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Working conditions and nurses' mental health in Latin America and the Caribbean during the COVID-19 pandemic: a multinational cross-sectional study

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Abstract

Background

The COVID-19 pandemic placed unprecedented pressure on health systems across Latin America and the Caribbean. Although studies have documented adverse working conditions and psychological distress among healthcare workers, evidence focused specifically on nursing personnel has largely been derived from single-country studies, limiting understanding of regional patterns. Analyses spanning multiple countries remain limited. This study aimed to describe the working conditions and mental health symptoms reported by nursing staff in work and home environments during the COVID-19 pandemic across Latin America and the Caribbean.

Methods

A cross-sectional, multinational study was conducted among nursing professionals in 20 Latin American countries between July 2022 and April 2025. Self-report measures assessed working conditions, institutional support, training, occupational recognition, emotional symptoms at work and at home, and burnout. Descriptive analyses and Pearson's chi-square tests were performed. Cramér's V (Vc) with 95% confidence intervals (CI) was used to estimate the magnitude and precision of associations between emotional symptoms reported at work and at home.

Results

A total of 6,986 nurses participated. Overall, 16.2% had temporary contracts. 21.3% held multiple jobs, and more than half reported that their income was insufficient to avoid poverty (51.8%) or to cover household needs (52.9%). Another 41.8% had a COVID-19 infection, although only 37.2% were recognized as having an occupational illness, and 14.3% received additional benefits. Job reassignment occurred in 30.7% of cases, and 9.3% were laid off. Statistically significant associations were observed between emotional symptoms reported at work and at home (χ^2, $p < 0.001$). The largest associations were observed for irritability (Vc = 0.566, 95% CI 0.550–0.582), depression (Vc = 0.562, 95% CI 0.547–0.577), difficulty concentrating (Vc = 0.548, 95% CI 0.532–0.564), and fatigue (Vc = 0.512, 95% CI 0.492–0.531).

Conclusions

Nursing staff in Latin America experienced adverse working conditions during the pandemic, characterized by contractual instability, insufficient wages, limited institutional recognition, and high exposure to biological risk. Emotional symptoms showed moderate to large associations across work and home settings, highlighting the need for policies that strengthen workforce protection, occupational recognition, and mental health support.

Background

The COVID-19 pandemic disrupted health systems worldwide, transforming the working conditions and the personal and social lives of healthcare workers. The sudden increase in demand for care, increased workload, constant exposure to biological risk, and the need to reorganize services in resource-constrained settings created an environment of high occupational pressure. In this context, nursing staff, as key frontline care providers, faced particularly intense care demands from the onset of the health emergency (1).

Various studies have documented a significant impact on the mental health of healthcare personnel throughout the different phases of the pandemic, with an estimated 23%–44% exhibiting clinically relevant symptoms of anxiety, depression, and insomnia, with a greater impact on nursing staff (2). International evidence showed that psychological distress persisted beyond the initial waves of the pandemic, with prevalence rates of anxiety and depression reaching up to 61% and 18%, respectively, in addition to high levels of sleep disturbances among frontline healthcare workers across multiple countries (3). Additionally, the pandemic intensified burnout as a response to increased workloads and psychological stress among nurses, resulting from continuous exposure to complex situations such as suffering, limited institutional support, and limited healthcare resources (4, 5).

The literature indicates that the decline in psychological well-being among nursing staff is associated with individual, organizational, and structural factors, including care overload, fear of infection, perceived resource shortages, job uncertainty, and limited institutional support. These conditions have been associated with work-related stress, compassion fatigue, and burnout during health emergencies, especially in settings where nursing staff are repeatedly exposed to suffering and death (6, 7). Burnout may reflect an imbalance between work demands

and available resources, typically measured using brief self-report scales in studies involving populations with complex care needs and time constraints, such as the single-item Mini-Z (8).

In Latin America and the Caribbean, the pandemic's impact on nursing staff was exacerbated by structural inequalities in health systems, historically precarious working conditions, and heterogeneous institutional responses across countries. Regional evidence has also documented important disparities in the distribution and composition of the nursing workforce across the Americas, reflecting persistent inequalities in workforce capacity and health system organization (9). Studies in the region have reported high workloads, long working hours, staff shortages, perceived psychosocial risks, workplace violence, limited access to resources and institutional support, and high levels of anxiety, stress, and emotional exhaustion (10–12). However, much of this evidence comes from national or local studies, which limits understanding of regional patterns. Furthermore, too few studies focused on nurses even though they constitute the largest proportion of healthcare workers.

Despite the growing international literature on the pandemic's effects on nursing staff, there is still limited evidence specific to Spanish-speaking Latin America and Caribbean and few studies that comparatively examines multiple Latin American countries. Studies of Brazilian nurses dominate the literature, which reflects the investments made over the last few decades in developing research capacity in nursing in the country. Understanding the scope of pandemic work experiences of Latin American nurses is essential for guiding policies and strategies to strengthen the protection of the nursing workforce during health crises and to build capacity for future pandemic response implementation in alignment with the World Health Organization's Pandemic Accords that were approved in May 2025 (13). Therefore, this study aims to describe the working conditions and mental health symptoms reported by nursing staff in work and home environments during the COVID-19 pandemic across Latin America and the Caribbean.

Methods

Study Design

This study draws its data from a cross-sectional, multinational descriptive study that collected both qualitative and quantitative data The Global Consortium of Nursing and Midwifery Studies (GCNMS), based at the Rory Meyers College of Nursing, New York University (NYU), United States, organized the study. The consortium, established in 2020, currently includes teams from 87 countries. The first collaborative study examined occupational health, well-being, and working conditions of nursing and midwifery staff during and after the COVID-19 pandemic (14). In Latin America, the study was led by the U-Nursing LatAm community, a network of nursing professionals focused on continuing education and capacity building for nurses (15).

Data were collected between July 2022 and April 2025, spanning the late and transition phases of the pandemic following the global health emergency. The target population included nurses and midwives working across different practice settings (clinical, community, teaching, and management) during the COVID-19 pandemic. Each country had a data collection goal of n = 300 participants per country as this would allow for statistical comparisons to occur.

For the present study, a secondary analysis of quantitative data from the parent GCNMS study was conducted, focusing specifically on nursing personnel from Latin America and the Caribbean.

Theoretical Framework

During a pandemic, increased work demands and limited organizational support, combined with high psychosocial risk, create conditions of high occupational stress. According to the Job Demands-Resources model, prolonged exposure to high job demands without adequate support is associated with emotional distress and mental health issues (16). Furthermore, research has shown that excessive workload can lead to the spillover of stress from work into the home environment, a process known as "spillover," which affects emotional health and family dynamics (17). Thus, the JDR provides an appropriate theoretical framework from which to examine the phenomenon. It is also a theory that has not previously been applied to nursing workforce studies in the Latin America and the Caribbean.

Study population and sample

The sample consisted of 6,986 participants from 20 countries who contributed data through convenience sampling approaches, a commonly used strategy for data collection in health workforce studies during the pandemic. For this study, data were included from Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Ecuador, El Salvador, Guatemala, Honduras, Jamaica, Mexico, Panama, Paraguay, Peru, the Dominican Republic, Puerto Rico, Uruguay, and Venezuela.

Questionnaires with more than 10% missing data, duplicate responses, or responses identified as potentially automated by the platform's quality control mechanisms were excluded from the analysis. A post hoc sensitivity analysis using G*Power 3.1.9.7 (χ^2, contingency tables; n = 6,986; df = 5; $\alpha = 0.05$) indicated statistical power ($1 - \beta$) > 99.9%, with the ability to detect small effects of w = 0.098 (18), supporting the adequacy of the sample for the analyses conducted.

Recruitment and Inclusion Criteria in the Parent Study

To enhance geographic reach and participant recruitment, a hybrid dissemination strategy was adopted, as recommended for health research involving professionals (19). The channels included professional and institutional social media accounts, online platforms of nursing associations and colleges, internal systems of hospitals, clinics, and universities, and academic mailing lists of the U-Nursing-LatAm community, using graphic materials with a QR code. This strategy enabled broader geographic participation within each country. Similar approaches have been documented by the Consortium in more than 35 countries (5). Participants were eligible if they were nurses or midwives actively practicing during the COVID-19 pandemic, were working in one of the participating countries, and provided digital informed consent before accessing the questionnaire.

Survey instrument

The questionnaire used in this secondary analysis was developed by the Global Consortium of Nursing and Midwifery Studies (GCNMS) for the parent international study and has been described and used in previous Consortium publications (5, 14). The questionnaire included seven domains covering mental health, work environment and pandemic response, burnout, economics, migration and workforce issues, patient care management, and occupational health risks. The questions were developed based on available evidence and finalized through a modified Delphi consensus process. The original English version was subsequently translated into 26 languages using professional translation services and standardized procedures to ensure cultural equivalence. For the Latin American and Caribbean countries included in this analysis the Spanish, Portuguese, and English versions were reviewed with support from the participating country research teams to ensure cultural appropriateness (5, 14). A modified version of the Mini-Z burnout measure was created to adapt the questions to the frontline nursing role. Validations of the measures are currently underway.

Data Collection and Instrument of the Parent Study

Data were collected online through an anonymous, voluntary questionnaire administered via Qualtrics XM Software. Access to the questionnaire required participants to provide digital informed consent. Several measures ensured data integrity and security, including IP address anonymization, restrictions to prevent automated bots from accessing the survey, and assignment of a unique, untraceable identifier to each device to prevent multiple submissions. The response options "prefer not to say" and "not applicable" were included to minimize response bias.

Data Analysis

Descriptive analyses were performed using frequencies and percentages to characterize sociodemographic variables, working conditions, and emotional symptoms. For the burnout item, because the measure is ordinal, the classification commonly used in the literature (≤ 2: no burnout; ≥3: burnout) was also examined; however, this cutoff should be interpreted as an analytical convention.

For the bivariate analyses, the responses "Did not answer," "Not sure," and "Prefer not to say" were recoded as missing values, with missing data rates ranging from 1.17% to 6.17% of the total sample. Analyses were conducted using available valid cases for each variable. This methodological decision limited the analyses to affirmative, negative, or occasional responses regarding the experience of symptoms.

Associations between emotional symptoms reported at work and at home were analyzed using Pearson's chi-square test (χ^2), which is appropriate for examining relationships between categorical variables, with statistical significance set at $p < 0.05$. Cramér's V was used to estimate the magnitude of the association, with values close to 0.10 interpreted as a small effect, 0.30 as a moderate effect, and ≥ 0.50 as a large effect (18). Cramér´s V estimates were reported with 95% bias-corrected and accelerated (BCa) bootstrap confidence intervals based on 5,000 resamples to describe the precision of estimates. Exact p-values were reported to three decimal places, with values below 0.001 reported as $p < 0.001$. Analysis was conducted using available valid cases for each variable; therefore, denominators varied because of missing data. All analyses were conducted using IBM SPSS Statistics version 29.0.

During the preparation of this manuscript, the authors used ChatGPT (OpenAI) solely to assist with writing. The authors reviewed and edited the text and take full responsibility for the final content.

Results

Participant characteristics and working conditions

Of the n = 6,986 participants the mean age was 37.4 years (SD = 9.9), with the highest concentration in the 26–40 age group. Women represented most of the sample (77.4%). Most participants reported Latin American ethnic heritage (73.9%). Participants were distributed across different subregions of the Americas, with the largest proportion from Central America and the Caribbean (44.4%), followed by the Southern Cone (26.6%), the Andean region (23.6%), and North America (5.4%). Guatemala (15.9%) and Paraguay (12.7%) contributed the largest shares of responses, followed by El Salvador (10.1%), Honduras (6.9%), and the Dominican Republic (6.1%). Overall, 85.1% of participants worked in low- and middle-income countries.

Regarding educational attainment, most participants held a bachelor's degree (45.4%), while 13.8% had a master's degree and 1.9% reported a doctoral degree. Professional experience varied across the sample, with 20.5% reporting 0–3 years of experience and progressively smaller proportions in higher experience categories.

For professional roles, 53.1% worked as practitioners or frontline care providers, 12.7% held management or administrative roles, and 6.7% were educators. Most participants worked in hospital settings (59.4%), followed by primary or community-based care (11.9%). The majority worked in urban locations (65.9%).

Regarding employment conditions, 44.0% reported full-time employment, 16.2% reported temporary contracts, and 6.9% reported part-time work (less than 24 hours per week). Additionally, 21.3% reported having more than one job. Workplace reassignment during the pandemic was reported by 30.7% of participants (25.1% temporary and 5.6% permanent). Additionally, 9.3% reported experiencing layoffs during the pandemic. Notably, more than half of participants indicated that their wages were insufficient to keep them out of poverty (51.8%) or to support their household (52.9%).

Regarding exposure to COVID-19, 41.8% reported a confirmed infection. Only 37.2%, however, indicated that their employer recognized the infection as work-related, and 14.3% reported receiving additional pay or benefits for caring for people with COVID-19. Detailed distributions of these variables are presented in Table 1.

Table 1
Sociodemographic and professional characteristics of participants (N = 6,986).

Variable	Category	n (%)
Age (years)	Mean ± SD	37.4 ± 9.9
	Median	36
Gender	Female	5,409 (77.4)
	Male	975 (14.0)
	Other	598 (8.6)
Ethnic heritage	Latin American	5,164 (73.9)
	Native American	459 (6.6)
	Caribbean	194 (2.8)
	Other / Mixed / European / Asian / African	904 (13.5)
	Prefer not to answer	226 (3.2)
Sexual orientation	Heterosexual	3,422 (49.0)
	Homosexual	119 (1.7)
	Bisexual	66 (0.9)
	Other	136 (1.9)
	Prefer not to say	85 (1.2)
	Did not answer	3,158 (45.2)
Region of the Americas	Central America and Caribbean	3,103 (44.4)
	Southern Cone	1,859 (26.6)
	Andean Region	1,650 (23.6)
	North America	374 (5.4)
Education level	Bachelor's degree	3,170 (45.4)
	Technical / diploma / associate degree	1,065 (15.2)
	Master's degree	965 (13.8)
	Doctorate	136 (1.9)
	Prefer not to say	383 (5.5)
	Did not answer	1,267 (18.1)
Work organization	Hospital	4,153 (59.4)
	Primary/community care	829 (11.9)
	Ambulatory/outpatient care	167 (2.4)
	Home health care	67 (1.0)
	Staffing agency	21 (0.3)
	Other	391 (5.6)
	Prefer not to say	91 (1.3)
	Did not answer	1,267 (18.1)
Workplace area	Urban	4,607 (65.9)
	Rural	641 (9.2)

Note: Percentages were calculated based on available responses for each variable. Missing responses are reported as "Did not answer".

Variable	Category	n (%)
	Suburban	272 (3.9)
	Prefer not to say	199 (2.8)
	Did not answer	1,267 (18.1)
Work experience	0–3 years	1,435 (20.5)
	4–6 years	969 (13.9)
	7–10 years	821 (11.8)
	11–15 years	880 (12.6)
	16–20 years	550 (7.9)
	21–25 years	378 (5.4)
	≥ 26 years	538 (7.7)
	Prefer not to say	148 (2.1)
	Did not answer	1,267 (18.1)
Primary professional role	Practitioner/frontline worker	3,711 (53.1)
	Management/administrator	885 (12.7)
	Educator	467 (6.7)
	Other	656 (9.4)
	Did not answer	1,267 (18.1)
Contract type	Full-time	3,076 (44.0)
	Temporary contract	1,129 (16.2)
	Other	744 (10.6)
	Part-time (< 24 h/week)	481 (6.9)
	Per diem	289 (4.1)
	Did not answer	1,267 (18.1)
Has more than one job	No	4,204 (60.2)
	Yes	1,490 (21.3)
	Did not answer	1,292 (18.5)
Wage sufficient to avoid poverty	No	3,622 (51.8)
	Yes	1,918 (27.5)
	Did not answer	1,446 (20.7)
Income sufficient for household	No	3,697 (52.9)
	Yes	1,843 (26.4)
	Did not answer	1,446 (20.7)
Confirmed COVID-19 infection	Yes	2,917 (41.8)
	No	2,355 (33.7)
	Did not answer	1,714 (24.5)
COVID-19 recognized as occupational infection	Yes	2,601 (37.2)
	No	1,448 (20.7)

Note: Percentages were calculated based on available responses for each variable. Missing responses are reported as “Did not answer”.

Variable	Category	n (%)
	Not sure	892 (12.8)
	Prefer not to say	274 (3.9)
	Did not answer	1,771 (25.4)
Additional pay for COVID-19 care	No	3,861 (55.3)
	Yes	999 (14.3)
	Prefer not to say	236 (3.4)
	Not sure	119 (1.7)
	Did not answer	1,771 (25.4)
Reassignment during pandemic	No	2,844 (40.7)
	Yes, temporarily	1,750 (25.1)
	Yes, permanently	390 (5.6)
	Prefer not to say	262 (3.8)
	Did not answer	1,740 (24.9)
Layoffs during pandemic	No	5,047 (72.2)
	Yes	647 (9.3)
	Did not answer	1,292 (18.5)
Note: Percentages were calculated based on available responses for each variable. Missing responses are reported as “Did not answer”.		

[Insert Table 1 **here]**

Training, organizational support and clinical resources

A total of 57.8% of participants reported receiving training in the use of personal protective equipment (PPE), while only 23.0% indicated receiving training related to spiritual, emotional, or psychological support for caring for people with COVID-19. Employer-provided mental health support was reported as available by 18.5% of respondents, while 50.3% reported support was not available.

Regarding the availability of clinical resources, about half of the participants reported that intravenous infusion sets and oxygen were “always” or “usually available” (50.9% and 50.6%, respectively). Personal protective equipment was reported as “always” or “usually available” by 46.0% of participants. Access to evidence-based medications was more limited and inconsistently reported across settings, with the most common response being “sometimes available” (23.5%). Mechanical ventilator availability was also variable; 34.8% reported that ventilators were “always” or “usually available,” while 15.1% reported that they were not available.

Detailed distributions of training opportunities, employer support, and clinical resource availability are presented in Table 2.

Table 2
Training and self-reported availability of clinical resources and organizational support in Latin America, 2022–2025.

Variable	Category	n (%)
Training in the use of PPE	Yes	4,039 (57.8)
	No	867 (12.4)
	Not sure	223 (3.2)
	Prefer not to say	143 (2.0)
	Did not answer	1,714 (24.5)
Training in spiritual, emotional, or psychological support	No	3,258 (46.6)
	Yes	1,604 (23.0)
	Not sure	280 (4.0)
	Prefer not to say	130 (1.9)
	Did not answer	1,714 (24.5)
Employer support for mental health	No	3,517 (50.3)
	Sort of	1,594 (22.8)
	Yes	1,295 (18.5)
	Not sure	321 (4.6)
	Prefer not to say	258 (3.7)
	Did not answer	1 (0.0)
Intravenous infusion sets	Always available	2,016 (28.9)
	Usually available	1,537 (22.0)
	Sometimes available	969 (13.9)
	Rarely available	470 (6.7)
	Not available	280 (4.0)
	Did not answer	1,714 (24.5)
Oxygen	Always available	1,998 (28.6)
	Usually available	1,536 (22.0)
	Sometimes available	997 (14.3)
	Rarely available	418 (6.0)
	Not available	323 (4.6)
	Did not answer	1,714 (24.5)
Personal protective equipment (PPE)	Always available	1,713 (24.5)
	Usually available	1,502 (21.5)
	Sometimes available	1,149 (16.4)
	Rarely available	590 (8.4)
	Not available	319 (4.6)
	Did not answer	1,713 (24.5)
Evidence-based medications	Always available	770 (11.0)

Note: Percentages were calculated based on the total number of responses for each variable. Missing responses are reported as “Did not answer”.

Variable	Category	n (%)
	Usually available	1,324 (19.0)
	Sometimes available	1,645 (23.5)
	Rarely available	855 (12.2)
	Not available	679 (9.7)
	Did not answer	1,713 (24.5)
Mechanical ventilator	Always available	1,182 (16.9)
	Usually available	1,250 (17.9)
	Sometimes available	1,198 (17.1)
	Rarely available	588 (8.4)
	Not available	1,054 (15.1)
	Did not answer	1,713 (24.5)

Note: Percentages were calculated based on the total number of responses for each variable. Missing responses are reported as “Did not answer”.

[Insert Table 2 **here]**

Emotional Symptoms at work and at home

Fatigue was the most frequently reported symptom both at work (59.5%) and at home (55.1%). Anxiety was reported by 45.5% of participants at work and by 36.3% at home, while sadness was reported by 42.5% and 32.3%, respectively. Statistically significant associations were observed between emotional symptoms reported in work and home environments for all symptoms examined (all Pearson’s χ^2, $p < 0.001$). The magnitude of these associations ranged from moderate to large.

The largest associations were observed for irritability (Cramér’s V = 0.566, 95% CI 0.550–0.582), depression (Cramér’s V = 0.562, 95% CI 0.547–0.577), difficulty concentrating (Cramér’s V = 0.548, 95% CI 0.532–0.564), and fatigue (Cramér’s V = 0.512, 95% CI 0.492–0.531). Moderate associations were observed for sadness (Cramér’s V = 0.476, 95% CI 0.459–0.492), feeling overwhelmed (Cramér’s V = 0.468, 95% CI 0.453–0.484), and anxiety (Cramér’s V = 0.457, 95% CI 0.441–0.472), between work and home contexts (Table 3).

Table 3
Emotional symptoms in work and home settings and burnout levels among nursing and midwifery staff in Latin America, 2022–2025
Emotional symptoms reported in work and home settings

Symptom	Work Yes (%)	Work Sometimes (%)	Work No (%)	Home Yes (%)	Home Sometimes (%)	Home No (%)	χ^2 (df)	p-value	Cramer's V	95% BCa CI	Effect size
Anxiety	45.5	32.8	18.7	36.3	30.9	29.7	2750.79 (4)	< 0.001	0.457	0.441–0.472	Moderate
Depression	22.6	29.2	42.1	20.6	28.5	46.4	4003.38 (4)	< 0.001	0.562	0.547–0.577	Large
Feeling overwhelmed	38.3	35.0	23.7	25.5	36.6	34.3	2879.17 (4)	< 0.001	0.468	0.453–0.484	Moderate
Sadness	42.5	36.5	18.8	32.3	38.7	26.1	3015.24 (4)	< 0.001	0.476	0.459–0.492	Moderate
Difficulty concentrating	24.6	37.8	34.9	21.0	37.6	37.8	3954.47 (4)	< 0.001	0.548	0.532–0.564	Large
Fatigue	59.5	29.7	9.6	55.1	31.4	11.7	3563.91 (4)	< 0.001	0.512	0.492–0.531	Large
Irritability	27.7	38.9	30.1	25.5	37.9	32.5	4183.77 (4)	< 0.001	0.566	0.550–0.582	Large

Note: Percentages are based on available responses; denominators may vary because of missing data. Pearson's χ^2 tests were used to assess associations between emotional symptoms reported at work and at home. Cramér's V is reported as the measure of association, with 95% bias-corrected and accelerated (BCa) bootstrap confidence intervals (CIs) based on 5,000 resamples. Effect sizes were interpreted as small (V ≥ 0.10), moderate (V ≥ 0.30), and large (V ≥ 0.50). Values of p < 0.001 are reported as such. χ^2, Pearson's chi-square; df, degrees of freedom; CI, confidence interval; BCa, bias-corrected and accelerated.

[Insert Table 3 **here]**

Burnout

Among the 6,986 participants, 5,599 responded to the Mini-Z burnout items. Of these respondents, 44.9% reported no symptoms of burnout, while 36.9% reported mild stress levels. Early-stage burnout was reported by 12.3% of participants, persistent burnout by 3.9%, and severe burnout by 1.9%. When categories were grouped according to the established cutoff (≤ 2 = no burnout; ≥3 = burnout), 18.1% of respondents were classified as experiencing burnout (Table 4).

Table 4
Levels of burnout among nursing and midwifery staff in Latin America, 2022–2025.

Burnout category (Mini-Z)	n	(%)	Burnout classification	n	(%)
No symptoms	2,516	44.9	**No burnout**	4,584	81.9
Mild stress	2,068	36.9	**Burnout**	1,015	18.1
Early-stage burnout	689	12.3			
Persistent burnout	220	3.9			
Severe burnout	106	1.9			

Note: Burnout assessed using the single-item Mini-Z burnout measure. Burnout classification was derived from the instrument categories. Total sample included in the burnout analysis: n = 5,599.

[Insert Table 4 **here]**

Discussion

This multinational study provides regional public health evidence on working conditions occupational protections, organizational support, and mental health and emotional impact among the nursing workforce across Latin America and the Caribbean during the late and post-COVID-19 pandemic phases. It is amongst the first to show the commonalities of nurses' experiences across the region during the COVID-19 pandemic and one of the largest studies of the nursing workforce ever conducted to date.

It is also one of the first to capture the scope of the mental health impact of the pandemic on nurses with findings highlighting the psychological burden experienced by the nursing workforce in the region during a period of sustained health system pressure. Furthermore, the findings show that the pandemic in the region was marked by demanding working conditions, insufficient wages, limited recognition of COVID-19 as a work-related condition by employers, and low access to institutional mental health support. The analysis offers a broader regional view of workforce vulnerability both during and after the pandemic.

Overall, these findings are broadly consistent with the Job Demands–Resources model (JDR), which proposes that sustained job demands without adequate organizational resources may compromise worker well-being (16). When considering the broader work environment relative to the job-demands resource theory, the findings indicate a combination of high demands and limited organizational support. Participants reported multiple jobs, workplace reassignments, limited access to certain clinical resources, and low availability of institutional mental health support. This pattern aligns with a high-demand, low-support work environment, which has been consistently associated in the literature with psychological distress and burnout among healthcare workers (20, 21). The findings are consistent with the conceptual assumptions of the JD-R; the observed pattern is particularly the coexistence of elevated work demands and limited institutional support. Similar results have been reported in studies from Brazil, Argentina, Mexico, and Ecuador, which describe care pressure, work reorganization, and deterioration in psychological well-being among nursing staff during the pandemic (12, 22).

From a policy and management perspective, these findings reinforce calls to strengthen protection and recognition of the nursing workforce. This includes improving working conditions, ensuring adequate staffing, expanding social protection, and providing accessible mental health support (23–25). The findings also suggest that interventions focused solely on the clinical workplace may be insufficient if broader issues of labor insecurity and inadequate organizational support remain unaddressed.

The predominance of women in the sample aligns with the global composition of the nursing profession, which remains highly feminized across health systems (23). However, both global and regional evidence indicate that this gender composition is often linked to persistent structural inequalities in professional recognition, remuneration, and participation in decision-making processes within health systems. These structural dynamics have been described as contributing to occupational vulnerability within the nursing workforce, particularly in regions where workforce investment and labor protections remain uneven (23, 25, 26).

When considered alongside the employment-related findings of this study, the emotional burden observed among participants appears within a broader context of workforce precariousness. In addition, a considerable share of participants reported job reassignment during the pandemic. These findings reflect patterns of employment instability and economic vulnerability documented in the international literature on the nursing workforce, particularly in health systems facing chronic underinvestment in human resources for health (12, 22, 23, 27).

The data about the economic precarity nurses face may not be pandemic specific as wages were pre-specified during the pandemic. A substantial proportion of respondents reported insufficient income to stay above poverty thresholds or support their households, while more than one fifth reported holding multiple jobs. The existence of insufficient wages, multiple jobholding, and limited institutional protections suggests that many nursing professionals in the region are working in conditions that do not support economic well-being. Similar structural conditions have been linked to adverse occupational and health outcomes among nurses in multiple international studies that take place in high-income countries, particularly those examining staffing shortages, workload pressures, and limited organizational support (5, 21, 25, 26).

Taken together, these findings suggest that the emotional and occupational burden experienced by nursing staff during the pandemic should be interpreted not only as a response to crisis conditions, but also as embedded within a broader structural context shaped by workforce shortages, inadequate compensation, and uneven labor protections across health systems (23, 24, 27). These findings are also consistent with broader evidence indicating that workforce shortages and insecure employment arrangements may compromise both worker well-being and service delivery (21).

An additional contribution of this study is highlighting the importance of considering emotional experiences in both work and home contexts. An integrated perspective may contribute to a more comprehensive understanding of how health crises affect caregivers' daily lives and inform workforce support strategies that extend beyond the immediate clinical setting. The high frequency of emotional symptoms at work, particularly fatigue, anxiety, sadness, and feeling overwhelmed as well as their parallel occurrence at home, indicates that emotional strain extended across both professional and personal contexts. These findings suggest that emotional strain was not limited to the workplace but extended across daily life domains. This pattern indicates that the psychosocial burden experienced by nursing staff during the pandemic affected both professional and personal contexts, consistent with the broader literature on psychological distress among healthcare workers during COVID-19 (4, 21).

The observed frequency of anxiety in this study exceeds some estimates reported in international meta-analyses conducted during the early waves of the COVID-19 pandemic (23%–44%) (2, 3) and is consistent with findings from the Global Consortium of Nursing and Midwifery Studies, in which 23% to 61% of nursing staff reported symptoms of anxiety or depression (5).

Our findings are consistent with other studies conducted during the COVID-19 pandemic that documented high levels of psychological distress, anxiety, and emotional exhaustion among healthcare professionals working in frontline care environments (4, 21).

Moderate to large associations were observed between emotional symptoms reported at work and at home, with the largest associations found for irritability, depression, difficulty concentrating, and fatigue. The relatively narrow confidence intervals around these estimates indicate good precision in observed associations. These findings are consistent with the work–home spillover framework described in occupational health research (17). However, given the cross-sectional design of this study, the results should be interpreted as indicating co-occurrence of emotional burden across contexts rather than a directional transfer from work to home. In this sense, the observed pattern may reflect both work–home spillover processes and shared exposure to chronic pandemic-related stressors affecting healthcare workers across multiple life domains.

Early evidence from China documented high levels of depression, anxiety, insomnia, and stress among frontline healthcare workers exposed to COVID-19 (4). Subsequent reviews across Asia and Europe indicated that psychological distress and burnout persisted beyond the initial phase of the pandemic (3, 20). A recent systematic review has also reported sustained levels of anxiety, depression, and emotional exhaustion among healthcare workers in different health systems, suggesting that the mental health impact of the pandemic extended beyond the acute emergency phase (5, 21).

Although the cross-sectional design of this study does not permit assessment of temporal changes in psychological symptoms, the findings indicate that a substantial emotional burden persisted among nursing professionals during the later and post-emergency phases of the pandemic examined in this analysis (2022–2025). This observation is particularly relevant because much of the early literature on healthcare workers' mental health focused on the acute phase of the pandemic, while fewer studies have explored the persistence of emotional distress in subsequent phases, especially across multiple countries in Latin America.

To interpret the burnout findings, it is important to note that the outcome was measured using the single-item version of the Mini-Z. In previous validation studies, this item has demonstrated adequate psychometric performance and convergent validity with broader burnout measures, particularly regarding emotional exhaustion (8). In this study, 18.1% of participants reported levels consistent with early-stage, persistent, or severe burnout. This proportion falls within the range reported in studies of healthcare professionals in other settings, where prevalence estimates have ranged from 17% to 34% (20, 28). In Latin America, studies conducted among nursing professionals have also documented substantial levels of burnout, particularly in hospital settings and in contexts characterized by high workloads and complex care demands (22, 29). The proportion of participants reporting mild stress without burnout was higher (36.9%), suggesting that a substantial segment of the workforce may have experienced early psychological strain even when the burnout threshold was not met. Although mild stress and burnout are related phenomena within the spectrum of occupational strain, they should not be interpreted as equivalent constructs. This pattern may indicate increased vulnerability to future burnout under persistently adverse working conditions, although longitudinal data would be required to examine progression over time.

Importantly, due to the use of the single-item measure of burnout, the present findings should be viewed as an indicator of self-reported burnout symptoms rather than a comprehensive diagnostic assessment of burnout syndrome. Nonetheless, it is notable that burnout rates reported by Latin American and the Caribbean nurses were lower than those of nurses in high-income countries during the COVID-19 pandemic (20). This finding may be explained by economic precarity, as nurses may not be able to "afford" burnout or recognize its symptoms as associated with it. Since there is limited research about health worker burnout in low- and middle-income countries (21, 30), these findings suggest the need for further research to understand how the phenomenon manifests in low or lower-resource settings.

This study has several limitations that should be considered when interpreting the findings. First, the cross-sectional design does not allow for establishing causal relationships between working conditions and emotional outcomes. Second, the use of self-reported measures may introduce response bias, including potential underreporting or overreporting of emotional symptoms. In addition, the use of non-probability sampling limits national representativeness, and the absence of multilevel modeling prevents estimation of country-specific effects. Therefore, the findings should be interpreted primarily as regional patterns rather than precise national estimates.

Another limitation concerns the data collection process across multiple countries and time periods. Variations in epidemiological conditions, health system responses, and organizational contexts may have influenced participants' experiences and responses. Differences in cultural interpretation of emotional symptoms and working conditions across countries may also have affected responses, despite the use of a standardized instrument. Additionally, relatively small sample sizes were obtained in some participating countries, including

Jamaica, Panama, Puerto Rico, Uruguay, and Cuba, which limits the interpretation of findings for these specific contexts and underscores the need for further country-specific studies.

Despite these limitations, this study has several important strengths. The large sample size, inclusion of participants from 20 countries in Latin America and the Caribbean, and use of a standardized survey instrument within an international research consortium enhance the comparability of findings across diverse health system contexts.

Additionally, the consistency of patterns observed across multiple countries and work settings provides relevant evidence regarding the working conditions and psychological burden experienced by nursing professionals in the region during and after the COVID-19 pandemic. Future research studies will explore the differences between countries as the data allow.

Conclusions

Nursing staff in Latin America and the Caribbean experienced adverse working conditions during the COVID-19 pandemic, including employment instability, insufficient wages, limited institutional recognition of occupational exposure, and restricted access to mental health support. Emotional symptoms were frequently reported in both work and home settings, with moderate to large associations between these contexts and the largest associations observed for irritability, depression, difficulty concentrating, and fatigue.

The findings underscore the importance of organizational policies and strategies aimed at promoting safe working conditions and employment stability, recognizing occupational risks, and expanding access to psychosocial and mental health support. Such strategies should consider the emotional experiences of nursing professionals across both work and home settings. Strengthening these areas may contribute to the resilience and long-term sustainability of health systems in Latin America and the Caribbean and improve preparedness for future public health emergencies.

Abbreviations

BCa: Bias-corrected and accelerated

CI: Confidence interval

GCNMS: Global Consortium of Nursing and Midwifery Studies

IRB: Institutional Review Board

JD-R: Job Demands–Resources

NYU: New York University

PPE: Personal protective equipment

WHO: World Health Organization

U-Nursing LatAm: Latin American Nursing Unity Community

Declarations

Ethics approval and consent to participate

The parent study was approved by the NYU Institutional Review Board (IRB-FY2020-4440), which served as the IRB of record for the participating countries. In Latin America and the Caribbean, country teams followed the approved global protocol and complied with local ethical requirements where applicable. Costa Rica also obtained approval from its National Ethics Committee (CEC-468-2021). All participants provide electronic informed consent before completing the questionnaire. The study was conducted in accordance with the principles of the Declaration of Helsinki and relevant ethical guidelines and regulations. Data were securely stored at New York University, with access restricted to authorized personnel, and participating teams received anonymized country-specific datasets for analysis.

Consent for publication

Not applicable.

Availability of data and materials

The datasets analysed during the current study are available from the corresponding author on reasonable request, in accordance with the data-sharing policies of the Global Consortium of Nursing and Midwifery Studies (GCNMS) and subject to applicable institutional and ethical requirements.

Competing interest

The authors declare that they have no competing interest.

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Authors' contributions

JIRL, JJS, MGCH, APS and SMAF contributed to the conceptualization of the study. MGD, EGO, SMAF, JLGDS and APS contributed to the methodology. HJD, APS, MGD and EGO contributed to software. JLGDS, EGO and JIRL contributed to validation. MGD, EGO, SMAF and JIRL conducted the formal analysis. All authors contributed to the investigation. JLGDS, APS, PAD, JIRL and JJS contributed resources. JIRL, ML, EGO and SMAF contributed to data curation. JIRL, JLGDS and SMAF wrote the original draft of the manuscript. All authors contributed to reviewing and editing the manuscript. MGD, SMAF and JIRL contributed to visualization. APS, PAD, JJS and JIRL supervised the study. PAD was responsible for project administration. APS and JLGDS acquired funding. All authors read and approved the final manuscript.

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References

1. Doleman G, De Leo A, Bloxsome D. The impact of pandemics on healthcare providers' workloads: a scoping review. J Adv Nurs. 2023;79(12):4434–54. 10.1111/jan.15690.
2. Pappa S, Ntella V, Giannakas T, Giannakoulis VG, Papoutsi E, Katsaounou P. Prevalence of depression, anxiety, and insomnia among healthcare workers during the COVID-19 pandemic: a systematic review and meta-analysis. Brain Behav Immun. 2020;88:901–7. 10.1016/j.bbi.2020.05.026.
3. De Kock JH, Latham HA, Leslie SJ, Grindle M, Munoz SA, Ellis L, et al. A rapid review of the impact of COVID-19 on the mental health of healthcare workers: implications for supporting psychological well-being. BMC Public Health. 2021;21(1):104. 10.1186/s12889-020-10070-3.
4. Lai J, Ma S, Wang Y, Cai Z, Hu J, Wei N, et al. Factors associated with mental health outcomes among health care workers exposed to coronavirus disease 2019. JAMA Netw Open. 2020;3(3):e203976. 10.1001/jamanetworkopen.2020.3976.
5. Squires A, Dutton HJ, Casales-Hernandez MG, Rodriguez López JI, Jimenez-Sanchez J, Saldarriaga-Dixon P, et al. A descriptive analysis of nurses' self-reported mental health symptoms during the COVID-19 pandemic: an international study. Int Nurs Rev. 2025;72(1):e13099. 10.1111/inr.13099.
6. Zakeri MA, Rahiminezhad E, Salehi F, Ganjeh H, Dehghan M. Compassion satisfaction, compassion fatigue and hardiness among nurses: a comparison before and during the COVID-19 outbreak. Front Psychol. 2021;12:815180. 10.3389/fpsyg.2021.815180.
7. Wolotira EA. Trauma, compassion fatigue, and burnout in nurses: the nurse leader's response. Nurse Lead. 2023;21(2):202–6. 10.1016/j.mnl.2022.04.009.
8. Linzer M, McLoughlin C, Poplau S, Goelz E, Brown R, Sinsky C, et al. The Mini Z Worklife and Burnout Reduction Instrument: psychometrics and clinical implications. J Gen Intern Med. 2022;37(11):2876–8. 10.1007/s11606-021-07278-3.
9. Cassiani SHB, Hoyos MC, Barreto MFC, Sives K, da Silva FAM. Distribution of the nursing workforce in the Region of the Americas. Rev Panam Salud Publica. 2018;42:e72. 10.26633/RPSP.2018.72.
10. Aspiazu E, Cutuli R. Condiciones de trabajo de la enfermería: percepciones, prácticas y riesgos psicosociales durante la pandemia COVID-19. Ejes Econ Soc. 2022;6(11):462–95. 10.33255/25914669/61043.

11. Torrecilla NM, Victoria MJ, Minzi MCR, Ansiedad M. 2021. Rev Argent Salud Publica. 2021;13(Suppl 1):25. Disponible en: https://www.scielo.org.ar/scielo.php?script=sci_arttext&pid=S1853-810X2021000200025. Accessed 20 May 2026.
12. Tiga-Loza DC, Mancilla-Lucumi A, Castro-Bernal MA, Vergara-Escobar OJ, Llanganate-Osorio DM, Acosta EGR. Multicenter study on satisfaction, stress and working conditions in nursing in Latin American countries. Rev Lat Am Enfermagem. 2024;32:e4392. 10.1590/1518-8345.7337.4392.
13. World Health Organization. Pandemic prevention, preparedness and response accord. Geneva: World Health Organization. 2025. https://www.who.int/news-room/questions-and-answers/item/pandemic-prevention--preparedness-and-response-accord. Accessed 20 May 2026.
14. Squires A, Dutton HJ, Mobarki A, Jones SA. Capturing nurses' and midwives' experiences during the COVID-19 pandemic: protocol for an international study using multiple methods. JMIR Preprints. 2025. https://preprints.jmir.org/preprint/94179. Accessed 20 May 2026.
15. Casales-Hernández MG, Jiménez-Sánchez J, Dixon PA, Rodríguez-López JI, Squires A. Experience of the U-Nursing LatAm team in the research entitled Nurses working during the COVID-19 pandemic (ENTRADUP). Texto Contexto Enferm. 2023;32:e2023E002. 10.1590/1980-265X-TCE-2023-E002es.
16. Bakker AB, Demerouti E. The Job Demands-Resources model: state of the art. J Manag Psychol. 2007;22(3):309–28. 10.1108/02683940710733115.
17. Frone MR. Work-family conflict and employee psychiatric disorders: the national comorbidity survey. J Appl Psychol. 2000;85(6):888–95. 10.1037/0021-9010.85.6.888.
18. Cohen J. Statistical power analysis for the behavioral sciences. 2nd ed. New York: Routledge; 1988. 10.4324/9780203771587.
19. Geddes A, Parker C, Scott S. When the snowball fails to roll and the use of 'horizontal' networking in qualitative social research. Int J Soc Res Methodol. 2018;21(3):347–58. 10.1080/13645579.2017.1406219.
20. Galanis P, Vraka I, Fragkou D, Bilali A, Kaitelidou D. Nurses' burnout and associated risk factors during the COVID-19 pandemic: a systematic review and meta-analysis. J Adv Nurs. 2021;77(8):3286–302. 10.1111/jan.14839.
21. Varghese A, George G, Kondaguli SV, Naser AY, Khakha DC, Chatterji R. Decline in the mental health of nurses across the globe during COVID-19: a systematic review and meta-analysis. J Glob Health. 2021;11:05009. 10.7189/jogh.11.05009.
22. Ribeiro AAA, Oliveira MVL, Furtado BMASM, Freitas GF. Impacts of the COVID-19 pandemic on Brazilian nurses' lives, health and work. Acta Paul Enferm. 2022;35:eAPE01046. 10.37689/acta-ape/2022AO010466.
23. World Health Organization. State of the world's nursing 2020: investing in education, jobs and leadership. Geneva: WHO. 2020. https://www.who.int/publications/i/item/9789240003279. Accessed 20 May 2026.
24. Cassiani SHB, Munar Jimenez EF, Ferreira AU, Peduzzi M, Hernández CL. La situación de la enfermería en el mundo y la Región de las Américas en tiempos de la pandemia de COVID-19. Rev Panam Salud Publica. 2020;44:e64. 10.26633/RPSP.2020.64.
25. International Council of Nurses. Recover to rebuild: investing in the nursing workforce for health system effectiveness. Geneva: ICN. 2023. https://www.icn.ch/sites/default/files/2023-07/ICN_Recover-to-Rebuild_report_EN.pdf. Accessed 20 May 2026.
26. Gauci P, Luck L, O'Reilly K, Peters K. Workplace gender discrimination in the nursing workforce: an integrative review. J Clin Nurs. 2023;32(17–18):5693–711. 10.1111/jocn.16684.
27. Sánchez L, Taverna BD, Ricci MJ, Aristizabal P, Nigenda G, Cedeño Tapia SJ. Indicators of the nursing labor market in six Latin American countries. Int J Work Cond. 2023;25:89–98. 10.25762/ne54-4h32.
28. Dobnik M, Lorber M. Management support for healthcare workers' mental health and burnout during the COVID-19 pandemic: a cohort study. Sustainability. 2023;15(17):12766. 10.3390/su151712766.
29. Simonetti M, Aqueveque AMV, Alejandra Galiano M. Environment, workload, and nurse burnout in public hospitals in Chile. Rev Esc Enferm USP. 2021;55:e20200521. 10.1590/1980-220x-reeusp-2020-0521.
30. Moitra M, Rahman M, Collins PY, Gohar F, Weaver M, Kinuthia J, et al. Mental health consequences for healthcare workers during the COVID-19 pandemic: a scoping review to draw lessons for LMICs. Front Psychiatry. 2021;12:602614. 10.3389/fpsyt.2021.602614.