.08 | 0.04 | 2.41* |
| W_moral_sexual_harassment_B_Covid | 0.43 | 0.11 | 0.06 | 3.83*** |
| WorkComparisonB&ACOVID | 0.13 | 0.02 | 0.10 | 6.49*** |
| Insomnia_worse_covid | 0.65 | 0.07 | 0.15 | 9.51*** |
| Depression_worse_covid | 1.38 | 0.11 | 0.19 | 12.73*** |
| Anxiety_worse_covid | 1.33 | 0.08 | 0.28 | 17.73*** |
| Burnout_worse_covid | 0.71 | 0.08 | 0.13 | 8.73*** |
| Headaches_worse_covid | 0.10 | 0.11 | 0.01 | 0.95 |
| Fatigue_worse_covid | 0.29 | 0.07 | 0.06 | 3.99*** |

Dependent variable: Average CALAMITY checklist.
 ***P < 0.001.
 **P < 0.01.
 *P < 0.05.

more vulnerable, with higher difficulty to manage personal and work challenges caused by the Covid-19 pandemic.^{1,14,15}

The health symptoms which worsened (for more than 10% of participants) with the Covid-19 are insomnia, depression, anxiety, burnout, headaches, and fatigue. There has been an increase in risk behaviors related to lifestyles (sleeping habits, physical activity, food, screen time, consumption among others). The covid-19 pandemic brought several changes related to family and work, namely associated with lockdown, and telework. On the one hand, staying at home in confinement may have brought changes in lifestyle associated with physical exercise, changes in eating and sleeping habits, and excessive use of screen time in work and leisure activities.^{1,3,15} On the other hand, the pandemic, the confinement, and a less effective response of health services have led to increase health symptoms, namely associated with stress and anxiety.^{7,8} Teleworking, adaptation to new technologies, new demands, and the ability to reconcile family life, including support for children and professional tasks have also proved difficult.

With the Covid-19 pandemic there was also an increase in the workload for more than half of the participants involved in the study. This increase and the perception of lower performance/productivity are associated with the perception of the greater demand caused by telework and the conciliation with domestic, family, and emotional tasks in the management of the pandemic.^{1,3,4,15,21}

The impact of the pandemic on labor and health has been uneven.

Sex differences related to psychosocial risks of work, and the impact of COVID-19 on work intensity, negative development of symptoms, and CECL have been identified, with women presenting higher work psychosocial risks related to stress, interruptions, multitask, conflicts, and intellectual and physical effort. Women most frequently report working with the appearance of the Covid-19 pandemic, have a higher CECL, and have more symptoms of insomnia, anxiety, burnout, and headaches when compared to men.

According to the International Labour Organization^{1,15} the pandemic brought more challenges to women than to men, on the one hand women were more often without work, more exposed to the disease since they must develop jobs considered essential, more exposed to health and emotional risks and, finally, they more often accumulate the professional, domestic, and childcare tasks.^{16,18}

The covid-19 pandemic has also affected professionals of different ages differently. In general, younger professionals (35 years or less) present more psychosocial risks of work, greater impact of Covid-19 on work intensity, negative evolution of health symptoms, and higher CECL. Younger professionals are more susceptible to professional instability and insecurity, unemployment, a greater drop in income, and a greater possibility of having younger children who require greater support in confinement, and, consequently, greater difficulty in reconciling professional activities and family life.^{2,6,12,13}

For similar reasons, professionals with less education are also more vulnerable to the negative impact of the Covid-19 pandemic. They refer higher psychosocial labor risks, higher impact of Covid-19 on labor intensity, and negative evolution of health symptoms. Possibly associated with job insecurity and precariousness, greater impact of possible pay cuts, greater difficulty in having resources to support children in distance learning associated with computer acquisition, internet connection, and support in school tasks.^{13,14}

The professional area also has an influence on the impact of Covid-19, health professionals reveal some psychosocial risks at work and health symptoms more often than other professionals, including risks related to conflict and work demands and burnout. According to studies developed by Arnetz et al,¹¹ Choudhury et al²² health professionals are those who have suffered the most negative impacts from the Covid-19 pandemic, due to work and emotional

overload, poor working conditions, and impact at the family level. Giménez-Espert et al¹⁰ stress that this impact may have long-term consequences.

The results show that there is a significant impact of the Covid-19 pandemic on health, lifestyles, and working life.

Population groups at higher risk and most affected by the pandemic, are women, younger workers, and those with less education. Psychosocial risks at work that create greater vulnerability are associated with stress, harassment, physical and psychological demands, and increased workload. Symptoms that appear to be most relevant to the understanding of a greater difficulty in managing the impact of the pandemic are insomnia, depression, anxiety, burnout, and fatigue.

Employers can play an important role in better managing the impact of the pandemic by their professionals by developing actions in different areas, including the work environment, workload, leadership and communication practices, work safety, and psychological and social support.^{1,15}

It is still early to draw conclusions regarding the long-term impact of the Covid-19 pandemic on people's health, lifestyles and working life. What we do know at present is that the pandemic has forced the acceleration of some practices, including teleworking. We also know that some populations suffer a greater impact in the short/medium term. We also identify that more psychosocial risks at work are associated with worse management and less effective reaction to the impact of the pandemic. However, as Steidtmann et al,⁴ show that for some the impact is being positive, namely linked to less travel, more time with love ones, autonomy, and greater flexibility.

The Covid-19 pandemic has provided us with the opportunity to identify the important factors to promote resilience of people, professionals, and organizations and consequently raise awareness of the need to promote healthy workplaces and healthy and robust professionals from both an environmental and a biopsychosocial perspective.

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