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The Psychological Health and Work-Family Balance of Ambulatory Care Nurses in the COVID-19 era: A Cross-Sectional Survey
La santé psychologique et la conciliation travail-famille des infirmières en soins ambulatoires à l'ère de la COVID-19 : résultats d'une enquête

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Article abstract

Introduction: The COVID-19 pandemic impacted nurses' psychological health and work-family balance, including in ambulatory care settings. The results presented in this article are part of a study aiming to describe and contextualize the psychological health and changes in nurses' follow-up practices in Quebec (Canada) during the COVID-19 pandemic.

Objective: Explore and describe factors that influenced ambulatory care nurses' psychological health and work-family balance during the first wave of the COVID-19 pandemic.

Methods: Exploratory mixed data cross-sectional study using the SurveyMonkey platform. We collected data from July 2020 to September 2020. The target population comprised all practicing nurses in Quebec whose clinical activities included the follow-up of ambulatory patients, 200 of whom completed the survey.

Results: Multiple linear regression models indicated that anxiety (GAD-7 scores) and depressive symptoms (PHQ-9 scores) were associated with younger age, living alone, worries about transmitting COVID-19, and feeling that one's work was not coherent with one's values. Work-family balance was considered more difficult than before the pandemic by 54.5 % of participants. Factors perceived as influencing work-family balance were either related to work conditions (e.g., schedule and time at work, access to work from home, redeployment to another work setting), to family-related responsibilities/tasks or were specific to the pandemic.

Discussion and conclusion: Apart from age, the feeling that one's work was not coherent with their values was the only variable correlated with both GAD-7 and PHQ-9 in multivariate models. Further research should investigate the relationships between sense of coherence, psychological health, and work conditions like schedule flexibility and access to work from home.

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Keywords	Abstract
nurses; psychological health; work-family balance; pandemic; ambulatory care	**Introduction**: The COVID-19 pandemic impacted nurses' psychological health and work-family balance, including in ambulatory care settings. The results presented in this article are part of a study aiming to describe and contextualize the psychological health and changes in nurses' follow-up practices in Quebec (Canada) during the COVID-19 pandemic. **Objective**: Explore and describe factors that influenced ambulatory care nurses' psychological health and work-family balance during the first wave of the COVID-19 pandemic. **Methods**: Exploratory mixed data cross-sectional study using the SurveyMonkey platform. We collected data from July 2020 to September 2020. The target population comprised all practicing nurses in Quebec whose clinical activities included the follow-up of ambulatory patients, 200 of whom completed the survey. **Results**: Multiple linear regression models indicated that anxiety (GAD-7 scores) and depressive symptoms (PHQ-9 scores) were associated with younger age, living alone, worries about transmitting COVID-19, and feeling that one's work was not coherent with one's values. Work-family balance was considered more difficult than before the pandemic by 54.5 % of participants. Factors perceived as influencing work-family balance were either related to work conditions (e.g., schedule and time at work, access to work from home, redeployment to another work setting), to family-related responsibilities/tasks or were specific to the pandemic. **Discussion and conclusion**: Apart from age, the feeling that one's work was not coherent with their values was the only variable correlated with both GAD-7 and PHQ-9 in multivariate models. Further research should investigate the relationships between sense of coherence, psychological health, and work conditions like schedule flexibility and access to work from home.

Résumé	Mots-clés
Introduction : La pandémie a eu des répercussions sur la santé psychologique et la conciliation travail-famille des infirmières, y compris dans les milieux de soins ambulatoires. Les résultats présentés dans cet article font partie d'une étude visant à décrire et contextualiser la santé psychologique et l'évolution des pratiques de suivi infirmier au Québec (Canada) lors de la pandémie de COVID-19. **Objectif** : Explorer et décrire les facteurs qui ont influencé la santé psychologique et la conciliation travail-famille des infirmières en soins ambulatoires pendant la première vague de la pandémie de COVID-19. **Méthodes** : Enquête exploratoire avec données mixtes par le biais de la plateforme *SurveyMonkey*. Les données ont été collectées de juillet 2020 à septembre 2020. La population cible était toutes les infirmières du Québec dont les activités cliniques incluaient le suivi de patients ambulatoires ; 200 infirmières ont participé. **Résultats** : Les modèles de régression ont indiqué que les symptômes anxieux (scores au GAD-7) et dépressifs (scores au PHQ-9) étaient associés à un plus jeune âge, au fait de vivre seul, aux inquiétudes concernant la transmission de la COVID-19 et au sentiment que son travail n'était pas cohérent avec ses valeurs. La conciliation travail-famille était jugée plus difficile qu'avant la pandémie par 54,5 % des participants. Les facteurs perçus comme l'influençant étaient soit liés aux conditions de travail (p. ex., horaire et temps de travail, télétravail, délestage), aux tâches familiales, ou étaient spécifiques à la pandémie. **Discussion et conclusion** : Outre l'âge, le sentiment que son travail n'était pas cohérent avec ses valeurs était la seule variable corrélée à la fois avec le GAD-7 et le PHQ-9. Les futures recherches devraient s'intéresser à la relation entre le sentiment de cohérence, la santé psychologique et les conditions de travail favorables à la conciliation travail-famille.	infirmières; santé psychologique; conciliation travail-famille; pandémie; soins ambulatoires

INTRODUCTION

The COVID-19 pandemic has been challenging for nurses' psychological health (Al Maqbali et al., 2021; De Kock et al., 2021; Luo et al., 2020). Many factors might have contributed to decreasing psychological health in this population, such as higher exposure to COVID-19 at work, fear of transmitting the virus, challenging work conditions, and the social impact of the pandemic (Al Maqbali et al.; Li et al., 2022). According to a meta-analysis of 93 studies on stress, anxiety, depression, and sleep disturbance among nurses from January to September 2020, approximately one-in-three nurses experienced significant psychological symptoms (Al Maqbali et al.). A cross-sectional study conducted with Taiwanese nurses found that redeployment and increased work hours in the pandemic context were associated with burnout and intention to leave (Li et al.). The same study also found that perceived occupational stigma was associated with depression in addition to burnout and intention to leave (Li et al.). Moreover, studies investigating work conditions and the psychological health of nursing staff during the pandemic era highlighted concerns for their family's safety and the fear of transmitting COVID-19 to their loved ones (Crowley et al., 2021; Foye et al., 2021; Halcomb et al., 2020; Li et al.).

Regarding the impact of the pandemic, nurses working in ambulatory care settings, such as primary care nurses or mental health community nurses, are no exception. Primarily involved in the follow-up of vulnerable populations such as patients with long-term physical conditions, mental disorders, or complex social problems, ambulatory care nurses had to reorganize their practices quickly and with little guidance (Crowley et al., 2021; Foye et al., 2021; Halcomb et al., 2020).

In a UK survey conducted in April-May 2020 with primarily community-working mental health nurses, adopting remote practices using the telephone and new online platforms was a major concern among participants (Foye et al.). Many respondents were concerned about maintaining the quality of care with insufficient resources: poor Internet, unavailable hardware, and lack of privacy to conduct appointments (Foye et al.). Two studies conducted in Australia and South Africa reported that organizational changes during the pandemic resulted in a reduced volume of nursing activities performed (Crowley et al.; Halcomb et al.). For instance, some nurses were reassigned to COVID-19 services (e.g., screening and assessment) or activities related to the infrastructural needs: management of equipment and supplies, cleaning, or answering the phone (Crowley et al.; Halcomb et al.).

While concerns for the psychological health of nursing staff have been evoked for a long time, the pandemic context offers an excellent opportunity to explore ambulatory care nurses' work-family balance. Work-family balance can be defined as:

> Employees' evaluation of the favorability of their combination of work and nonwork roles, arising from the degree to which their affective experiences and their perceived involvement and effectiveness in work and nonwork roles are commensurate with the value they attach to these roles. (Casper et al., 2018, p. 197)

Recognizing that work-family balance is crucial to personal psychological health, governing bodies have developed policies to help reconcile work and nonwork roles in their citizens (European Commission, 2021; Government of Canada, 2019). Indeed, work-family enrichment among nurses is associated with better job satisfaction (Cortese et al., 2010) and less intention to leave their job (Russo & Buonocore, 2012). Control over job decisions and schedule flexibility also proved to positively influence nurses' work-family balance (Navajas-Romero et al., 2020). However, previous studies focused more on job demands or work conditions rather than the impact of the work environment on nurses' work-family balance (Navajas-Romero et al.). To our knowledge, no previous study has explored the impact of the COVID-19 pandemic on ambulatory care nurses' ability to balance their work and their family or personal life.

OBJECTIVE

The objective of this study is to explore and describe factors influencing the psychological health and work-family balance of ambulatory care nurses after the first wave of the COVID-19 pandemic in the province of Quebec.

METHODS

STUDY DESIGN

We conducted an exploratory mixed-data cross-sectional survey of the practices and psychological health of ambulatory care nurses in Quebec (Canada) during the COVID-19 pandemic, using the SurveyMonkey platform (Caruana et al., 2015; Weisberg et al., 1996). Expecting that the situation would evolve throughout the pandemic, we planned three survey waves with the same core content. In this article, we present data from the first survey wave conducted from July to September 2020, which had a specific focus on work-family balance in addition to the core questions related to psychological health and practice changes. We used guidance from the STROBE checklist to report this study (Supplementary file 1 – End of the document).

SETTING

Canada's publicly funded healthcare system mandates that each of the country's 13 provinces and territories manages a single-payer insurance program making medically required care accessible without fees at the point of use (Government of Canada, 2016). In Quebec, the provincial government owns and manages a public network of healthcare establishments covering the entirety of the province's territory. For management purposes, Quebec's territory is divided into 18 sociosanitary regions serviced by 34 Integrated Health and Social Services Centers (*Centre intégré de santé et de services sociaux*) providing a wide range of services (e.g., local community services, hospital-based care, residential and long-term care in nursing homes, child and youth protection services, rehabilitation centers, etc.) (Ministère de la Santé et des Services sociaux, 2019). The vast majority of Quebec's nurses are employed by one of these 34 integrated establishments (Ordre des infirmières et infirmiers du Québec [OIIQ], 2021).

Since the beginning of the pandemic, the province of Quebec has had the highest COVID-19-related morbidity rate in Canada (Institut national de santé publique du Québec [INSPQ], 2022b). At the onset of the pandemic, Montreal and its metropolitan area had the highest rates of COVID-19 infections and deaths in Quebec (Gosselin et al., 2020). The public had seen a ramp-up of sanitary measures from March to April 2020, followed by a relative easing of restrictions from April to July (INSPQ, 2022). Shortly after the first survey started on July 14, 2020, a universal mask mandate was instated, followed by a relatively stable period ending on September 8, 2020, when a system was implemented to determine regional restrictions based on the state of COVID-19 community transmission (INSPQ, 2022). The first survey was completed shortly after that on September 22, 2020. In addition to general sanitary measures, the government implement policies allowing employers to bypass pre-established agreements and assign healthcare professionals to a new sector, cancel vacations and disability-based work adjustments, require part-time employees to work full-time, and otherwise change work schedules (*Arrêté ministériel Numéro 2020-004*, 2020; *Arrêté ministériel Numéro 2020-007*, 2020).

STUDY POPULATION

The study's target population comprised all nurses in the province of Quebec whose clinical activities included the follow-up of ambulatory patients, i.e., services provided outside their residence to individuals who are not currently hospitalized (Agency for Healthcare Research and Quality, 2018). In the absence of available data on the prevalence of ambulatory follow-up practices among nurses, we identified two populations of interest: 1) nurses practicing in family medicine groups (n = 848 in 2014-2015 according to the OIIQ, cited in Poitras, 2016), and 2) nurses providing ambulatory mental healthcare, either in front line mental healthcare teams (n = 1756) or in specialized or ultra-specialized mental healthcare teams (n = 2467; data from 2018-2019) (OIIQ, 2019).

RECRUITMENT

We used a convenience non-probabilistic sampling strategy (Lavrakas, 2008) to obtain the participation of the highest possible number of nurses from the target population at the time of data collection. We used two complementary recruitment techniques to reach and recruit participants: 1) collaboration with professional networks and 2) the snowball method (Parker et al., 2019). For primary care nurses working in family medicine groups, we collaborated with the primary care nurse's virtual community of practice, including 643 members. For nurses working in mental healthcare settings, we collaborated with the Quebec Association of Mental Health Nurses, including more than 400 members. Following the Dillman et al. (2014) recruitment method, we used a customized approach and sent a series of emails inviting members of these organizations to participate in the survey if they met the inclusion criteria. More specifically, we sent a first invitation followed by at least two email reminders with a time interval of at least two weeks between attempts. In addition to these emails, we enacted the snowball method by designing invitations to participate by clicking a link to the SurveyMonkey platform that we shared through the official social media accounts (Twitter and Facebook) of one of the co-investigator's (MEP) research chair and on the Facebook groups of relevant nursing associations.

DATA COLLECTION

Participants filled out a web-based French-language questionnaire. We conducted cognitive testing (Dillman et al., 2014) to pilot our questionnaire with six nurses (five women, one man) working in primary and mental healthcare settings, with whom a research professional met individually to explore their concerns and improve questions' formulation. Our collaborators also tested the proper running of the online survey, which took about 15 minutes to complete.

The questionnaire included five main sections (Supplementary file 2 – French only – End of the document): 1) sociodemographic and professional characteristics (gender, age, living situation, nursing graduation year, and highest nursing-related diploma), 2) practice setting (sociosanitary region, whether they had a full- or part-time schedule), 3) changes in follow-up practices during the pandemic era, 4) beliefs and attitudes regarding telehealth practices in general and for mental healthcare in particular, and 5) psychological health and work-family balance. To measure psychological health, we used the French versions recommended by the INSPQ (Canuel et al., 2019) of the 7-item assessment tool for Generalized Anxiety Disorder (GAD-7) and the 9-item Patient Health Questionnaire (PHQ-9) for depressive symptoms (Canuel et al.; Kroenke et al., 2001; Spitzer et al., 2006). Our questionnaire included two open-field questions to elicit factors perceived to influence work-family balance: 1) What factors, if any, are negatively impacting your work-family balance? How?; and 2) What factors, if any, are positively impacting your work-family balance? How? Table 1 describes other survey variables and measures relating to work-family balance and psychological health.

DATA ANALYSIS

Statistical analysis. A senior biostatistician (DB) conducted data analysis using SAS 9.4. Multiple linear regressions were carried out for the outcomes GAD-7 and PHQ-9 scores, adjusting for the following variables: perceived coherence between work and personal values, worries about transmitting or contracting COVID-19, age, sociosanitary region, living situation, and work schedule (i.e., working part-time or full-time). Variables selection for the regression models was based on prior literature and the researchers' judgement rather than statistical methods. As multicollinearity testing revealed all variance inflation factors to be < 3, all selected variables were retained in the final models. All correlations were tested at alpha = 0.05.

Qualitative analysis. We conducted a thematic content analysis of answers to the two open-field questions about factors influencing work-family balance (Miles et al., 2014). We used Microsoft Excel for organizing and analyzing data: AG first familiarized with data by grouping similar quotes and statements under the same thematic code (e.g., working from home, schedule, and time at work). After that, AG and JDC compared the emergent themes' codification with models

previously published in the scientific literature to construct a coding tree that would account for all the participants' statements. Specifically, we used a conceptual framework on integrated approaches to protecting and promoting worker health and safety (Sorensen et al., 2021), the job-demands resources models of burnout (Demerouti et al., 2001), and the results of a theoretical review regarding burnout in nurses (Dall'Ora et al., 2020). Finally, AG and CC independently analyzed each statement and labeled them with codes from the coding tree. Discrepancies were resolved with a third author, JDC.

ETHICAL CONSIDERATIONS

We conducted this study with the approval of a research ethics committee # 2021-3766. Participants signed an electronic consent form before being allowed access to survey questions. We only included completed questionnaires in data analysis as we considered incomplete questionnaires to be refusals to participate (except for the open-field questions, which were optional). We did not collect any nominal or contact information on participants.

RESULTS

PARTICIPANTS

Table 2 presents the sociodemographic and professional characteristics of participants. A total of 200 nurses completed the survey, most of whom were in their thirties or forties and 92% were women. Most of the participants (60%) lived with at least one other adult and a child. About one in four lived in the islands of Montreal or Laval, a quarter in regions surrounding Montreal, and almost half in other regions. The majority (84%) worked full-time, but only 20% in a mental healthcare setting compared to 80% in primary care. At the time of the survey, 7.5% of participants were redeployed to another work setting due to COVID-19. An additional 59% had seen decreased volume in their follow-up practices, while a third reported a stable or increased volume. Most strikingly, regarding follow-up activities, the proportion of participants conducting face-to-face

meetings multiple times per day went from 82.5% before the pandemic to 16% at the time of the survey. In comparison, phone follow-ups went from 44 to 81%.

PSYCHOLOGICAL HEALTH

Among participants, 10.5% had a GAD-7 (anxiety symptoms) score of 10 or more, which also climbed to 25% when looking only at participants younger than 30; 13.5% reported significant depressive symptoms, defined as a PHQ-9 score of 10 or more. In the participants younger than 30, this proportion was 25%.

Table 3 presents the multiple linear regression model results for GAD-7 and PHQ-9 scores.

In the multivariate model, higher GAD-7 score correlated with being younger than 30 or in one's thirties compared to being older than 50. When looking at PHQ-9 scores, being in one's thirties was associated with more depressive symptoms compared to being older than 50. In addition, participants living alone had more depressive symptoms than being in the majority living with at least one other adult and one child. At the time of the survey, 40% of participants felt their work had not been coherent with their values since the beginning of the pandemic. Feeling that one's work was not coherent with their values correlated with higher scores on both GAD-7 and PHQ-9. In bivariate analysis, living in Montreal or Laval was associated with higher depressive symptoms than other regions, but this was not significant when accounting for other variables. However, most of the anxiety and depressive symptoms would be explained by other factors than the included variables, as the proportion of variance explained (R^2) = 0.23 for GAD-7 and R^2 = 0.27 for PHQ-9.

Regarding worries about getting infected with or transmitting COVID-19, participants were on average more worried about transmitting the virus to their loved ones than their patients or about contracting it themselves. Notably, worries about transmitting COVID-19 to loved ones correlated with higher depressive symptoms, while worries about infecting one's patients correlated with lower PHQ-9 scores. Regarding anxiety symptoms, worries about getting infected at work was the only such variable correlated with GAD-7 scores.

Table 1

Additional work-family balance and psychological health-related variables and measures

Variables	Questions	Variable types
Perceived coherence between work and personal values	• Since the beginning of the COVID-19 pandemic, have you felt that your work is coherent with your values?	Dichotomic (yes/no)
Worries about transmitting or contracting COVID-19	• At this time, how would you rate the likelihood of contracting COVID-19 at work? • At this time, how worried are you about the likelihood of contracting COVID-19 at work? • At this time, how worried are you about infecting your patients with COVID-19? • At this time, how worried are you about infecting your loved ones with COVID-19?	Visual analog scale (cursor-moved, converted to a 0-100 scale by the software, higher scores indicate higher worries)
Work-family balance	• Before the COVID-19 pandemic, how did you find work-family balance? • Since the beginning of the COVID-19 pandemic, how have you found work-family balance? • For the next three months, how do you expect to find work-family balance?	Likert scale (very easy, easy, difficult, very difficult, not applicable)

Table 2

Sociodemographic and professional characteristics of participating nurses in primary care and mental health services

	Primary care (n = 160) N (%)	Mental health services (n = 40) N (%)	Total (n = 200) N (%)
Gender (p = .0002)			
Woman / Other[a]	155 (96.9)	31 (77.5)	186 (93.0)
Man	5 (3.1)	9 (22.5)	14 (7.0)
Age (p = 0.016)			
≤ 29 y.o.[b]	12 (7.5)	4 (10.0)	16 (8.0)
30-39 y.o.	72 (45.0)	11 (27.5)	83 (41.5)
40-49 y.o.	53 (33.0)	11 (27.5)	64 (32.0)
≥50 y.o.	23 (14.0)	14 (35.0)	37 (18.5)
Living situation (p = 0.04)			
Alone	7 (4.0)	5 (12.5)	12 (6.0)
With at least one child, no other adults	14 (9.0)	0 (0.0)	14 (7.0)
With at least one other adult, no children	39 (24.0)	13 (32.5)	52 (26.0)
With at least one other adult and one child	100 (63.0)	22 (55.0)	122 (61.0)
Highest nursing-related diploma (p = 0.21)			
Technical	8 (4.0)	5 (12.5)	13 (6.5)
Bachelor	137 (68.5)	29 (72.5)	166 (83)
Nurse Practitioner	6 (3.0)	2 (5.0)	8 (4.0)
Other Masters	9 (4.5)	4 (10.0)	13 (6.5)
Doctorate	0 (0.0)	0 (0.0)	0 (0.0)
Sociosanitary region[c] (p < 0.0001)			
Montreal and Laval	29 (18.0)	21 (52.5)	50 (25.0)
Montreal's vicinity	53 (33.0)	5 (12.5)	58 (29.0)
Other regions	78 (49.0)	14 (35.0)	92 (46.0)
Work schedule (p = 0.56)			
Full-time	134 (84.0)	35 (87.5)	169 (84.5)
Part-time	26 (16.0)	5 (12.5)	31 (15.5)

[a] One participant with a gender other than woman or man was included in the woman category for data analysis.
[b] y.o. (years old).
[c] We split regions into the same three groups as official public health sources, given that there were marked differences in COVID-19's propagation during the first wave of the pandemic in the province of Quebec (INSPQ, 2022a).

Table 3

Multiple linear regression models for GAD-7 and PHQ-9 scores[a]

	GAD-7 score		PHQ-9 score	
Variable	β (95% CI) (crude)	β (95% CI) (adjusted)	β (95% CI) (crude)	β (95% CI) (adjusted)
Intercept		1.46		2.94
Gender				
Man	1.01 (-1.12, 3.14)	0.93 (-1.16, 2.95)	0.79 (-1.62, 3.20)	-0.14 (-2.44, 2.1)
Woman / Other	Reference		Reference	

Variable	GAD-7 score		PHQ-9 score	
	β (95% CI) (crude)	β (95% CI) (adjusted)	β (95% CI) (crude)	β (95% CI) (adjusted)
Age				
≤ 29 y.o.	**3.32 (1.06, 5.59)**	**2.90 (0.67, 5.14)**	**2.92 (0.35, 5.50)**	2.3 (-0.15, 4.78)
30-39 y.o.	1.45 (-0.05, 2.94)	**2.32 (0.71, 3.93)**	1.66 (-0.04, 3.37)	**3.19 (1.42, 4.96)**
40-49 y.o.	0.95 (-0.61, 2.51)	1.28 (-0.41, 2.98)	0.73 (-1.06, 2.50)	1.63 (-0.24, 3.49)
≥ 50 y.o.	Reference		Reference	
Living Situation				
Alone	0.45 (-1.89, 2.79)	0.74 (-1.62, 3.14)	**2.79 (0.18, 5.41)**	**2.89 (0.29, 5.50)**
With at least one child, no other adults	0.72 (-1.47, 2.90)	1.23 (-0.87, 3.33)	0.39 (-2.05, 2.83)	1.26 (-1.05, 3.58)
With at least one other adult, no children	0.21 (-1.07, 1.49)	0.35 (-1.04, 1.74)	0.94 (-0.49, 2.37)	1.38 (-0.15, 2.92)
With at least one other adult and one child	Reference		Reference	
Sociosanitary Region				
Montreal and Laval	0.90 (-0.45, 2.25)	0.07 (-1.32, 1.47)	**2.44 (0.94, 3.93)**	1.37 (-0.17, 2.90)
Montreal's vicinity	0.34 (-0.95, 1.63)	0.52 (-0.69, 1.73)	0.38 (-1.05, 1.80)	0.75 (-0.58, 2.08)
Other regions	Reference		Reference	
Works part-time (Part-time vs Full-time)	0.07 (-1.44, 1.57)	0.02 (-1.41, 1.45)	0.54 (-1.16, 2.24)	0.59 (-0.99, 2.16)
Work coherent with values (No vs Yes)	**2.13 (1.06, 3.20)**	**1.65 (0.56, 2.73)**	**2.80 (1.61, 4.0)**	**2.06 (0.87, 3.26)**
Perceived probability of getting infected at work (per +1 on 0-100 scale)	**0.03 (0.01, 0.05)**	-0.011 (-0.038, 0.016)	**0.04 (0.02, 0.06)**	0.008 (-0.021, 0.038)
Worries about getting infected at work (per +1 on 0-100 scale)	**0.05 (0.03, 0.07)**	**0.036 (0.005, 0.067)**	**0.04 (0.02, 0.07)**	0.031 (-0.003, 0.065)
Worries about transmitting covid to patients (per +1 on 0-100 scale)	**0.04 (0.02, 0.06)**	0.001 (-0.024, 0.028)	0.02 (-0.001, 0.05)	**-0.032 (-0.061, -0.002)**
Worries about transmitting covid at home (per +1 on 0-100 scale)	**0.04 (0.03, 0.06)**	0.021 (-0.003, 0.045)	**0.04 (0.02, 0.07)**	**0.031 (0.004, 0.058)**

[a] See Supplementary Table – End of the document for individual factors contribution to the multivariate linear regression models.

CI: confidence interval.

WORK-FAMILY BALANCE

A slight majority of participants (54.5%) considered their work-family balance more difficult than before the pandemic. Significant anxiety and depressive symptoms rates were higher in this group, respectively 15.0% and 20.0% compared to 10.5% and 13.5% in the whole sample. Most participants answered both open-field questions on positive and negative factors influencing work-family balance: 149 indicated positive factors, and 145 reported negative factors. We extracted information from 122 positive and 133 negative answers that provided sufficient information for analysis.

Table 4 presents (end of the document) the result of the thematic content analysis of open-field questions. Three overarching categories of factors influencing work-family balance emerged from our analysis: work conditions, family-related responsibilities, and COVID-19 specific factors. For each of the factors within those categories, we present the number of participants with statements that were coded as positive or negative for this factor.

1) Work Conditions

Factors most frequently mentioned by respondents were part of the work conditions category, specifically relating to either job design (i.e., schedule and time at work, redeployment to another work setting, and workload and staff levels) or the physical conditions at work (i.e., access to work from home/teleworking).

Schedule and time at work (working patterns, work hours, flexibility, stability and predictability). Schedule and time at work were the most frequent themes raised by respondents and were mitigated in terms of whether they were seen as positive or negative. Work hours and schedule stability and predictability appeared to impact nurses' work-family balance mostly negatively, mainly when they were working extra hours, had an obligation to do overtime, or were pushed to change from part-time to full-time employment status. Employers had sometimes modified schedules without considering nurses' availability, and some changes were incompatible with their family-related responsibilities. On the other hand, when mentioned, working patterns (i.e., the time-of-day nurses performed their job and the regularity of their working hours) and schedule flexibility (i.e., having the possibility to adapt their schedule by starting earlier or cutting lunchtime) appeared to impact work-family balance positively. For instance, some nurses (n=9) mentioned appreciating being able to work exclusively day shifts on weekdays.

Redeployment. Some respondents (n=12), having been redeployed to another underserved work setting due to COVID-19 (e.g., COVID-19 evaluation or screening services, nursing homes, or intensive care units), mentioned having a less convenient working pattern, such as working on weekends, at night, or on shift rotations (day/night). On the contrary, nurses who were back to their usual work setting or kept the same work routine mentioned it as a positive factor. Some nurses (n=14) also mentioned being afraid or worried about being redeployed in a role with higher risk of COVID-19 infection, a clientele they were not familiar with, or new responsibilities requiring an update on specific skills or knowledge.

Workload and staff levels. Another factor frequently mentioned as negative by respondents was the amount of work and lack of staff to meet demand. As stated by two nurses: "The absence of nursing staff reassigned to the COVID-19 screening and evaluation services, and the staff not being replaced during the holidays meant that I was the only registered nurse in the family medicine group responding for 12,000 patients" (NL-38). "Lack of staff had an impact on the personal caseload at work. […] No more walk-in clinics, which further increases the workload because the follow-ups formerly done in these clinics must be added to my undiminished load of new patients […] (NL-59).

Teleworking. Participants with access to work from home pointed out many advantages: less time wasted and lower stress relating to transportation, more precious time with children and other loved ones, and an easier time integrating home- and work-related responsibilities such as the possibility to accomplish domestic tasks during lunchtime. Respondents working from home also mentioned their work environment being calmer and more adapted to their needs, feeling less stressed about

COVID-19 transmission, and finding it easier to reschedule phone meetings with patients who missed their appointments. On the other hand, one nurse mentioned the difficulty of communicating with other professionals for follow-ups from home. Participants also mentioned the difficulty of working from home with children (n=5) or reconciling the burden of home tasks and work responsibilities (n=1).

2) Family-related responsibilities

Having autonomous children (n=10) or not having children (n=7) positively contributed to work-family balance. On the other hand, the volume of responsibilities and tasks required to meet the needs of young children negatively influenced work-family balance. A "reorganization" of work and family schedules had often been required to meet those needs while dealing with the many changes in school and daycare services experienced during the first months of the pandemic.

Some respondents (n=8) also mentioned having to deal with "extra" tasks related to flu-like symptoms: "withdrawal of children from their environments at the slightest symptom" (NL-129); "Managing children's flu-like symptoms vs. school attendance and managing sick leave days if children cannot attend school" (NL-22).

The "re-opening" of schools, daycare services, and day camps (during summer), as well as having access to childcare services at home or close to home, facilitated work-family balance. Having a spouse working from home or not working also positively contributed to work-family balance: "My spouse's telecommuting has also helped reduce my family mental load" (PL-26). On the other hand, having a spouse who was also an essential worker (n=2), working extra hours (n=3), or who was not on the same work schedule (n=1) were negative for work-family balance. In addition, some respondents mentioned that having relatives helping them with family-related tasks (n=5) or supporting them emotionally (n=2) contributed positively to their work-family balance.

3) COVID-19 Specific

The most frequently mentioned factor specific to the COVID-19 pandemic was worrying about transmitting the virus to their children or loved ones. Some nurses (n=3) mentioned that fear or worries about COVID-19 came from their family members instead, to a similar effect. They had to manage those worries at home, sometimes leaving them with no "break" from work: "Stress of the pandemic that follows at home" (NL-87); "At home is the fear of COVID" (NL-48). Conversely, having reduced social contacts and having already contracted COVID-19 appeared to assuage transmission-related worries to some degree. For some respondents, the sanitary measures enacted to fight COVID-19 contributed positively to work-family balance: "Quarantine (schools closed as well as the pace of life which is lightened)" (PL-42); "Less wasted time traveling […]" (PL-39). Nevertheless, the social impact of COVID-19 decreased opportunities to enjoy family moments outside of day-to-day life and hurt the relationships of some parents: "Father of the children who does not cooperate. He threatens me to withdraw the children related to the risk of my work" (NL-66). Preventive measures also came with additional tasks negatively impacting work-family balance: "I have to change [clothes] when I arrive and do more tasks. More laundry, disinfection. […] also disinfect the car more often […]" (NL-101); "Management of washable masks 1 per day." (NL-40).

DISCUSSION

This article aimed to explore and describe factors that influenced ambulatory care nurses' psychological health and work-family balance during the first wave of the COVID-19 pandemic. Reflecting on how our results contribute to understanding the field and compare with the broader scientific literature, we further discuss three considerations. First, ambulatory care nurses' psychological health during the COVID-19 pandemic has likely been affected by similar factors as for adults in other fields of employment, with work-related sense of coherence being a promising topic for future studies. Second, specific worries relating to COVID-19 transmission differently correlated with anxiety and depressive symptoms among our participants, suggesting that

nurses with distinct roles and clienteles may not have been affected by the pandemic to the same degree. This was further supported by the breadth of work-related factors identified as barriers to work-family balance in qualitative data analysis. Third, our qualitative results indicate that the interaction between living situations and work-related factors is complex and far-reaching, potentially opening the door to more research on leveraging workplace policies to promote psychological health and work-family balance among healthcare professionals.

Factors correlating with psychological health in this study are generally unsurprising when considering the broader literature. We found that being in one's thirties or younger correlated with GAD-7 scores (anxiety symptoms) and being in one's thirties with PHQ-9 (depressive symptoms), suggesting an inverse relationship between age and psychological health in the pandemic context. This is similar to an international survey on the psychosocial impact of COVID-19 in the general population, which found an inverse relationship between age and the probability of having clinical levels of either depression or generalized anxiety (Généreux et al., 2020). Considering living conditions, it seems understandable that living alone would be associated with depression but not anxiety; as indicated by our qualitative results, having young children, for example, was an additional source of stress when navigating the pandemic. A previous study also found that parenting stress correlated with general stress among nurses during the pandemic (Garcia et al., 2021). In the previously mentioned survey, adjusting for age and sex, respondents who lived with other adults were less likely to have depression or generalized anxiety, but not if they also lived with children (Généreux et al.). However, the authors did not report anxiety and depression separately. We also found that feeling that one's work was not coherent with one's values correlated with both anxiety and depression. According to Généreux et al., among all the psychosocial factors included in their statistical model, a lower sense of coherence was the most significant predictor of clinical levels of anxious or depressive symptoms. In line with this result, two surveys conducted with healthcare professionals

(Stoyanova & Stoyanov, 2021) and nurses (Pachi et al., 2022) during the COVID-19 pandemic found that sense of coherence acted as a mediator for burnout. Sense of coherence, described as a belief, when facing a challenging situation, that the challenge is understood and that resources are available to cope with it, is a psychosocial resource helping individuals remain motivated in the face of adversity (Antonovsky, 1996). Contrary to previous studies, we asked a single question on perceived coherence between one's work and values, supporting the significance of this concept when investigating professionals' mental health. If future studies confirm that a single question on work-related sense of coherence is a significant indicator of psychological health in healthcare workers or in other populations, this could be considered for routine assessment of workplace mental health.

In addition to non-specific factors influencing nurses' psychological health, it is notable that nursing practice sometimes involves additional considerations relating to infectious diseases. Worries about being infected with COVID-19 at work correlated with anxiety, a risk that may be inevitable in some settings but possibly not in others. Conversely, worries about transmitting COVID-19 at home correlated with depressive symptoms. In a Canadian survey conducted at the beginning of the pandemic (March-April 2020), women worried more about transmitting COVID-19 to loved ones even though there were no gender differences on risk perceptions (Best et al., 2021). However, gender was associated with neither anxious nor depressive symptoms in our survey. Many qualitative factors associated with work-family balance would influence ambulatory care nurses' individual risk of contracting or transmitting COVID-19, especially being redeployed to work with infected clients or not having the possibility to work from home.

Regarding redeployment, a survey conducted in 2020 with Taiwanese nurses found that being redeployed to another setting was associated with an increased risk of depression and the intention to leave their job (Li et al., 2022). However, it should be noted that the perceived probability of getting infected at work correlated with neither anxiety symptoms (GAD-7 scores) nor depressive symptoms (PHQ-9 scores) in our study, indicating

that something more complex than COVID-19 risk assessment is involved in the relationship between job-related factors and nurses' psychological health. Li et al. also found that more work hours increased the risk of depression. We did not include work hours in our multiple linear regression models, but working part-time vs. full-time did not appear to influence anxiety or depressive symptoms. Nevertheless, some participants indicated that being forced to return to a full-time work schedule negatively impacted their work-family balance. Surprisingly, we found a negative correlation between worries about transmitting COVID-19 to patients and PHQ-9 score. While we did not find similar results in published articles, caring for patients with COVID-19 was associated with decreased risk of depression in the previously mentioned Taiwanese study (Li et al.). We postulate that, in the context of a public health emergency, being actively engaged in preventing its consequences might positively influence mental health, potentially through the very sense of coherence discussed previously.

Although we did not initially design the survey to measure the influence of work conditions on the work-family balance and psychological health of nurses, the generosity of participants in answering the open-field questions allowed us to explore their perception of a wide range of personal and organizational factors. Job design (i.e., schedule and time at work, redeployment to another setting, workload and staff levels) and access to work from home emerged as salient factors influencing nurses' capacity to reconcile their work and family responsibilities during the first wave of the COVID-19 pandemic. Other studies explored the impact of work conditions on work-family balance (Navajas-Romero et al., 2020; Yildirim & Aycan, 2008). Nonetheless, studies focusing on the relationship between work conditions and psychological health, during the COVID-19 pandemic or otherwise, generally do not consider the "family-related responsibilities" category of factors that we highlight in this study. Qualitative studies on this emerging theme and others, such as teleworking and worries about transmitting COVID-19 at home, should be conducted to better understand nurses' perspectives and realities. In

our opinion, a better understanding of those various issues and how they interact may be key in delineating how workplace policies can be improved and leveraged to contribute to healthcare professionals' mental health, likely to patients' benefit.

LIMITATIONS

Some limitations of this study should be highlighted. First, our results come from a cross-sectional survey that needed to be relatively short. While we asked participants about their practice and work-family balance before the pandemic context, it is likely that some memory bias would have happened, although we would not know in what direction. Therefore, any variables suggesting changes from the pre-pandemic to the current context should be interpreted with caution. Second, we conducted a convenience sample of nurses that could be reached through professional organizations and social media. Therefore, our participants are not representative of all ambulatory care nurses in Quebec. A lower number of nurses working in mental healthcare settings were recruited (20%), which may be explained by the fact that a lower proportion of mental health nurses provide ambulatory care services. However, we could not find any data on the practice of nurses within mental health services to confirm this hypothesis. Selection bias might have happened as we would expect nurses with more severe mental health symptoms to be less likely to participate in a voluntary web-based survey. It is impossible to quantify this bias, but we would highlight that the proportion of respondents with probable depression or generalized anxiety disorder in our study appears lower than general population estimates from the same period (Généreux et al., 2020). Probable anxiety disorders prevalence was also lower than in Quebec's similar age groups in the general population (Dionne et al., 2020). Conversely, there is a tendency among epidemiological studies to find higher levels of psychological distress or mental health problems in nurses than in the general population (Luo et al., 2020; Wu et al., 2021). Moreover, even before the pandemic, a 2019 Canadian survey of over 7,000 nurses found that one in three suffered from probable depression and one in four from probable

generalized anxiety disorder (Stelnicki et al., 2020). More convenient work conditions in ambulatory care, as opposed to other settings, may also explain why the proportion of nurses with probable depression or generalized anxiety disorder in our study appears low. Third, we did not verify the participants' identity to confirm that they were nurses or ensure that they would not answer the survey more than once. This decision was part of the trade-offs made in favor of ensuring survey participants' anonymity. Fourth, as we did not conduct interviews with participants, our qualitative results should be considered exploratory in nature rather than providing a deep understanding of their meaning or nuances.

CONCLUSION

Apart from younger age, the feeling that work was not coherent with nurses' values was the only variable associated with higher scores of both anxiety and depression symptoms in our regression models. Future research should further investigate the relationship between sense of coherence and the psychological health of healthcare workers. Regarding work-family balance, our qualitative results show that schedule flexibility and access to work from home were instrumental in allowing nurses to feel that they could coherently integrate their work and family-related tasks and responsibilities. To contribute to having a workforce prepared to face the current and future challenges of ambulatory follow-up in primary and mental healthcare, experts and researchers should investigate which nursing activities can be conducted from home and under what conditions. Increasing knowledge in that respect should aim to promote a mentally healthy healthcare workforce for the benefit of the patients that they care for. There is also a need to pay attention to family- or personal life-related factors that may contribute to nurses' ability to maintain the balance necessary to competently perform their duties at work.

In future pandemic situations, employers should recognize the impact of worries about transmitting the virus to loved ones and support their staff in managing those worries by giving them control over the circumstances of their work activities when coherent with providing appropriate care.

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Table 4

Factors influencing work-family balance according to participants

	Positive	Negative
Work Conditions		
Schedule and time at work: Work hours (N=12+, **30-**)	"My part-time status before the covid […]" (PL-42).	"Lots of hours of work: less patience […]" (NL-86).
	"No overtime at work […]" (PL-101).	"The obligation to work full-time […]" (NL-41).
Schedule and time at work: Flexibility (N=**22+,** 9-)	"I can make my schedule as long as I stick to my hours per week […]" (PL-92).	"Difficult for last-minute situations. It is difficult and unpleasant to disturb several people if I have to be absent without it being planned in advance. […]" (NL-15).
	"Possibility to cut lunch time to finish earlier or start later […]" (PL-48).	"[…] The impossibility of changing work hours (e.g., cutting dinner)" (NL-62).
Schedule and time at work: Working patterns (N=**18+,** 11-)	"Work schedule (Monday to Friday daytime and no weekends)" (PL-24).	"Modified schedule / work evenings and weekends" (NL-26).
	"The primary care clinic schedule is very easy to reconcile with daycare" (PL-25).	"I was redeployed in a Nursing-home where the work schedule (7:00 am. - 3:15 pm) was not compatible with the schedule of my daycare and I had to work one weekend out of two when I don't do any usually, hence the major reorganization of the family schedule and a significant drop in presence with my family" (NL-33).
Schedule and time at work: Stability and predictability (N=9+, **17-**)	"Schedule in advance that does not change at the last minute, stable shift" (PL-15).	"Endless schedule… We know when we arrive and don't know when we will leave" (NL-27).
	"The schedules have not changed, it is as usual" (PL-34).	"[…] Schedule given only a few days before the start of this period. The schedule is prepared for a period of four weeks. However, on more than one occasion we have become aware of this schedule three days before the start date (received on a

		Friday pm, while the schedule begins on Sunday)" (NL-58).
Access to work from home (teleworking) (N=**27+,** 12-)	"Possibility of teleworking, telephone appointment easier to move than face-to-face appointment in case of absence" (PL-108).	"Teleworking with young children" (NL-47).
	"I was more present for my children since I had the opportunity to bring them later to daycare or to school in teleworking. I was able to pick up my daughter for dinner, and I could pick them up earlier at the end of the day. So I saved my daughter from going to daycare and thus spending the entire day at school. During her periods at school, I worked adequately to give the necessary service to my patients" (PL-17).	"My manager does not believe in teleworking and does not want us to reorganize our working schedule, therefore negatively impacting work-family balance" (NL-56).
Workload and staffing levels (N=5+, **26-**)	"Tasks compliance with the necessary staffing level" (PL-53).	"Increase in tasks due to lack of staff." (NL-4).
	"[…] full team, not overloaded schedule" (PL-94).	"Workload. Difficulty not bringing work home. Always on the run and stressed (which influences my state of mind at home)" (NL-9).
Redeployment (N=7+, **24-**)	"The end of my deployment in CHSLD [nursing home] and the return to my usual position in FMG" (PL-28).	"Mandatory deployment in CHSLD [nursing home]. […]. Various updates (nursing techniques, COVID, fall prevention...)" (NL-19).
	"Return to my original workplace and original schedule (9 am to 17 pm)" (PL-114).	"[…] Never knowing if I will eventually be moved to a COVID screening/evaluation services or CHSLD [nursing home] […]" (NL-41).
		"[…] The fear of being relocated to another environment […]" (NL-44).
Psychological demands (N=3+, **13-**)	"[…] less fatigue due to less follow-up in person" (PL-87).	"Many different tasks and responsibilities: FMG, CHSLD [nursing home], teaching" (NL-6).

	"[…] put limits on my work" (PL-111).	"I am more anxious and find it difficult not to think about work" (NL-34).
Social support at work (N=**9+**, 4-)	"Transparency in communication with managers […]" (PL-64).	"Non-transparency in the communication of managers […]" (NL-63).
	"Superior in listening to our concerns and our needs" (PL-62).	"From the moment someone has COVID, we are treated like plague victims everywhere because the decision tree is incomplete. […]" (NL-130).
Access to holidays or leaves of absence from work (N=4+, **7-**)	"[…] the attitude of the employer on leave/sickness" (PL-94). "[…] Leave so far easily granted […]" (PL-65).	"The ministerial decree that caused my employer to refuse the leave I needed when I had a babysitting problem with the holiday camp, which ended a week before the start of the school year" (NL-103). "Denial of requested leave" (NL-45)
Commute (N=**7+**, 2-)	"Proximity to my workplace […]" (PL-96). "[…] less transport during quarantine" (PL-66).	"I was deployed, far from home, transport time and unstable schedule" (NL-32). "[…] the lack of access to the bus given the covid situation which means that I have to travel with my children" (NL-39).

Family-Related Responsibilities		
Child-related responsibilities (N=20+, **23-**)	"No dependent children" (PL-44). "My children have become young adults so it is much easier to balance work and family" (PL-38).	"Children with school at home […]" (NL-108). "Manage the children and accomplish tasks. A great challenge" (NL-94).
Access to childcare or education services (N=10+, **12-**)	"Daycare available for essential workers […]" (PL-7). "The return to school and the availability of daycare services" (PL-31).	"Absence of school or childcare network […]" (NL-2). "School and daycare closure […]" (NL-21).
Spouse availability (N=**9+**, 7-)	"Spouse who telecommutes […]" (PL-3). "My spouse works from home and can offer me more support in organizing our evenings" (PL-41).	"[…] two parents who work within the Health Network […]" (NL-11). "My spouse who works outside" (NL-61).

Support from relatives (N=**7+**, 4-)	"My family seems to understand that the increased demands on my work related to COVID are temporary" (PL-36).	"Less help from family (mother, mother-in-law) to help with my daughter. […] Which gives more work at home because of the lack of support" (NL-60).
		"Prohibition for a time to send my child to my parents. […]" (NL-100).
Caregiving-related responsibilities (N=0+, **4-**)	"[…] help from those around me" (PL-83).	"Mother-in-law (94 years old) with disability hosted at home by my retired wife. So I live in a temporary residency" (NL-7).
		"Chronic illness of my husband. Special need for one of my children. Lack of help" (NL-57).

COVID-19 Specific		
Transmission-related stress (N=2+, **13-**)	"Having caught covid, the stress of contaminating my family has diminished a bit. I started seeing my son again (in shared custody)" (PL-79).	"By working and sending my child to daycare we are more at risk of contracting COVID" (NL-20).
	"Quieter work environment at home, less stress […] linked to COVID-19 because fewer risky contacts" (PL-6).	"Concerns about the likelihood of infecting my loved ones" (NL-50).
Impact on society (N=5+, 5-)	"[…] quarantine has brought less traffic to the roads" (PL-86).	"Uncertainty in the face of the pandemic" (NL-29).
	"All my plans have been cancelled. […] so I work and the time that remains is devoted to my family" (PL-63).	"more stress on my side, more fatigue. Less beautiful family moments given the restrictions on outings/travel/activities" (NL-69).
Preventive measures (N=2+, **5-**)	"[…] I do more telephone follow-ups, which reduces my physical contact with the patient" (PL-92).	"I caught COVID, my isolation at home and having to impose additional isolation at home on my teenagers was the most difficult (NL-31).
	"Everyone always has clean hands […]" (PL-117).	"I didn't register my son for the day camp because I wanted to limit contact, so I had to find a babysitter who comes to the house" (NL-102).

Supplementary file 1

STROBE Statement—Checklist of items that should be included in reports of cross-sectional studies

	Item No	Recommendation	Page
Title and abstract	1	(*a*) Indicate the study's design with a commonly used term in the title or the abstract	14-15
		(*b*) Provide in the abstract an informative and balanced summary of what was done and what was found	15
Introduction			
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	16
Objectives	3	State specific objectives, including any prespecified hypotheses	17
Methods			
Study design	4	Present key elements of study design early in the paper	17
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	18
Participants	6	(*a*) Give the eligibility criteria, and the sources and methods of selection of participants	18-19
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	18
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	18 Table 1
Bias	9	Describe any efforts to address potential sources of bias	26-27
Study size	10	Explain how the study size was arrived at	N/A
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	19
Statistical methods	12	(*a*) Describe all statistical methods, including those used to control for confounding	19
		(*b*) Describe any methods used to examine subgroups and interactions	N/A
		(*c*) Explain how missing data were addressed	18-19
		(*d*) If applicable, describe analytical methods taking account of sampling strategy	N/A
		(*e*) Describe any sensitivity analyses	N/A
Results			
Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed	20
		(b) Give reasons for non-participation at each stage	N/A
		(c) Consider use of a flow diagram	N/A

Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders	Table 2
		(b) Indicate number of participants with missing data for each variable of interest	N/A
Outcome data	15*	Report numbers of outcome events or summary measures	19
Main results	16	(*a*) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included	Table 3
		(*b*) Report category boundaries when continuous variables were categorized	Table 3
		(*c*) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	Table 3
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses	Supplementary Table
Discussion			
Key results	18	Summarise key results with reference to study objectives	24
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	26-27
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	25-27
Generalisability	21	Discuss the generalisability (external validity) of the study results	26-27
Other information			
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	27

*Give information separately for exposed and unexposed groups.

Note: An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at http://www.plosmedicine.org/, Annals of Internal Medicine at http://www.annals.org/, and Epidemiology at http://www.epidem.com/). Information on the STROBE Initiative is available at www.strobe-statement.org.

Nurses' well-being and COVID-19

Questionnaire items

Note. This document presents the main items of the questionnaire. The final version completed by participants on the SurveyMonkey platform included all the following items with the electronic consent form.

1. Caractéristiques sociodémographiques et professionnelles (Sociodemographic and professional characteristics)

1.1 Genre
☐ Femme
☐ Homme
☐ Autre

1.2 Âge
☐ 29 ans ou moins
☐ 30 à 39 ans
☐ 40 à 49 ans
☐ 50 à 59 ans
☐ 60 ans ou plus

1.3 Quelle est votre situation de cohabitation actuelle?
☐ Je vis seul(e), sans enfant
☐ Je vis seul(e), avec un ou des enfants
☐ Je vis avec au moins une autre personne adulte, sans enfant
☐ Je vis avec au moins une autre personne adulte, avec un ou des enfants

1.4 En quelle année avez-vous obtenu un droit de pratique infirmière pour la première fois?

_____

1.5 Quel est le dernier diplôme que vous avez obtenu en lien avec la profession infirmière parmi les suivants?
☐ Diplôme d'études collégiales
☐ Baccalauréat
☐ Maîtrise de type IPS
☐ Autre maîtrise
☐ Doctorat

2. Milieu de pratique (Practice setting)

Pour les prochaines sections, nous nous intéressons à vos pratiques de suivi infirmier pour les patients ambulatoires. Les patients ambulatoires sont ceux qui ne sont pas hébergés dans un milieu de soins comme un hôpital ou un centre d'hébergement au moment de recevoir des soins.

2.1 Avant la pandémie COVID-19, est-ce que le suivi de patients ambulatoires faisait partie de votre pratique?
☐ Oui
☐ Non

2.2 Dans quelle région socio-sanitaire exercez-vous principalement comme infirmière?
☐ 01 Bas-Saint-Laurent
☐ 02 Saguenay-Lac-Saint-Jean
☐ 03 Capitale-Nationale
☐ 04 Mauricie et Centre-du-Québec
☐ 05 Estrie
☐ 06 Montréal
☐ 07 Outaouais
☐ 08 Abitibi-Témiscamingue
☐ 09 Côté-Nord
☐ 10 Nord-du-Québec
☐ 11 Gaspésie-Îles-de-la-Madeleine
☐ 12 Chaudières-Appalaches
☐ 13 Laval
☐ 14 Lanaudière
☐ 15 Laurentides
☐ 16 Montérégie
☐ 17 Nunavik
☐ 18 Terres-Cries-de-la-Baie-James

2.3 Avant la pandémie COVID-19, dans quel type de milieu exerciez-vous principalement? S'il y en a plusieurs, indiquez celui où vous estimez faire le plus de suivi de patients ambulatoires.
☐ Groupe de médecine de famille
☐ Équipe de santé mentale de première ligne
☐ Services spécialisés en santé mentale
☐ Autre (précisez) : _____

2.4 Peu importe le ou les milieux, pour lesquelles des clientèles suivantes offriez-vous du suivi avant la pandémie COVID-19? Sélectionnez toutes les réponses qui s'appliquent.
☐ Femmes enceintes
☐ Enfants / adolescents
☐ Adultes
☐ Personnes âgées
☐ Personnes en fin de vie

2.5 Au moment de répondre au questionnaire, quel est votre statut professionnel?

☐ J'ai suspendu toutes mes activités cliniques en raison de la COVID-19
☐ J'ai suspendu toutes mes activités cliniques pour toute autre raison
☐ Je travaille à temps partiel
☐ Je travaille à temps plein

2.6 Au moment de répondre au questionnaire, comment votre travail a-t-il changé par comparaison avec ce qu'il était avant la pandémie COVID-19?

☐ Je continue de travailler dans le même milieu en faisant moins de suivi de patients ambulatoires
☐ Je continue de travailler dans le même milieu en faisant autant de suivi de patients ambulatoires
☐ Je continue de travailler dans le même milieu en faisant plus de suivi de patients ambulatoires
☐ J'ai été réaffecté(e) en raison de la COVID-19 dans un milieu où je fais du suivi de patients ambulatoires
☐ J'ai été réaffecté(e) en raison de la COVID-19 dans un milieu où je fais ne fais pas de suivi de patients ambulatoires

3. Changement des pratiques de suivi (Changes in follow-up practices)

3.1 <u>Avant la pandémie COVID-19</u>, à quelle fréquence utilisiez-vous les modalités suivantes avec vos patients ambulatoires pour réaliser leur suivi?

	Jamais	À l'occasion	Toutes les semaines ou presque	Tous les jours ou presque	Plusieurs fois par jour
Rencontres individuelles face à face	☐	☐	☐	☐	☐
Rencontres de groupes de patients	☐	☐	☐	☐	☐
Rencontres conjointes avec d'autres professionnels	☐	☐	☐	☐	☐
Visites à domicile	☐	☐	☐	☐	☐
Appels téléphoniques	☐	☐	☐	☐	☐
Vidéo-conférences	☐	☐	☐	☐	☐
Messages texte	☐	☐	☐	☐	☐
Échanges par courriel	☐	☐	☐	☐	☐

3.2 Depuis le début de la pandémie COVID-19, à quelle fréquence avez-vous utilisé les modalités suivantes avec vos patients ambulatoires pour réaliser leur suivi?

	Jamais	À l'occasion	Toutes les semaines ou presque	Tous les jours ou presque	Plusieurs fois par jour
Rencontres individuelles face à face	☐	☐	☐	☐	☐
Rencontres de groupes de patients	☐	☐	☐	☐	☐
Rencontres conjointes avec d'autres professionnels	☐	☐	☐	☐	☐
Visites à domicile	☐	☐	☐	☐	☐
Appels téléphoniques	☐	☐	☐	☐	☐
Vidéo-conférences	☐	☐	☐	☐	☐
Messages texte	☐	☐	☐	☐	☐
Échanges par courriel	☐	☐	☐	☐	☐

3.3 Comparé à avant la pandémie COVID-19, quelle importance croyez-vous que les modalités suivantes prendront dans votre pratique au cours des trois prochains mois pour le suivi de patients ambulatoires?

	Beaucoup moins d'importance	Un peu moins d'importance	Autant d'importance	Un peu plus d'importance	Beaucoup plus d'importance
Rencontres individuelles face à face	☐	☐	☐	☐	☐
Rencontres de groupes de patients	☐	☐	☐	☐	☐
Rencontres conjointes avec d'autres professionnels	☐	☐	☐	☐	☐
Visites à domicile	☐	☐	☐	☐	☐
Appels téléphoniques	☐	☐	☐	☐	☐
Vidéo-conférences	☐	☐	☐	☐	☐
Messages texte	☐	☐	☐	☐	☐
Échanges par courriel	☐	☐	☐	☐	☐

3.4 <u>Avant la pandémie COVID-19</u>, à quelle fréquence réalisiez-vous les activités suivantes orientées vers la <u>santé mentale</u> dans le cadre du suivi de patient ambulatoires (toutes clientèles confondues)?

	Jamais	À l'occasion	Toutes les semaines ou presque	Tous les jours ou presque	Plusieurs fois par jour
Évaluer la présence d'idées suicidaires	☐	☐	☐	☐	☐
Dépister des symptômes anxieux ou dépressifs en utilisant des outils de mesures	☐	☐	☐	☐	☐
Surveiller l'évolution des symptômes anxieux ou dépressifs en utilisant des outils de mesures	☐	☐	☐	☐	☐
Offrir de l'enseignement au patient et à sa famille quant aux troubles mentaux ou à la gestion du stress	☐	☐	☐	☐	☐
Soutenir le patient dans la gestion des médicaments prescrits pour un problème de santé mentale (p.ex. adhésion au traitement, effets secondaires, efficacité)	☐	☐	☐	☐	☐
Réaliser des techniques impliquant un contact physique (p.ex. administration de médicaments injectables, prélèvements sanguins)	☐	☐	☐	☐	☐
Référer le patient à des organismes communautaires	☐	☐	☐	☐	☐
Communiquer avec des intervenants de mon équipe concernant la santé mentale d'un patient	☐	☐	☐	☐	☐
Communiquer avec des intervenants extérieurs à mon équipe concernant la santé mentale d'un patient	☐	☐	☐	☐	☐

3.5 Depuis le début de la pandémie COVID-19, à quelle fréquence avez-vous réalisé les activités suivantes orientées vers la santé mentale dans le cadre du suivi de patient ambulatoires (toutes clientèles confondues)?

	Jamais	À l'occasion	Toutes les semaines ou presque	Tous les jours ou presque	Plusieurs fois par jour
Évaluer la présence d'idées suicidaires	☐	☐	☐	☐	☐
Dépister des symptômes anxieux ou dépressifs en utilisant des outils de mesures	☐	☐	☐	☐	☐
Surveiller l'évolution des symptômes anxieux ou dépressifs en utilisant des outils de mesures	☐	☐	☐	☐	☐
Offrir de l'enseignement au patient et à sa famille quant aux troubles mentaux ou à la gestion du stress	☐	☐	☐	☐	☐
Soutenir le patient dans la gestion des médicaments prescrits pour un problème de santé mentale (p.ex. adhésion au traitement, effets secondaires, efficacité)	☐	☐	☐	☐	☐
Réaliser des techniques impliquant un contact physique (p.ex. administration de médicaments injectables, prélèvements sanguins)	☐	☐	☐	☐	☐
Référer le patient à des organismes communautaires	☐	☐	☐	☐	☐
Communiquer avec des intervenants de mon équipe concernant la santé mentale d'un patient	☐	☐	☐	☐	☐
Communiquer avec des intervenants extérieurs à mon équipe concernant la santé mentale d'un patient	☐	☐	☐	☐	☐

3.6 Comparé à avant la pandémie COVID-19, quelle importance croyez-vous que les activités suivantes orientées vers la <u>santé mentale</u> prendront dans votre pratique <u>au cours des trois prochains mois</u> pour le suivi de patients ambulatoires?

	Beaucoup moins d'importance	Un peu moins d'importance	Autant d'importance	Un peu plus d'importance	Beaucoup plus d'importance
Évaluer la présence d'idées suicidaires	☐	☐	☐	☐	☐
Dépister des symptômes anxieux ou dépressifs en utilisant des outils de mesures	☐	☐	☐	☐	☐
Surveiller l'évolution des symptômes anxieux ou dépressifs en utilisant des outils de mesures	☐	☐	☐	☐	☐
Offrir de l'enseignement au patient et à sa famille quant aux troubles mentaux ou à la gestion du stress	☐	☐	☐	☐	☐
Soutenir le patient dans la gestion des médicaments prescrits pour un problème de santé mentale (p.ex. adhésion au traitement, effets secondaires, efficacité)	☐	☐	☐	☐	☐
Réaliser des techniques impliquant un contact physique (p.ex. administration de médicaments injectables, prélèvements sanguins)	☐	☐	☐	☐	☐
Référer le patient à des organismes communautaires	☐	☐	☐	☐	☐
Communiquer avec des intervenants de mon équipe concernant la santé mentale d'un patient	☐	☐	☐	☐	☐
Communiquer avec des intervenants extérieurs à mon équipe concernant la santé mentale d'un patient	☐	☐	☐	☐	☐

4. Croyances et attitudes (Beliefs and attitudes)

4.1 À quel point êtes-vous d'accord avec chacune des affirmations suivantes?

	Tout à fait en désaccord	Plutôt en désaccord	Plutôt d'accord	Tout à fait d'accord
Le suivi à distance est généralement approprié pour la clientèle auprès de laquelle j'exerce.	☐	☐	☐	☐
Je peux généralement offrir un suivi de qualité en utilisant des modalités de suivi à distance (téléphone, vidéoconférence, etc.)	☐	☐	☐	☐
On s'attend de moi à ce que je sois en mesure d'offrir du suivi à distance à mes patients.	☐	☐	☐	☐
Je considère qu'offrir du suivi à distance fait partie de mes responsabilités professionnelles.	☐	☐	☐	☐
Mon contexte de travail est généralement compatible avec l'utilisation du suivi à distance.	☐	☐	☐	☐
Je me sens confortable d'utiliser des modalités de suivi à distance avec la plupart de mes patients.	☐	☐	☐	☐
Le suivi à distance est généralement approprié pour offrir des soins en lien avec la **santé mentale** pour la clientèle auprès de laquelle j'exerce.	☐	☐	☐	☐
Je peux généralement offrir des soins de qualité en lien avec la **santé mentale** dans le cadre d'un suivi à distance.	☐	☐	☐	☐
On s'attend de moi à ce que je sois en mesure d'offrir des soins à distance en lien avec la **santé mentale** de mes patients.	☐	☐	☐	☐
Je considère qu'offrir des soins à distance en lien avec la **santé mentale** fait partie de mes responsabilités professionnelles.	☐	☐	☐	☐
Mon contexte de travail est généralement compatible avec les soins à distance en lien avec la **santé mentale**.	☐	☐	☐	☐
Je me sens confortable d'offrir des soins liés à la **santé mentale** lors du suivi à distance pour la plupart de mes patients.	☐	☐	☐	☐

5. Santé psychologique et conciliation travail-famille (Psychological health and work-family balance)

Dans le cadre de la pandémie COVID-19, les professionnels de la santé sont particulièrement à risque de voir un impact négatif sur leur santé mentale ou sur leur bien-être. La dernière section du questionnaire vise à évaluer ces enjeux.

5.2 (PHQ-9) Au cours des <u>deux dernières semaines</u>, à quelle fréquence avez-vous été dérangé(e) par les problèmes suivants?

	Jamais	Plusieurs jours	Plus de la moitié du temps	Presque tous les jours
Peu d'intérêt ou de plaisir à faire les chose	☐	☐	☐	☐
Se sentir triste, déprimé(e) ou désespéré(e)	☐	☐	☐	☐
Difficultés à s'endormir ou à rester endormi(e), ou trop dormir	☐	☐	☐	☐
Se sentir fatigué(e) ou avoir peu d'énergie	☐	☐	☐	☐
Peu d'appétit ou trop d'appétit	☐	☐	☐	☐
Mauvaise perception de vous-même — ou vous pensez que vous êtes un perdant ou que vous n'avez pas satisfait vos propres attentes ou celles de votre famille	☐	☐	☐	☐
Difficultés à se concentrer sur des choses telles que lire le journal ou regarder la télévision	☐	☐	☐	☐
Vous bougez ou parlez si lentement que les autres personnes ont pu le remarquer. Ou au contraire — vous êtes si agité(e) que vous bougez beaucoup plus que d'habitude	☐	☐	☐	☐
Vous avez pensé que vous seriez mieux mort(e) ou pensé à vous blesser d'une façon ou d'une autre	☐	☐	☐	☐

Original version source: Kroenke, K., Spitzer, R. L., & Williams, J. B. W. (2001). The PHQ-9: Validity of a brief depression severity measure. *Journal of General Internal Medicine*, *16*(9), 606–613. https://doi.org/10.1046/j.1525-1497.2001.016009606.x

French version source: Canuel, M., Gosselin, P., Duhoux, A., Brunet, A., & Lesage, A. (2019). Boîte à outils pour la surveillance post-sinistre des impacts sur la santé mentale. Fiches pour les instruments de mesure standardisés recommandés. https://www.inspq.qc.ca/boite-outils-pour-la-surveillance-post-sinistre-des-impacts-sur-la-sante-mentale/instruments-de-mesure-standardises/fiches-pour-les-instruments-de-mesure-standardises-recommandes

5.3 (GAD-7) Au cours des <u>14 derniers jours</u>, à quelle fréquence avez-vous été dérangé(e) par les problèmes suivants?

	Jamais	Plusieurs jours	Plus de la moitié du temps	Presque tous les jours
Sentiment de nervosité, d'anxiété ou de tension	☐	☐	☐	☐
Incapable d'arrêter de vous inquiéter ou de contrôler vos inquiétudes	☐	☐	☐	☐
Inquiétudes excessives à propos de tout et de rien	☐	☐	☐	☐
Difficulté à se détendre	☐	☐	☐	☐
Agitation telle qu'il est difficile de rester tranquille	☐	☐	☐	☐
Devenir facilement contrarié(e) ou irritable	☐	☐	☐	☐
Avoir peur que quelque chose d'épouvantable puisse arriver	☐	☐	☐	☐

Original version source: Spitzer, R. L., Kroenke, K., Williams, J. B. W., & Löwe, B. (2006). A Brief Measure for Assessing Generalized Anxiety Disorder: The GAD-7. *Archives of Internal Medicine, 166*(10), 1092. https://doi.org/10.1001/archinte.166.10.1092

French version source: Canuel, M., Gosselin, P., Duhoux, A., Brunet, A., & Lesage, A. (2019). Boîte à outils pour la surveillance post-sinistre des impacts sur la santé mentale. Fiches pour les instruments de mesure standardisés recommandés. https://www.inspq.qc.ca/boite-outils-pour-la-surveillance-post-sinistre-des-impacts-sur-la-sante-mentale/instruments-de-mesure-standardises/fiches-pour-les-instruments-de-mesure-standardises-recommandes

5.4 Depuis le début de la pandémie COVID-19, avez-vous l'impression que votre travail est cohérent avec vos valeurs?
☐ Oui
☐ Non

5.5 En ce moment, comment évaluez-vous la probabilité que vous contractiez la COVID-19 à votre travail?*
☐ Faible probabilité
☐ Probabilité moyenne
☐ Forte probabilité

5.6 En ce moment, quel est votre niveau d'inquiétude quant à la probabilité de contracter la COVID-19 au travail?[1]
☐ Aucun
☐ Faible
☐ Modéré
☐ Élevé

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[1] Questions 5.5 to 5.8 related to COVID-19 were adapted from the following study: Rapisarda, F., Vallarino, M., Brousseau-Paradis, C., De Benedictis, L., Corbière M., Villoti, P., Cavallini, E., Briand, C., Cailhol, L., & Lesage, A. (2022). Workplace Factors, Burnout Signs, and Clinical Mental Health Symptoms among Mental Health Workers in Lombardy and Quebec during the First Wave of COVID-19. *International Journal of Environmental Research and Public Health, 19*(7), 1-14.

5.7 En ce moment, quel niveau d'inquiétude avez-vous d'infecter vos patients de la COVID-19?*
☐ Aucun
☐ Faible
☐ Modéré
☐ Élevé

5.8 En ce moment, quel niveau d'inquiétude avez-vous d'infecter vos proches de la COVID-19?*
☐ Aucun
☐ Faible
☐ Modéré
☐ Élevé

5.9 Avant la pandémie COVID-19, comment trouviez-vous la conciliation travail-famille?
☐ Très facile
☐ Plutôt facile
☐ Plutôt difficile
☐ Très difficile
☐ Ne s'applique pas

5.10 Depuis le début de la pandémie COVID-19, comment avez-vous trouvé la conciliation travail-famille?
☐ Très facile
☐ Plutôt facile
☐ Plutôt difficile
☐ Très difficile
☐ Ne s'applique pas

5.11 Au cours des trois prochains mois, comment vous attendez-vous à trouver la conciliation travail-famille?
☐ Très facile
☐ Plutôt facile
☐ Plutôt difficile
☐ Très difficile
☐ Ne s'applique pas

5.12 S'il y a lieu, quels sont les facteurs qui ont un impact positif sur votre conciliation travail-famille? Comment?

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_____

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5.13 S'il y a lieu, quels sont les facteurs qui ont un impact <u>négatif</u> sur votre conciliation travail-famille? Comment?

_____

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Supplementary table

Individual factors contribution to the multivariate linear regression models

Variable	GAD-7 score Standardized β	PHQ-9 score Standardized β
Gender		
Man	0.06	-0.008
Woman / Other	Reference	Reference
Age		
≤ 29 y.o.	**0.20**	0.14
30-39 y.o.	**0.29**	**0.36**
40-49 y.o.	0.15	0.17
≥ 50 y.o.	Reference	Reference
Living Situation		
Alone	0.05	**0.16**
With at least one child, no other adults	0.08	0.07
With at least one other adult, no children	0.04	0.14
With at least one other adult and one child	Reference	Reference
Sociosanitary Region		
Montreal and Laval	0.008	0.13
Montreal's vicinity	0.06	0.08
Other regions	Reference	Reference
Works part-time (Part-time vs Full-time)	0.002	0.05
Work coherent with values (No vs Yes)	**0.21**	**0.23**
Perceived probability of getting infected at work	-0.07	0.05
Worries about getting infected at work	**0.23**	0.18
Worries about transmitting covid to patients	0.01	**-0.19**
Worries about transmitting covid at home	0.17	**0.23**