Received: 23 November 2022 | Revised: 13 March 2023 | Accepted: 16 March 2023 | Published online: 30 March 2023

DOI: 10.1002/ijgo.14772

CLINICAL ARTICLE

Gynecology

The COPE Staff study: Study description and initial report regarding job satisfaction, work-life conflicts, stress, and burnout among Swedish maternal and neonatal healthcare workers during the COVID-19 pandemic

Magnus Akerstrom[1,2] | Verena Sengpiel[3,4] | Emina Hadžibajramović[1,2] | Ylva Carlsson[3,4] | Sofie Graner[5,6] | Ola Andersson[7,8] | Maria Jonsson[9] | Elin Naurin[10] | Malin Veje[11,12] | Anna Wessberg[3,13] | Karolina Linden[13]

[1]Region Västra Götaland, Institute of Stress Medicine, Gothenburg, Sweden

[2]School of Public Health and Community Medicine, Institute of Medicine, Sahlgrenska Academy, University of Gothenburg, Gothenburg, Sweden

[3]Department of Obstetrics and Gynecology, Region Västra Götaland, Sahlgrenska University Hospital, Gothenburg, Sweden

[4]Centre of Perinatal Medicine and Health, Institute of Clinical Sciences, Sahlgrenska Academy, University of Gothenburg, Gothenburg, Sweden

[5]Department of Medicine, Center for Pharmacoepidemiology, Karolinska Institute, Stockholm, Sweden

[6]BB Stockholm, Danderyd Hospital, Stockholm, Sweden

[7]Department of Clinical Sciences Lund, Paediatrics, Lund University, Lund, Sweden

[8]Department of Neonatology, Skåne University Hospital, Malmö, Sweden

[9]Department of Women's and Children's Health, Uppsala University, Uppsala, Sweden

[10]Department of Political Science, University of Gothenburg, Gothenburg, Sweden

[11]Department of Infectious Diseases, Region Västra Götaland, Sahlgrenska University Hospital, Gothenburg, Sweden

[12]Department of Infectious Diseases, Institute of Biomedicine, Sahlgrenska Academy, University of Gothenburg, Gothenburg, Sweden

[13]Institute of Health and Care Sciences, Sahlgrenska Academy, University of Gothenburg, Gothenburg, Sweden

Correspondence
Karolina Linden, Institute of Health and Care Sciences, PO-Box 457, 405 30 Gothenburg, Sweden.
Email: karolina.linden@gu.se

Funding information
Svenska Forskningsrådet Formas, Grant/Award Number: 2020-02767

Abstract

Objective: To describe the study design of the COPE Staff cohort study on working conditions for maternal and neonatal healthcare workers (MNHCWs), and present baseline data regarding job satisfaction, work-life conflicts, stress, and burnout.

Methods: Between January and April 2021, 957 MNHCWs (administrative and medical staff) completed a baseline survey. Average levels of job satisfaction, work-life conflicts, stress, and burnout, and associations to perceived workload were assessed.

Results: The average levels of job satisfaction, work-life conflicts, stress, and burnout were 68.6 (95% confidence interval [CI] 64.3–72.8), 42.6 (95% CI 37.3–48.0), 42.0 (95% CI 37.7–46.3), and 1.9 (95% CI 1.6–2.2), respectively. The respondents scoring above critical values indicating clinical burnout ranged between 3% and 18%, respectively, for the four burnout sub-dimensions. Women reported significantly

Magnus Akerstrom and Verena Sengpiel were equal contributors.

higher levels of stress and burnout. Younger participants had lower job satisfaction and higher levels of work-life conflicts, stress, and burnout. Higher perceived workload was significantly associated with lower job satisfaction levels and higher levels of work-life conflicts, stress, and burnout.

Conclusions: Our results indicate associations between MNHCWs perceived workload and job satisfaction, work-life conflicts, stress, and burnout during the COVID-19 pandemic. Eighteen percent scored above critical values for exhaustion.

KEYWORDS
burnout, cohort study, COVID-19 pandemic, job satisfaction, maternal healthcare, mixed-effect model, neonatal healthcare, questionnaire, work-life conflicts

1 | INTRODUCTION

The coronavirus disease 2019 (COVID-19) pandemic has presented unprecedented challenges to maternal and neonatal healthcare workers (MNHCWs). Prenatal care, care during labor and after childbirth, and neonatal care cannot be postponed, and life-threatening emergencies may occur at any time. Moreover, this care is not provided elsewhere. Birthing women and their partners expect good medical outcome and a good experience. Failing to meet these expectations increases the burden on staff. Maternal and neonatal care were extensively affected by changed working routines and staff shortages during the COVID-19 pandemic. However, Sweden remained open and did not go into lockdown, and from the patients' perspectives maternal and neonatal care operated as close to normal as possible, with very little postponement of care or change in the way care was offered.[1,2]

Little is currently known about the long-term effects of the COVID-19 pandemic on working conditions and mental health among MNHCWs. It is likely that MNHCWs, like other healthcare professionals, have worked long shifts and experienced high workload and lack of rest and recovery.[3] Since the beginning of the pandemic, a few cross-sectional studies have been carried out. A global study comprising 714 MNHCWs, conducted in spring of 2020, found that 90% reported higher levels of stress compared with before the pandemic onset.[4] One Australian online survey of 3701 midwives and medical practitioners reported that working with maternal health care during the early pandemic was stressful and challenging.[5] Another Australian study among 620 midwives reported that pandemic-related restrictions impaired their ability to provide woman-centred care, leading to increased stress and anxiety.[6] Furthermore, obstetrics-gynecology residents have also reported concern that the COVID-19 pandemic had had a negative impact on their training.[7,8]

These consistent reports of increased levels of stress and worry among MNHCWs might be explained by a combination of the pandemic itself and related changes in work routines. However, few studies have so far addressed any mechanism underlying the effects of the pandemic on MNHCWs' health and working conditions.[5,9] Moreover, they have not identified possible preventive measures or other organizational factors that might be used to increase resilience, promote recovery or develop care in preparation for coming crises.[10] The COVID-19 pandemic will most likely affect MNHCWs' well-being and mental health for a long time.[11,12] It is therefore crucial to focus not only on the temporary health effects during the pandemic, but also to survey their work environment and health during the coming years, as well as to identify preventive measures to ensure sound working conditions. This is especially important because health care is already struggling with labor shortages and high sick leave rates.[13,14]

The COPE Staff study was designed to investigate the work environment and health of Swedish MNHCWs, during and up to 5 years after the pandemic, and to identify possible preventive measures at the organizational level.

This paper aims to describe the study design and present baseline data regarding job satisfaction, work-life conflicts, stress, and burnout in relation to workload among MNHCWs, collected in the spring of 2021 during the pandemic.

2 | MATERIALS AND METHODS

2.1 | The COPE Staff study

Study design

The COPE Staff study is a national longitudinal cohort study investigating work environment factors associated with short-term, intermediate, and long-term effects on well-being in MNHCWs. The study population comprises both healthcare professionals and administrative staff in all 21 Swedish healthcare regions. The study is an open cohort study, meaning that eligible participants will be added to the cohort with every data collection. The overall aims of the COPE Staff study are to assess working conditions and their impact on MNHCWs during and after the COVID-19 pandemic and to study whether certain groups were especially susceptible to the pandemic's negative effects. This knowledge may be used to identify possible preventive measures that might improve working conditions, both during normal operation and at extraordinary times when

staff and operations are particularly vulnerable and burdened. The project applies a mixed method approach and data are primarily collected by web-based surveys based on validated instruments, but also through individual and focus group interviews.

The COPE Staff study was granted ethical approval by the Swedish Ethical Review Authority on August 27, 2020 (approval number 2020-03446), with amendments on November 12, 2020 (2020-05747) and March 1, 2021 (2021-00854).

Sample and procedure

Initial recruitment and baseline data collection proceeded January 2021 to April 2021. Follow-up questionnaires are planned every spring during the study period. Staff and managers aged 18 years or older, and working in Swedish maternal and neonatal health care, are eligible for participation. Recruitment is aided by the Swedish network for national clinical studies in obstetrics and gynecology (SNAKS, www.snaks.se). Moreover, information on the study is shared via professional associations for midwives, obstetricians, and neonatologists, as well as by these professions' trade unions. As a result of how the information about the study is spread, we cannot calculate how many MNHCWs were reached by the invitation. Participants register and provide informed consent online. The questionnaire is e-mailed approximately 2 h after registration.

Strategic recruitment for individual semi-structured interviews with heads of departments and managers at various levels in obstetrics and gynecology departments took place during spring of 2021. In the fall of 2021, midwives and physicians from different hospitals were recruited for focus group interviews about lessons learned in clinical practice from the pandemic. Additional focus groups with midwives, concerning establishing a caring relationship with women in labor while wearing full protective gear, are planned for spring of 2023.

The COPE Staff questionnaire

To investigate working conditions and their impact on MNHCWs during and after the COVID-19 pandemic, a project-specific questionnaire was developed based on the following questionnaires; the Copenhagen Psychosocial Questionnaire (COPSOQ)[15]; the Psychosocial Safety Climate Scale (PSC-12)[16]; the Burnout Assessment Tool (BAT),[17,18] a modified version of the Moral Distress Scale-Revised (MDS-R) (only for clinical employees)[19]; and the Screen Questionnaire—Post-Traumatic Stress Disorder (SQ-PTSD) (only for clinical employees).[20] Moreover, the COPE Staff questionnaire included demographic questions, COVID-19-specific and patient safety questions taken from the Western Health Care Region of Sweden's annual patient-safety questionnaire and questions about trust in policy and government agencies taken from the Swedish SOM Institute[21] and the Gothenburg Research Program on Pregnancy and Politics.[22]

Theoretical framework

In order to evaluate working conditions in maternal and neonatal health care and the effects of implementation of new working routines during the COVID-19 pandemic, the Job Demands-Resources (JD-R) model[23] serves as a framework. This enables evaluation of the effect of new working routines during the pandemic on employee health, as well as on working conditions and predictors of employees' health and motivation. These conditions and predictors represent intermediate factors in the process between changes in organizational conditions and their corresponding organizational outcomes such as sick leave, employee turnover, and patient safety.

Qualitative interviews

Qualitative interviews were carried out in order to explore and deepen understanding of different types of impact on work environment due to the COVID-19 pandemic. Participants in managing positions ($n = 18$) were individually interviewed about the decision and implementation process leading to changes in routines and practice during the pandemic, using the Consolidated Framework for Implementation Research (CFIR)[24] during data collection and analysis. Furthermore, three focus groups were conducted with midwives and physicians working at three different obstetrics departments, to obtain insight about lessons learned in clinical practice and epidemic response during the pandemic. The resulting data will be analyzed by content analysis.[25]

2.2 | Job satisfaction, work-life conflicts, stress, and burnout among Swedish MNHCWs during the COVID-19 pandemic

Measurements

Levels of job satisfaction, work-life conflicts and stress were defined and assessed with the COPE Staff questionnaire items originating from the COPSOQ questionnaire,[15] in which an average index between 0 and 100 was calculated based on four items (Table S1). Burnout level was defined and assessed with the BAT questionnaire[17,18]; a score between 1 and 5 was calculated based on all 23 items (Table S1) and represented the average level of burnout. Furthermore, average scores were calculated separately for the four sub-dimensions exhaustion (eight items), mental distance (five items), cognitive impairment (five items), and emotional impairment (five items) (Table S1). The percentages of respondents scoring above the clinical cut-off values for the total burnout score as well as for the four sub-dimensions were calculated. These clinical cut-offs are 3.02 for the total burnout scale and 3.10 for exhaustion, 3.10 for mental distance, 3.10 for cognitive impairment, and 2.90 for emotional impairment.[18] Clinical cut-offs can be used to indicate whether observed levels are "problematic" and have been

developed to indicate levels that distinguish between persons with clinical burnout and healthy individuals. The workload was assessed with two survey items: "How is your workload at the moment?", with five response alternatives (very high, high, balanced, somewhat low, or low), and "How is your workload at the moment, compared to before the COVID-19 pandemic?", with five response alternatives (very much higher, higher, like before, somewhat lower, and lower). These two items were combined to form five different categories reflecting the workload before and during the pandemic: decreased to low ($n=55$), unaltered low ($n=46$), balanced (now and before, $n=116$), unaltered high ($n=284$) and increased to high ($n=454$).

Statistical analyses

Crude mixed-effects models (Proc Mixed in SAS, version 9.4; SAS Institute, Cary, NC, USA) were applied to assess the average level of job satisfaction, work-life conflicts, stress, and burnout, with a global mean as fixed effect and workplace and region as random effects, as the responders were nested within workplaces and regions, respectively.

Differences between gender (male and female), age (<44 or ≥44 years; which was the median age), type of organization (hospital-based or prenatal clinic), profession (midwife, physician, assistant nurse, registered nurse, administrator, or manager), and the five aforementioned workload categories were investigated by adding these variables as fixed effects in the crude model above. Hypothesis testing for fixed and random effects was performed using Wald and likelihood ratio tests, respectively.

3 | RESULTS

3.1 | The COPE Staff cohort

In total, 1248 MNHCWs registered as participants for the baseline study, 957 (77%) of whom completed the initial baseline questionnaire. Of those who participated in the baseline survey, 794 (83%) were employed by a hospital (31 of 34 [91%] Swedish hospitals with a labor and birth unit) and 163 (17%) were mostly employed in prenatal clinics outside hospitals. The participants represented 49 workplaces (employee number per workplace: mean 20, median 14, and range 1–142) in 21 (100%) regions (employee number per region: mean 46, median 18, and range 5–282).

Characteristics of the participants in the baseline survey are shown in Table 1. Most participants 885 (93%) were female and were either physicians (375; 40%), or midwives (401; 43%). Most of the participants were aged between 30 and 59 years (741; 77%), with a median age of 44 years. In total, 75 (8%) belonged to a high-risk group for severe COVID-19 and 93 (10%) were living with someone at high risk. At the time of the baseline survey, 356 (36%) had obtained a first dose of a COVID-19 vaccine and 142 (15%) reported that they had had COVID-19.

TABLE 1 Characteristics of participants in the COPE Staff baseline survey, January–April, 2021.

Background characteristics	*n* (%)
Gender	
Female	885 (93)
Male	62 (7)
Declines to disclose	5 (0.5)
Age, year	
<20	0 (0)
20–29	34 (4)
30–39	289 (30)
40–49	263 (28)
50–59	189 (20)
>60	119 (12)
Profession	
Physician	375 (40)
Midwife	401 (43)
Nurse	45 (5)
Assistant nurse	73 (8)
Other healthcare profession	1 (0.1)
Administrative staff	15 (2)
Other non-clinical position	1 (0.1)
Manager	32 (3)
Post-graduate education	
PhD degree	124 (13)
Type of workplace	
Hospital	794 (83)
Prenatal clinic	163 (17)
Family situation	
Married/cohabiting	802 (84)
Living with children	590 (62)
COVID-19 status	
Has had SARS-CoV-2	142 (15)
Received first vaccine dose	356 (36)
Belongs to a risk group for severe COVID-19	75 (8)
Living with someone who belongs to a risk group for severe COVID-19	93 (10)
Pregnancy status	
Pregnant	45 (5)
Pregnant partner	4 (0.4)

Abbreviations: COVID-19, coronavirus disease 2019; SARS-CoV-2, severe acute respiratory syndrome coronavirus 2.

3.2 | Average levels of job satisfaction, work-life conflicts, stress, and burnout

The average levels of job satisfaction, work-life conflicts, and stress were 68.57 (95% confidence interval [CI] 64.34–72.81), 42.64 (95% CI 37.31–47.96), and 41.99 (95% CI 37.67–46.31), respectively. The average level of burnout, according to the BAT scale, was 1.91 (95%

CI 1.59–2.24). Of the four burnout sub-dimensions, the exhaustion level was somewhat higher than mental distance, cognitive impairment, and emotional impairment levels (Table 2). The number of respondents scoring above critical values indicating clinical burnout was 35 (3.8%) for the total score and 171 (18%), 30 (3.2%), 31 (3.3%), and 45 (4.7%) for exhaustion, mental distance, cognitive impairment, and emotional impairment, respectively.

3.3 | Differences in average levels of job satisfaction, work-life conflicts, stress, and burnout by gender, age, and profession

Women reported significantly higher levels of stress and burnout than men (42.64, 95% CI 40.59–44.69 vs. 34.47, 95% CI 28.43–40.50, $P=0.009$, for stress and 1.97, 95% CI 1.93–2.00 vs. 1.78, 95% CI 1.65–1.92, $P=0.011$, for burnout). Women also had a higher exhaustion level than men (2.41, 95% CI 2.35–2.46 vs. 2.06, 95% CI 1.88–2.25, $P<0.001$). There were no significant gender differences in job satisfaction, work-life conflicts, or the other three sub-dimensions of burnout (Table S2).

Younger MNHCWs (<44 years) had lower job satisfaction and higher levels of work-life conflicts, stress, and burnout than older ones (66.50, 95% CI 64.05–68.94 vs. 70.72, 95% CI 68.30–73.11, $P<0.001$, for job satisfaction; 47.92, 95% CI 44.86–50.98 vs. 38.08, 95% CI 35.08–41.07, $P<0.001$, for work-life conflicts; 47.03, 95% CI 44.55–49.52 vs. 37.02, 95% CI 34.57–39.46, $P<0.001$, for stress; and 2.03, 95% CI 1.98–2.08 vs. 1.87, 95% CI 1.82–1.92, $P<0.001$, for burnout). Regarding the burnout sub-dimensions, younger MNHCWs had significantly higher levels of exhaustion ($P<0.001$), mental distance ($P<0.001$), and cognitive impairment ($P<0.001$), but no significant difference emerged concerning emotional impairment ($P=0.107$) (Table S2).

Job satisfaction and work-life conflicts levels differed significantly between the professions—higher job satisfaction for physicians, registered nurses, and managers ($P<0.001$), but work-life conflicts levels were higher for physicians and managers and lower for administrators ($P<0.001$). No difference between professions was found when it came to stress or burnout (Table S2).

3.4 | Associations between MNHCWs' workload and levels of job satisfaction, work-life conflicts, stress, and burnout during the pandemic

The combination of perceived workload during the pandemic and its relationship to the pre-pandemic workload was significantly associated with levels of job satisfaction, work-life conflict, stress, and burnout ($P<0.0001$ for each factor, respectively). Job satisfaction was higher for MNHCWs with a balanced (during and before the pandemic) or unaltered low workload, compared with those with unaltered high workload or to those whose workload either decreased to low or increased to high (Figure 1). The level of work-life conflicts was higher among workers with high workload, compared with those with low or balanced workload. The stress level was higher among MNHCWs with high workload, compared with those with low or balanced workload and the highest levels were found for those who experienced increased workload during the pandemic (Figure 1).

Concerning burnout, the highest level was observed among those reporting increased workload; this also applied to the exhaustion, mental distance, and emotional and cognitive impairment sub-dimensions (Figure 2).

4 | DISCUSSION

This paper describes the study design of the COPE Staff study, designed to assess working conditions and health among Swedish MNHCWs during and after the COVID-19 pandemic. Furthermore, it presents results from the baseline survey regarding job satisfaction, work-life conflicts, stress, and burnout. Our results indicate that there were associations between the MNHCWs' perceived workload and job satisfaction, work-life conflicts, stress, and burnout.

High sick leave levels are not only a concern for the affected individuals and their employers, but lack of skilled healthcare workers

TABLE 2 Job satisfaction, work-life conflicts, stress, and burnout for MNHCWs in Sweden, January–April 2021.

Effect measures	Items	*n*	Estimated mean[a]	95% CI	Standard deviation
Job satisfaction	4	945	68.57	64.34–72.81	0
Work-life conflicts	4	947	42.64	37.31–47.96	1.2
Stress	4	941	41.99	37.67–46.31	1.0
Burnout	23	911	1.91	1.59–2.24	0.02
Exhaustion	8	940	2.32	1.86–2.78	0.04
Mental distance	5	942	1.63	1.29–1.96	0.03
Cognitive impairment	5	948	1.88	1.57–2.19	0.02
Emotional impairment	5	950	1.59	1.25–1.94	0.03

Abbreviations: CI, confidence interval; MNHCW, maternal and neonatal healthcare workers.

[a]Estimated in a mixed effect-model with a global mean as fixed effect and region and workplace as random effect.

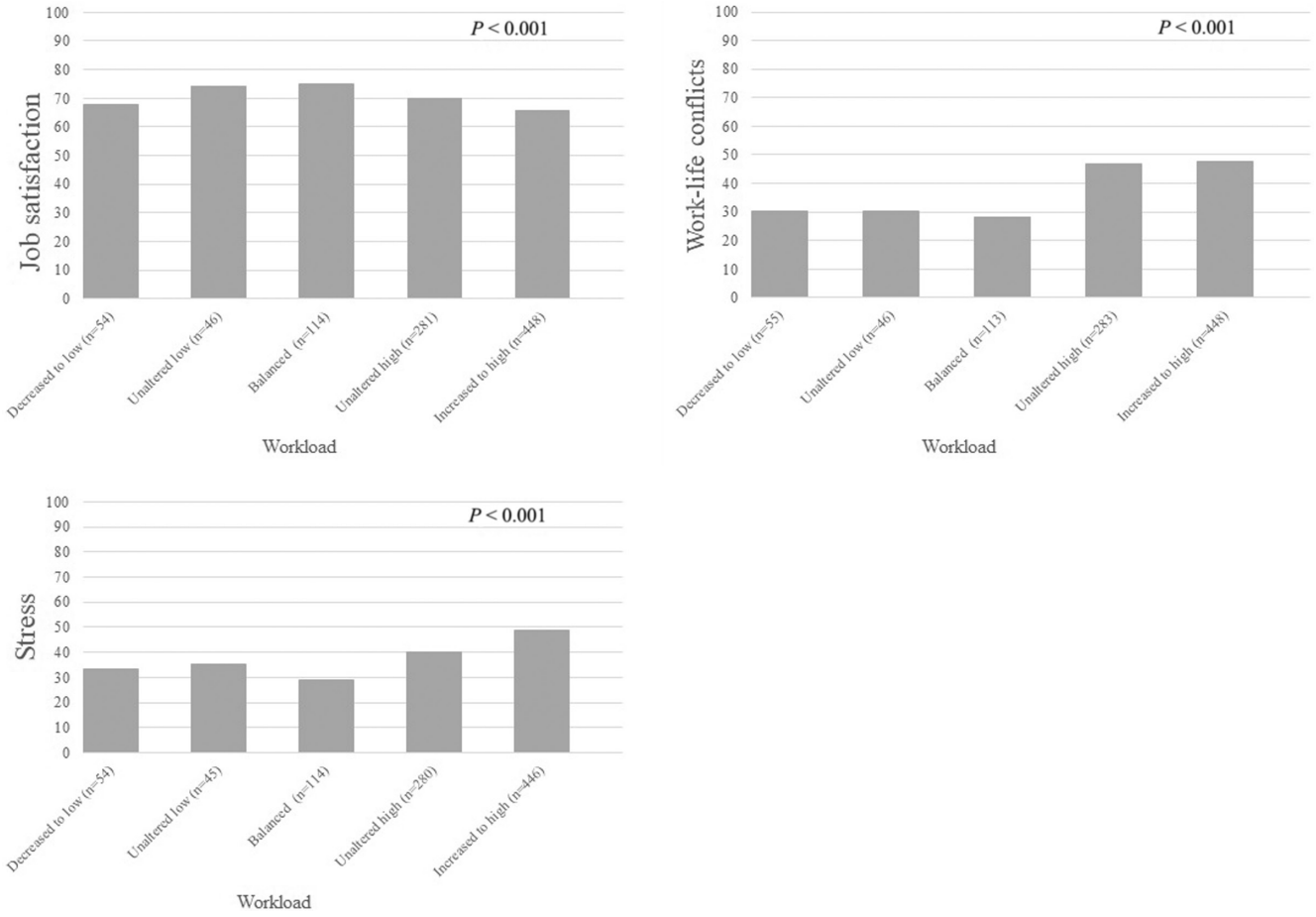

FIGURE 1 Average level of job satisfaction, work-life conflicts, and stress, stratified for workload, for maternal and neonatal healthcare workers in Sweden, January–April, 2021.

may also threaten the quality of maternal and neonatal health care and patient safety. Knowledge of employees' health and working conditions is urgently needed because sick leave is a major concern in the healthcare sector, both in Sweden and in other countries. The pandemic may have worsened the situation.[5,9] There is a lack of evidence concerning which interventions may be beneficial for resilience and mental well-being.[10]

In this paper, we present the average values for job satisfaction, work-life conflicts, and stress during the spring of 2021. Data were collected during the third wave and the elevated plateau between the third and fourth waves of the pandemic in Sweden. Ideally, the average values in our sample would have been contrasted with reference values in the general population. Unfortunately, there are no reference values for Sweden, either in general or during extraordinary events such as a pandemic. Results regarding job satisfaction, work-life conflicts, and stress were, however, compared with pre-pandemic reference values from Denmark's general working population.[15] Our respondents' levels of stress and work-life conflicts were much higher (42.0 vs. 26.7 and 42.6 vs. 33.5 for stress and work-life conflicts, respectively). Job satisfaction in our sample was slightly higher than the Danish reference value (68.6 vs. 65.3). However, these differences may not exclusively reflect an effect of the pandemic, as working conditions vary both between sectors and occupations.[26,27] This must be taken into consideration when comparing working conditions, such as job satisfaction, work-life conflicts, and stress, in different study populations.

Employees' experiences of stress at work may not automatically lead to impaired health, because sufficient access to support, other resources, and/or a high degree of meaningfulness regarding work and profession[28,29] may serve as buffers.[23] When it came to levels of burnout among the MNHCWs in our study, the percentage of respondents scoring above critical values for the four sub-dimensions ranged between 3% and 18%, with the highest percentage for exhaustion. Elevated exhaustion levels may be considered early signals of burnout, according to the definition entailing evolution from exhaustion to cognitive and emotional impairment to mental distance, creating a vicious cycle.[18] These findings are important, and action is required to counteract exhaustion and to prevent additional increases in exhaustion, mental distance, or cognitive and emotional impairment.

Other Swedish studies have found comparable burnout levels (both total burnout score and the four sub-dimensions) among Swedish midwives in a national cohort with data collection in April 2020, just before the full effect of the pandemic hit Sweden.[30] Similar proportions scoring above critical clinical burnout levels were found in a representative

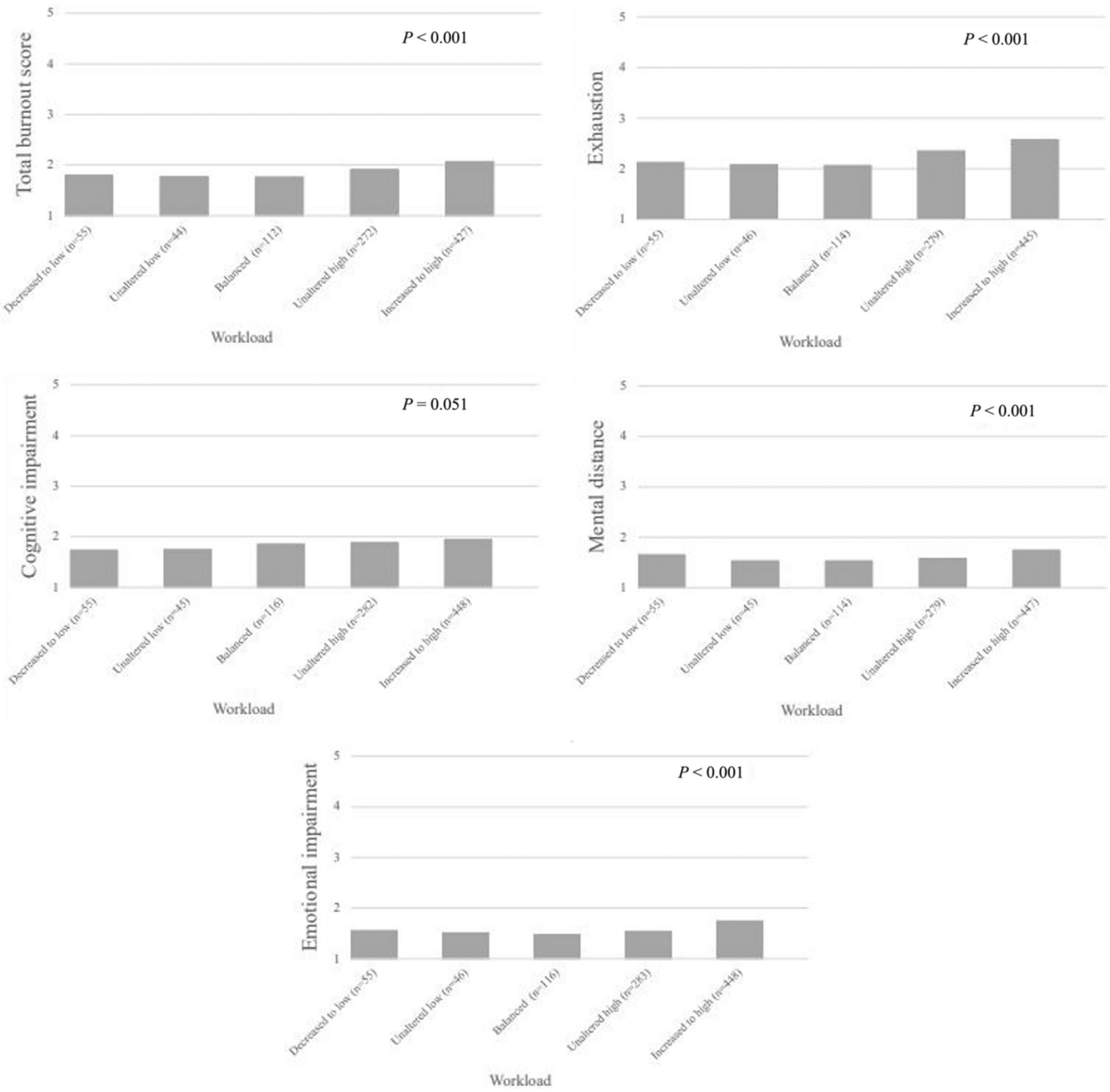

FIGURE 2 Average levels for the total burnout score as well as for the four sub-dimensions exhaustion, mental distance, cognitive impairment, and emotional impairment; stratified for workload, for maternal and neonatal healthcare workers in Sweden, in January–April, 2021.

sample of Swedish physicians during the third wave of the pandemic.[31] Similar effects have also been found among MNHCWs in other countries during the pandemic,[4–7,9,32] although direct comparisons were impossible because of major methodologic differences.

As these effects have been reported predominately in cross-sectional studies during the pandemic, no conclusions were possible concerning whether this is an actual pandemic effect or reflects variability between these parameters and different professions. When comparing our results with pre-pandemic levels of job satisfaction, stress, and burnout among Swedish midwives, we found similar levels, indicating that the pandemic effects were limited in this case.[28,30] However, investigation of associations between workload and job satisfaction, work-life conflicts, stress, and burnout indicated a minor effect of the pandemic, especially for job satisfaction and stress, with the lowest level of job satisfaction and highest level of stress found among MNHCWs experiencing increased workload. Those with a balanced workload, before and during the pandemic, reported the highest job satisfaction level and the lowest levels of work-life conflicts, stress, and burnout, compared with those who either experienced low or high workload before and/or during the pandemic. Hence, systematic long-term improvement of working conditions can increase the ability of an organization to cope with

future extraordinary events, and adverse health effects among employees may be reduced.

Within the study population, women reported significantly higher stress and burnout levels than men, and younger participants had lower job satisfaction and higher levels of work-life conflicts, stress, and burnout than older ones. These findings concur with previous studies.[33–35] Although no difference between professions was seen for stress or burnout, there were differences regarding job satisfaction, with higher levels for physicians, registered nurses, and managers, compared with midwives, assistant nurses, and administrators. Regarding work-life conflicts, the highest level was found for physicians and managers and the lowest for administrators. These findings further highlight the need to systematically improve working conditions for all MNHCWs.

The COPE Staff study baseline data have been analyzed. The study's strengths are the longitudinal design, enabling assessment of MNHCWs' working environment and health during and after the COVID-19 pandemic. Other strengths are the ongoing nationwide recruitment, participation of different professions, the study design comprising interviews and surveys based on validated instruments, and a strong theoretical framework, based on the JD-R model, focusing on identification of working conditions and predictors of employees' health and motivation. A limitation is the relatively limited number of participants in the baseline survey, possibly the result of strained working conditions during the pandemic. Because of the method used to invite participants, it is not possible to calculate an accurate response rate but 77% of the participants who registered for the study answered the initial questionnaire. There are reasons to believe that the real response rate would be lower. The limited number of respondents concurs with other studies conducted at this time.[4] However, the participating midwives' characteristics resemble those of a larger sample studied by Hansson et al.[28] immediately before the pandemic. The COPE Staff study design is open cohort, and efforts will be made to increase future participation to increase its representativeness for MNHCWs in Sweden. However, the baseline survey participants, predominantly midwives and physicians, represent a total of 49 workplaces within all 21 Swedish healthcare regions. In our future research within this study, we will hopefully be able to identify factors that can lead to prevention of work-related adverse health outcomes among MNHCWs.

In conclusion, the COPE Staff study enables us to follow MNHCWs' work situation over time, aiming to identify working conditions and predictors of health and motivation on which to base preventive measures in their workplaces.

Furthermore, our results indicate associations between MNHCWs' perceived workload and job satisfaction, work-life conflicts, stress, and burnout during the COVID-19 pandemic. Female and younger respondents reported more adverse working conditions than male and older respondents. The percentage of respondents scoring above critical values for the four burnout sub-dimensions ranged between 3% and 18%.

AUTHOR CONTRIBUTIONS

Magnus Akerstrom, Verena Sengpiel, Emina Hadžibajramović, Ylva Carlsson, Sofie Graner, Ola Andersson, Maria Jonsson, Malin Veje, Anna Wessberg, and Karolina Linden contributed to conceptualization, investigation, and to writing—review & editing; Magnus Akerstrom, Verena Sengpiel, Emina Hadžibajramović, and Karolina Linden contributed to the methodology; Magnus Akerstrom, Verena Sengpiel, and Karolina Linden contributed to the formal analysis and to writing the original draft; Magnus Akerstrom and Karolina Linden contributed to data curation and project administration; and Karolina Linden acquired the funding.

ACKNOWLEDGMENTS

This study was funded by Svenska Forskningsrådet Formas (KL, ref. No. 2020-02767).

CONFLICT OF INTEREST STATEMENT

The authors have no conflicts of interest to disclose.

DATA AVAILABILITY STATEMENT

Research data are not shared.

ORCID

Magnus Akerstrom https://orcid.org/0000-0002-8469-6193
Verena Sengpiel https://orcid.org/0000-0002-3608-7430
Emina Hadžibajramović https://orcid.org/0000-0002-6630-8898
Ylva Carlsson https://orcid.org/0000-0002-1414-7279
Sofie Graner https://orcid.org/0000-0003-1355-9973
Ola Andersson https://orcid.org/0000-0002-3972-0457
Maria Jonsson https://orcid.org/0000-0002-2657-1958
Elin Naurin https://orcid.org/0000-0002-7091-994X
Malin Veje https://orcid.org/0000-0001-5487-0616
Anna Wessberg https://orcid.org/0000-0001-8457-9651
Karolina Linden https://orcid.org/0000-0002-2792-3142

REFERENCES

1. Akerstrom M, Carlsson Y, Sengpiel V, et al. Working conditions for hospital-based maternity and neonatal health care workers during extraordinary situations - a pre−/post COVID-19 pandemic analysis and lessons learned. *Sex Reprod Healthc*. 2022;33:100755.
2. Linden K, Domgren N, Zaigham M, Sengpiel V, Andersson ME, Wessberg A. Being in the shadow of the unknown - Swedish women's lived experiences of pregnancy during the COVID-19 pandemic, a phenomenological study. *Women Birth*. 2022;35(5):440-446.
3. Billings J, Ching BCF, Gkofa V, Greene T, Bloomfield M. Experiences of frontline healthcare workers and their views about support during COVID-19 and previous pandemics: a systematic review and qualitative meta-synthesis. *BMC Health Serv Res*. 2021;21(1):923.
4. Semaan A, Audet C, Huysmans E, et al. Voices from the frontline: findings from a thematic analysis of a rapid online global survey of maternal and newborn health professionals facing the COVID-19 pandemic. *BMJ Glob Health*. 2020;5(6):e002967.
5. Bradfield Z, Wynter K, Hauck Y, et al. Experiences of receiving and providing maternity care during the COVID-19 pandemic in Australia: a five-cohort crosssectional comparison. *PLoS ONE*. 2021;16(3 March):e0248488.
6. Bradfield Z, Hauck Y, Homer CSE, et al. Midwives' experiences of providing maternity care during the COVID-19 pandemic in Australia. *Women Birth*. 2021;35:262-271.

7. Boekhorst F, Khattak H, Topcu EG, Horala A, Gonçalves Henriques M. The influence of the COVID-19 outbreak on European trainees in obstetrics and gynaecology: a survey of the impact on training and trainee. *Eur J Obstet Gynecol Reprod Biol*. 2021;261:52-58.
8. Wådell M, Örtqvist AK, Linden K, et al. Challenges imposed by the COVID-19 pandemic on the obstetrics and gynecology residency program: a mixed-methods Swedish survey in the COPE staff cohort study. *BMC Med Educ*. 2022;22(1):602.
9. Haidari E, Main EK, Cui X, et al. Maternal and neonatal health care worker well-being and patient safety climate amid the COVID-19 pandemic. *J Perinatol*. 2021;41(5):961-969.
10. Pollock A, Campbell P, Cheyne J, et al. Interventions to support the resilience and mental health of frontline health and social care professionals during and after a disease outbreak, epidemic or pandemic: a mixed methods systematic review. *Cochrane Database Syst Rev*. 2020;11(11):Cd013779.
11. Wilson AN, Ravaldi C, Scoullar MJL, et al. Caring for the carers: ensuring the provision of quality maternity care during a global pandemic. *Women Birth*. 2021;34(3):206-209.
12. Xiang YT, Yang Y, Li W, et al. Timely mental health care for the 2019 novel coronavirus outbreak is urgently needed. *Lancet Psychiatry*. 2020;7(3):228-229.
13. Swedish Social Insurance Agency. Sjukfrånvaron på Svensk Arbetsmarknad. [Sick Leave on the Swedish Labour Market]. 2018 Stockholm.
14. Statistics Sweden. Trender och Prognoser 2017: befolkningen, utbildningen, arbetsmarknaden med sikte på 2035 [Trends and Forecasts 2017 population, education and labour market in Sweden – outlook to year 2035]. 2017 Stockholm.
15. Pejtersen JH, Kristensen TS, Borg V, Bjorner JB. The second version of the Copenhagen psychosocial questionnaire. *Scand J Public Health*. 2010;38(3 Suppl):8-24.
16. Hall GB, Dollard MF, Coward J. Psychosocial safety climate: development of the PSC-12. *International Journal of Stress Management*. 2010;17(4):353-383.
17. Schaufeli WB, Desart S, De Witte H. Burnout assessment tool (BAT)-development, validity, and reliability. *Int J Environ Res Public Health*. 2020;17(24):9495.
18. Schaufeli WB, De Witte H, Desart S. Manual Burnout Assessment Tool (BAT) – Version 2.0. 2020 KU Leuven, Belgium.
19. Af Sandeberg M, Wenemark M, Bartholdson C, Lützén K, Pergert P. To change or not to change - translating and culturally adapting the paediatric version of the moral distress scale-revised (MDS-R). *BMC Med Ethics*. 2017;18(1):14.
20. Frans Ö, Rimmo PA, Aberg L, Fredrikson M. Trauma exposure and post-traumatic stress disorder in the general population. *Acta Psychiatr Scand*. 2005;111(4):291-290.
21. The SOM Institute. [cited 2020 June 13th] Available from: https://som.gu.se/
22. The Gothenburg Research Program on Pregnancy and Politics. 2019 [cited 2023 March 24th]; Available from: https://www.gu.se/en/pregdem
23. Bakker AB, Demerouti E. The job demands-resources model: state of the art. *J Manag Psychol*. 2007;22(3):309-328.
24. Damschroder LJ, Aron DC, Keith RE, Kirsh SR, Alexander JA, Lowery JC. Fostering implementation of health services research findings into practice: a consolidated framework for advancing implementation science. *Implement Sci*. 2009;4:50.
25. Elo S, Kyngäs H. The qualitative content analysis process. *J Adv Nurs*. 2008;62(1):107-115.
26. Corin L, Pousette A, Berglund T, Dellve L, Hensing G, Björk L. Occupational trajectories of working conditions in Sweden: development trends in the workforce, 1997-2015. *Scand J Work Environ Health*. 2021;47(5):335-348.
27. Cerdas S, Härenstam A, Johansson G, Nyberg A. Development of job demands, decision authority and social support in industries with different gender composition – Sweden, 1991–2013. *BMC Public Health*. 2019;19(1):758.
28. Hansson M, Dencker A, Lundgren I, Carlsson IM, Eriksson M, Hensing G. Job satisfaction in midwives and its association with organisational and psychosocial factors at work: a nation-wide, cross-sectional study. *BMC Health Serv Res*. 2022;22(1):436.
29. Hansson M, Lundgren I, Dencker A, Taft C, Hensing G. Work situation and professional role for midwives at a labour ward pre and post implementation of a midwifery model of care - a mixed method study. *Int J Qual Stud Health Well-Being*. 2020;15(1):1848025.
30. Hadžibajramović E, Hansson M, Akerstrom M, Dencker A, Hensing G. Burnout among midwives-the factorial structure of the burnout assessment tool and an assessment of burnout levels in a Swedish national sample. *BMC Health Serv Res*. 2022;22(1):1167.
31. Hagqvist E, Ekberg K, Lidwall U, et al. The Swedish HealthPhys study: study description and prevalence of clinical burnout and major depression among physicians. *Chronic Stress (Thousand Oaks)*. 2022;6:24705470221083866.
32. Rao SPN, Minckas N, Medvedev MM, et al. Small and sick newborn care during the COVID-19 pandemic: global survey and thematic analysis of healthcare providers' voices and experiences. *BMJ Glob Health*. 2021;6(3):e004347.
33. Mantri S, Song YK, Lawson JM, Berger EJ, Koenig HG. Moral injury and burnout in health care professionals during the COVID-19 pandemic. *J Nerv Ment Dis*. 2021;209(10):720-726.
34. Sriharan A, West K, Almost J, Hamza A. COVID-19-related occupational burnout and moral distress among nurses: a rapid scoping review. *Nurs Leadersh (Tor Ont)*. 2021;34(1):7-19.
35. 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):3286-3302.

SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

How to cite this article: Akerstrom M, Sengpiel V, Hadžibajramović E, et al. The COPE Staff study: Study description and initial report regarding job satisfaction, work-life conflicts, stress, and burnout among Swedish maternal and neonatal healthcare workers during the COVID-19 pandemic. *Int J Gynecol Obstet*. 2023;162:989-997. doi:10.1002/ijgo.14772