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RESEARCH

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# Mothers' and caregivers' experiences of COVID-19 restrictions during postpartum hospitalisation: a cross-sectional survey in France

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## Abstract

**Background** Transmission of SARS-CoV-2 highlighting the importance of social distancing guidelines. Following a series of lockdowns and the widespread vaccination of the European population, many countries began to lift these restrictions. During this period, while some parents yearned for emotional support and family presence, others found that the solitude facilitated by the restrictions was beneficial for bonding and breastfeeding. In France, postnatal stays are generally longer than in other countries, and the limited availability of home-based follow-up care, combined with pandemic isolation measures, further complicated perspectives on visitation restrictions. Therefore, the objective of this study was to assess the satisfaction of mothers and caregivers regarding these visit restrictions in French maternity settings during the COVID-19 pandemic.

**Methods** We conducted two multicentre descriptive surveys across five French maternity wards (three in Paris and two in Lyon) from June 1st to July 15th, 2021. Participants included mothers, selected based on criteria such as French-speaking, at-term birth ( $\geq 37$  weeks), and hospitalisation with their newborn, as well as caregivers working in the postpartum units. Satisfaction with visitation restrictions was assessed using a four-point Likert scale, which was then dichotomised into "mostly satisfied" versus "mostly dissatisfied" for the analysis. Multivariable logistic regression models were used to identify factors associated with satisfaction.

**Results** We analysed complete responses from 430 of the 2,142 mothers (20.1%) and 221 of the 385 caregivers (57.4%) who participated during the study period. The majority of mothers (68.8%,  $n = 296/430$ ) and caregivers (90.5%,  $n = 200/221$ ) declare themselves satisfied with the policy of restricting visits to maternity wards. The main source of mother's satisfaction came from a quieter stay, but they regretted the absence of their other children.

**Conclusions** Maternity visit restriction policies were largely supported by mothers and caregivers, especially when partners and siblings were allowed. Revisiting these policies, along with the postpartum stay length, may improve care, though further evaluation in non-pandemic settings is needed.

**Keywords** Midwifery, Health Service Research, Surveys and questionnaires, hospitals isolation.

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## Background

On March 11, 2020, the Director General of the World Health Organization (WHO) classified COVID-19 as a “global pandemic” [1]. Transmission of SARS-CoV-2 occurs mostly through direct contact with an infected patient, which highlights the importance of social distancing guidelines [2]. Therefore, on March 14, 2020, the French prime minister announced the closure of all “places receiving the public that are not essential to the life of the country” [3].

Social distancing guidelines have demonstrated effectiveness in reducing the number of people infected [4]. In France, three other lockdowns followed, with stay-at-home orders and the restriction of hospital visits. Many other countries also implemented restrictions to avoid transmission of the virus; COVID-19 became a central point of concern, especially using full or partial lockdowns [5, 6]. However, the negative impact of these strict lockdowns on mental health rapidly became apparent, and authorities tested new strategies to lift the restrictions [7]. Between the first lockdown in March 2020 and our study in June 2021, the Stringency Index in France decreased from 88 to 55 out of 100, reflecting a gradual easing of restrictions [8]. On June 9, 2021, the French government launched a four-step programme for lifting the lockdown, but hospital visits remain restricted [9].

In the context of perinatal care, teleconsultations became prevalent for various types of appointments, including routine check-ups, prenatal consultations, and follow-up visits. A study conducted among French independent midwives revealed that teleconsultations were rapidly adopted following their authorisation on March 20, 2020, with 88.5% of midwives implementing this practice. These consultations were typically conducted by midwives or obstetricians using secure video conferencing tools, although some instances relied on telephone calls when internet access was limited. The duration of these consultations varied, generally lasting between 20 and 60 min, depending on the complexity of the case [10, 11].

As the pandemic progressed, maternity wards had to rapidly reorganise their services to ensure safe care for mothers and newborns. To minimise hospital exposure, early discharge became a priority pre-pandemic, France’s average postnatal stay duration was 3.9 days, compared to 1.4 days in the UK [12]. France considers early discharge as leaving the hospital within 72 h for vaginal deliveries, while most Western countries define early discharge as within 24 h [13, 14]. Despite efforts to reduce hospital stay, postnatal durations in France remained significant, usually exceeding 48 h [10]. Although partners were usually allowed during childbirth, postpartum visits were significantly restricted or even prohibited during these 48 h [10]. This situation was associated with increased

mental health issues among pregnant and postpartum women [10–13], with experts warning of the risks associated with maternal isolation [15]. The literature presents a dichotomy: while some parents missed emotional and familial support [16], others found the restrictions beneficial for bonding and breastfeeding [16–18].

In 2021, we aimed to evaluate both maternal and caregiver satisfaction with these restrictive visitation policies. Additionally, our research question was to determine how these policies affected their overall experience during the postpartum hospitalisation period.

## Methods

### Study design, screening, and recruitment

We conducted two multicentre descriptive surveys: the first was distributed to mothers during their maternity stay, and the second was forwarded to maternity caregivers. Five French maternity wards participated: three in the Paris area and two in Lyon, referred to as P1, P2, and P3 in Paris, and L1 and L2 in Lyon. The selection of these wards was primarily based on the authors’ affiliations with these institutions, which enabled the study to be conducted quickly and efficiently without external funding. Additionally, these wards represent both urban and semi-urban settings, providing a diverse perspective on maternity care practices under visitation restrictions. Three of these maternity units had access to neonatal intensive care units (NICUs), and each recorded between 4,200 and 4,600 births annually. The other two units experienced around 3,500 births per year.

During the study period from June 1st to July 15th, 2021, there were 2,142 eligible births across these five maternity wards. We disseminated the first survey through research staff to all mothers who met the following criteria: French-speaking, over the age of 18, staying in the hospital with their newborn, and at-term birth ( $\geq 37$  weeks of gestation). Mothers whose newborns were hospitalised or who gave birth to premature infants were excluded, as these groups were subject to different visitation restrictions and had different lengths of stay. The questionnaire was paper based, handed out in person by midwifery supervisors during the postpartum hospital stay, and collected upon the mothers’ discharge. The survey was self-administered, and participation was voluntary. Mothers were informed about the study’s purpose and their right to withdraw at any time before completing the questionnaire. To ensure confidentiality, responses were kept anonymous, and no follow-up reminders were issued.

The second survey was distributed via email to all caregivers working in the postpartum units of the five participating hospitals where restriction policies were applied. The online questionnaire was administered using SurveyMonkey, chosen for its quality layout and user-friendly

interface, especially on mobile devices. The survey was self-administered, and no reminders were sent to encourage participation. The responses were anonymous, and the confidentiality of the data was emphasised to all participants. Like the mothers' survey, the data collection for healthcare professionals also took place from June 1st to July 15th, 2021.

#### **Development of the tool for mothers and data collection**

As authors of this research, we developed a questionnaire, which three midwives and three volunteer mothers reviewed and tested to verify its usability, technical functionality, clarity, and reliability and to estimate its completion time. We opted for a printed format to facilitate distribution, providing it when each hospital room was cleaned.

The survey comprised three parts. All items, except for one free comment section about satisfaction, were closed questions. The survey, which took about 10 min to complete, is available in Appendix S1. The first part focused on the mother's characteristics, including age, postal code, socio-professional category, marital status, number of children before this birth, hospitalisation during pregnancy, induction of labour, mode of birth, perineal tears, and breastfeeding. The postal code served as a proxy to assess the socioeconomic status of mothers based on the City Deprivation Index, which categorises French cities into five levels [19]. The second part focused on mental well-being, assessed using the Warwick-Edinburgh Mental Well-Being Scale (WEMWBS) and ad hoc questions about pain, exhaustion, and stress levels concerning the COVID-19 pandemic, using a Likert-type scale [20]. The third part addressed mothers' satisfaction with the restriction policy during their hospital stay. Mothers were asked, "With regard to the restriction policy during your hospital stay, would you consider yourself very dissatisfied, dissatisfied, satisfied, or very satisfied?" A free comment section also allowed the mothers to add any potential remark regarding the visit restrictions.

#### **Development of the tool for caregivers and data collection**

We constructed a questionnaire for caregivers and tested it on five midwives to ensure its usability, technical functionality, clarity, and reliability. We then administered it using SurveyMonkey software. All responses were mandatory and could not be reviewed or changed by respondents. The questionnaire is detailed in Appendix S2.

The survey for caregivers also consisted of three parts. The first part gathered information about professional backgrounds, such as age, work situation, gender, employment status, duration of practice, and seniority in the current hospital. The second part queried caregivers' satisfaction with the maternity ward, specifically regarding the impact of restriction policies. The third part

assessed caregiver burnout using the Maslach Burnout Inventory (MBI) Test, which evaluates emotional exhaustion, personal accomplishment, and depersonalisation [21].

#### **Data analysis**

We described categorical variables using numbers and percentages. Quantitative variables were described by their mean and standard deviation if they followed a normal distribution or, if not, by their medians and first-to-third quartiles (Q1-Q3). Generalised linear models (GLMs) with a binomial distribution were used to assess the relationship between the independent variables and the binary outcome of satisfaction.

For the mothers, we treated the main outcome of satisfaction as binary: mostly dissatisfied (i.e., very dissatisfied and dissatisfied) vs. mostly satisfied (i.e., satisfied and very satisfied). The independent variables, or determinants, included individual, psychological, and obstetrical factors, as well as information about visitations during the stay. Age and the WEMWBS score were treated as continuous variables, while other determinants were mostly categorical. We also dichotomised self-assessed levels of stress, pain, and exhaustion (on a scale from 0 to 10) into  $<5/10$  vs.  $\geq 5/10$ . All independent variables were selected based on the conceptual framework provided by the Directed Acyclic Graphs (DAG; Appendix S3). These DAGs, created using the dagitty web platform (<https://www.dagitty.net/dags.html#>), guided the identification of relevant exposures and confounders for inclusion in the multivariable models. The exposure variable was visit restrictions, and the outcome was maternal satisfaction. According to the DAG, the only adjustment criterion identified was the effect of the centre. We modelled the centre as a fixed effect in the multivariable model to account for centre-specific differences. Two authors (SL and LM) independently analysed each free comment to identify themes, which were then classified as either positively or negatively related to mothers' satisfaction. The thematic analysis was conducted using Microsoft Excel to facilitate the coding and organisation of the data. Discrepancies in theme classification were resolved through discussion until consensus was reached.

For the professionals, satisfaction regarding the influence of restrictions on their work environment was treated as a binary outcome: mostly disagree (i.e., strongly disagree and disagree) vs. mostly agree (i.e., agree and strongly agree). Potential determinants included personal and professional factors, which were treated as continuous variables (e.g., age, length of practical experience) or categorical variables (e.g., working category, hospital, and components of the Maslach Burnout Inventory). The selection of potential determinants was guided by a Directed Acyclic Graphs (DAG; Appendix S3). Based on

the DAG, the multivariable model was adjusted for age, gender, duration of practice, and centre (treated as a fixed effect) to account for confounding factors in the relationship between these determinants and professional satisfaction with the impact of visitation restrictions on the work environment. Missing data, accounting for less than 5% of the population, were excluded from the statistical analysis. The significance level was set at  $P < .05$ . Odds ratios (ORs) and their 95% confidence intervals (CIs) were estimated. All statistical analyses were performed using R version 4.2.1 (2022-06-23) and the “finalfit” (version 1.0.8) package [22–24].

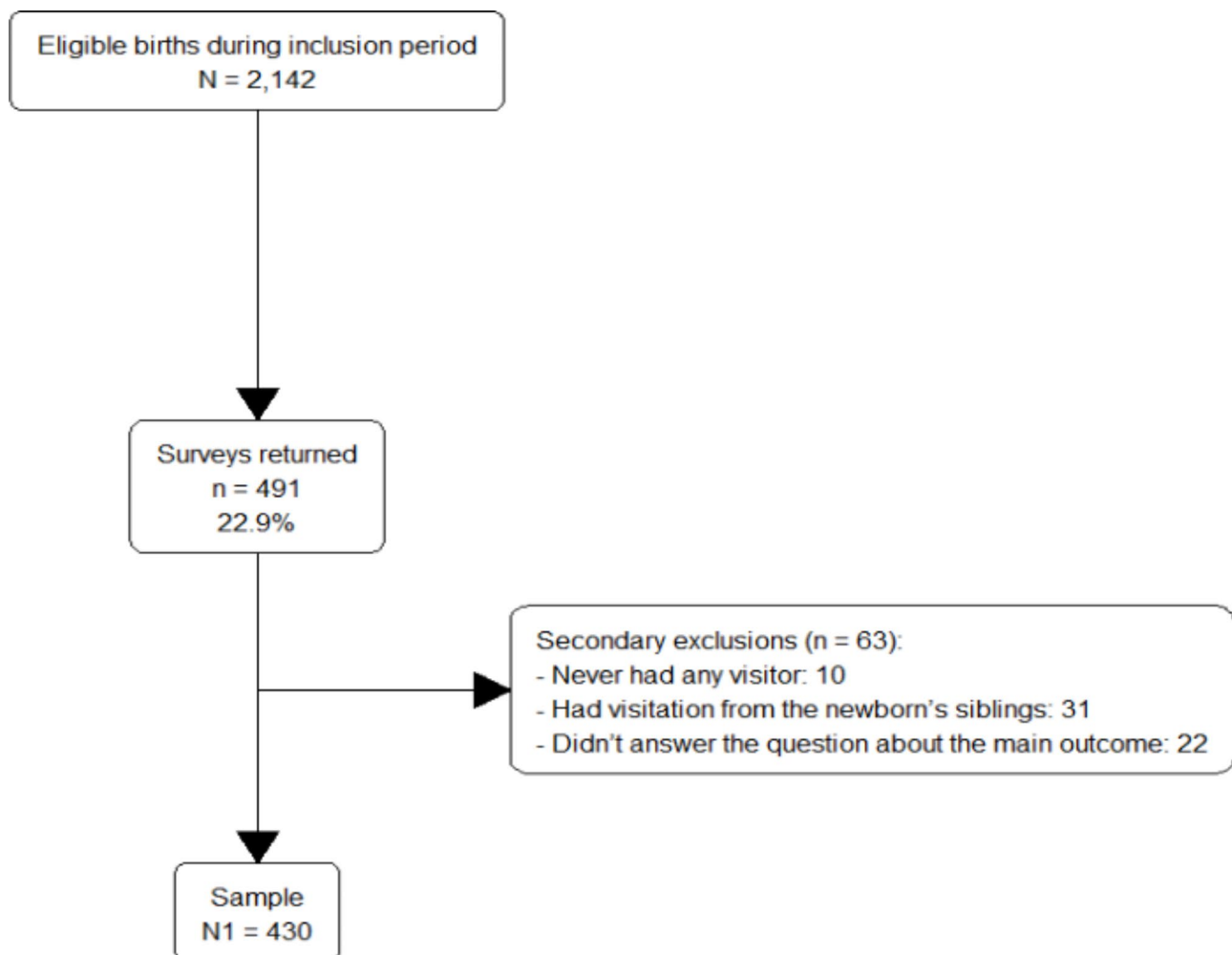
## Results

We received complete responses from 20% of the mothers who gave birth at the centres in question during the study period (Fig. 1). Their median age was 32 years, with an interquartile range of 29 to 35 years. They were predominantly from higher intellectual professions (36%),

employed (85%), coupled (95%), and living in the most privileged areas (85%; Table 1).

We received complete responses from 57% of the caregivers who worked in the maternity wards of the centres in question during the study period (Fig. 2). They were almost all female (99%), had a median age of 32 years, and worked as midwives (49%), or nurse assistants (43%; Table 2).

Regarding the main outcome, 69% (95% CI: 64–73%) of mothers claimed to be mostly or completely satisfied. The satisfaction rate was 70% among those who were breastfeeding. The factors associated with lower satisfaction among the women were the need for perineal sutures (adjusted odds ratio ORa=0.57; 95% CI, 0.36–0.89) and the restriction of a single visit from their partner per day or less (ORa=0.60; 95% CI, 0.38–0.96; Table 3). In the free comments section, the main concern about these restrictions was the absence of their newborns' siblings, as reported by 25% of mothers. The main benefit



**Fig. 1** Maternal inclusion diagramme

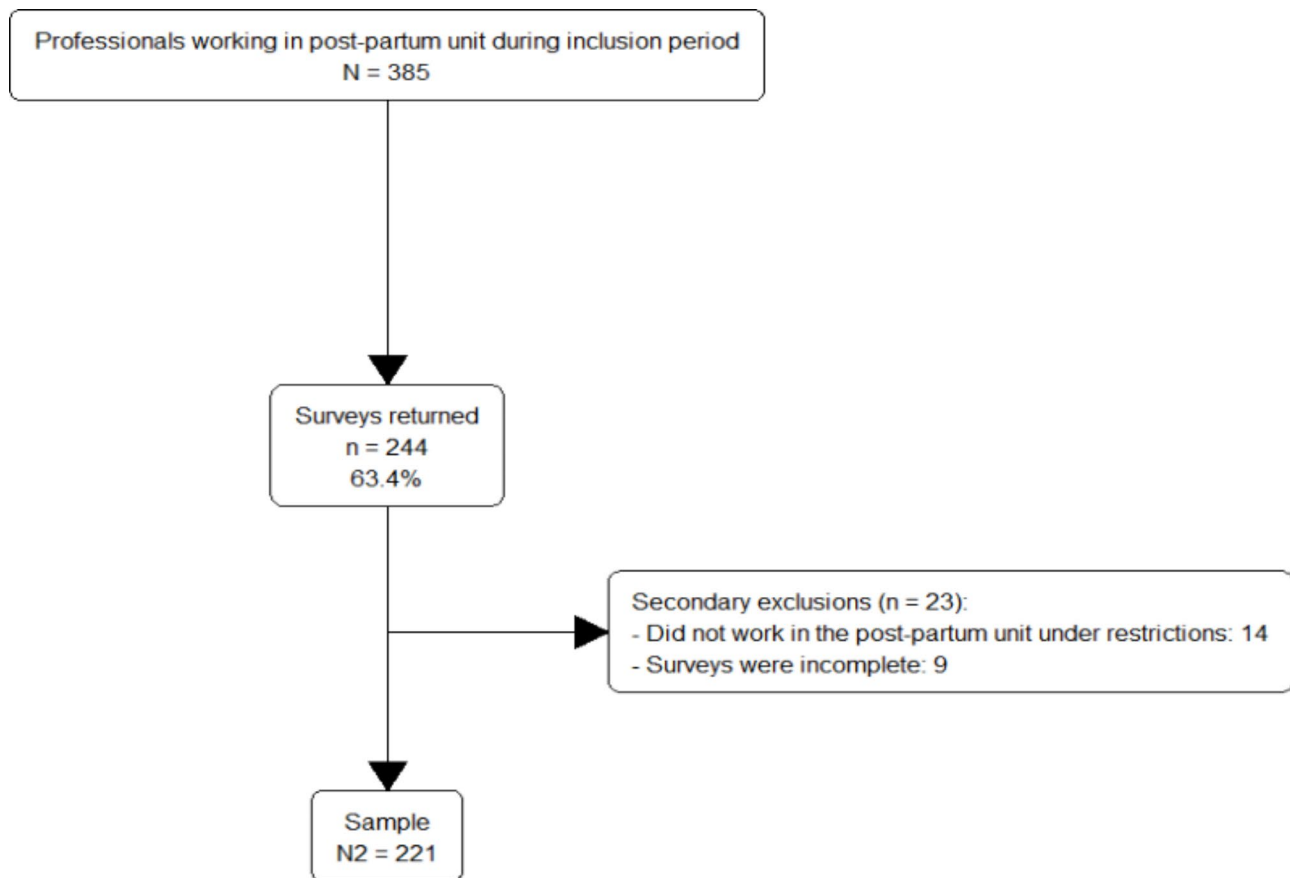
**Table 1** Characteristics of mothers and facilities

Characteristics	Respondents (N = 430)
<b>Demographics</b>	
Age – median (1st-3rd Qu.)	32.0 (29.0–35.0)
Socio-professional category – n (%)	
Higher intellectual professions (without health care)	150 (36.3)
Employees	112 (27.1)
Health care professions	61 (14.8)
Craftsmen, merchants	12 (2.9)
Social workers	11 (2.7)
Middle-level professions (without health care)	10 (2.4)
Students	10 (2.4)
Farmers	2 (0.5)
Factory workers	2 (0.5)
Others	43 (10.4)
Unknown	17
Working status, n (%)	
Employee	337 (85.3)
Unemployment	28 (7.1)
Independent worker	20 (5.1)
Student	9 (2.3)
Disability	1 (0.2)
Unknown	35
Place of residence, n (%)	
Q1-Q2 (more privileged areas)	362 (85.0)
Q3-Q4-Q5 (less privileged areas)	64 (15.0)
Unknown	4
Marital status, n (%)	
Married or in civil union	407 (94.9)
Single	21 (4.9)
Divorced	1 (0.2)
Unknown	1
Number of children before this birth, n (%)	
0	188 (43.8)
1	166 (38.7)
≥ 2	75 (17.5)
Unknown	1
<b>Satisfaction regarding visitation policy, n (%)</b>	
Very satisfied	108 (25.1)
Satisfied	188 (43.7)
Unsatisfied	107 (24.9)
Very Unsatisfied	7 (6.3)
<b>Health care facility</b>	
Centre, n (%)	
L1	66 (15.3)
L2	39 (9.1)
P1	164 (38.1)
P2	103 (24.0)
P3	58 (13.5)

reported by 8% of mothers was that their hospital stay was quieter (Appendix S4).

Regarding caregivers, 91% of them considered that the restrictions improved their work environment, and 67% of them totally agreed with this statement. Additionally,

89% of them indicated that the restrictions on visits positively influenced the initiation and support of breastfeeding among mothers during their postpartum hospital stay. The caregivers' age, duration of practice



**Fig. 2** Health care worker inclusion diagramme

(in this hospital and since their diploma), and burnout scores were not associated with their level of satisfaction (Table 4).

## Discussion

### Main findings

While the majority of mothers and caregivers reported overall satisfaction with the visit restrictions during the postpartum hospital stay, this satisfaction tended to decrease when the restrictions were more stringent with visits limited to one per day. Mothers frequently cited a quieter stay as a reason for their satisfaction, although some expressed disappointment over the absence of the newborn's siblings.

### Interpretation

Our study found that a majority of mothers were satisfied with the visit restrictions during the postpartum hospital stay, which aligns with findings from the international literature. An Australian study similarly reported that most mothers appreciated the visit restrictions, describing the experience as a rare opportunity to "just be safe in [their] own little bubble" [25]. This sentiment mirrors our own finding that 8% of mothers specifically noted

their satisfaction due to the quieter environment. Additionally, an Italian study found that the absence of visitors in the maternity wards reduced the risk of psychological distress among mothers, further supporting the idea that a calmer hospital environment can be beneficial [26]. However, our study also highlights that overly restrictive policies, such as limiting visits to a maximum of one per day, were associated with lower satisfaction levels among mothers. Notably, 14% of mothers expressed a desire for their partner to be allowed to stay overnight, and 6% requested better access for their partner in general. Moreover, 25% of mothers spontaneously expressed their regret the prohibition of visits from their newborn's siblings. This contrasts with the situation during the early stages of the pandemic, where 39% of French maternity hospitals completely banned visits, as reported in another French study [27]. It is important to note that in our study, although a majority of mothers expressed overall satisfaction when directly asked, spontaneous comments more frequently referenced negative aspects of the restrictions. This suggests that, while some mothers appreciated the quieter environment, others experienced dissatisfaction with the restrictive policies when given the opportunity to express themselves freely. Our

**Table 2** Characteristics of Health Care workers and facilities

Characteristics	Respondents (N = 221)
<b>Demographics</b>	
Age, median (1st-3rd Qu.)	32 (26–42)
Gender, n (%)	
Female	218 (98.6)
Male	3 (1.4)
Profession – n (%)	
Midwife	108 (48.9)
Nurse assistant	95 (43.0)
Nurse	10 (4.5)
Resident or OB-GYN	4 (1.8)
Other health care workers	4 (1.8)
Duration of practice (years), median (1st-3rd Qu.)	7.9 (2.9–14.5)
Duration of practice in this hospital (years), median (Q1-Q3.)	4.9 (1.9–12.0)
Unknown duration of practice	7
<b>Satisfaction regarding visitation policy, n (%)</b>	
Very satisfied	148 (67.0)
Satisfied	52 (23.5)
Unsatisfied	14 (6.3)
Very Unsatisfied	7 (3.2)
<b>Health care facility</b>	
Centre, n (%)	
L1	47 (21.3)
L2	54 (24.4)
P1	51 (23.1)
P2	25 (11.3)
P3	44 (19.9)

findings suggest that while some level of restriction may be beneficial, excessively stringent policies could negatively impact maternal satisfaction. These insights should be carefully considered in the event of future pandemics or similar public health crises.

The risk communication surrounding the COVID-19 pandemic in France was characterised by limited direct messaging to the public, with a greater focus on guidance for healthcare professionals, as outlined in the responses by the *Haute Autorité de Santé* (HAS) [28]. Studies such as those by Rousseau et al. detailed the visitation restrictions that were implemented, contributing to an overall climate of anxiety [27]. Despite this potentially stressful environment, studies have shown that antenatal anxiety and depression tend to be higher than postnatal levels, with the third trimester being particularly vulnerable, and that pregnant women in France did not experience different levels of well-being compared to non-pregnant women, as measured by the WEMWBS [29–32]. This finding suggests that the satisfaction with visitation restrictions among postpartum women in our study was not solely driven by an increased sense of security due to the pandemic. In fact, only 2% of mothers spontaneously mentioned feeling safer because of the restrictions, while 8% noted the benefit of a quieter stay. This indicates that

factors beyond safety, such as the calmer environment, may have significantly influenced their satisfaction.

### Strengths and limitations

This study is unique in France as it explores both maternal and healthcare professional perspectives on postpartum visitation restrictions during postpartum stay. A key strength lies in the inclusion of free-form comments, allowing participants to express unanticipated concerns, such as the absence of siblings, which was mentioned spontaneously by 25% of the mothers. However, several limitations should be noted. Firstly, selection bias is a potential issue inherent in survey studies. While our sample was homogeneous in terms of age and parity compared to the national French survey of 2021, there was an overrepresentation of mothers with higher educational levels (36% versus 18% in the national survey) [33]. This may have influenced the findings and suggests that our sample may not fully represent the broader population of mothers in France. Additionally, the recruitment process, focused on hospitals serving relatively homogeneous populations, may have further limited the diversity of respondents. To enhance participation from more vulnerable groups, translating questionnaires or offering financial incentives could have been considered. Secondly, social desirability bias might have influenced the

**Table 3** Determinants of mothers' satisfaction

Characteristics	Dissatisfied n = 134	Satisfied n = 296	OR (CI95)	ORa* (CI95)
<b>Demographics</b>				
Age in years, mean (SD)	31.7 (5.0)	32.3 (4.8)	1.02 (0.98–1.06)	1.02 (0.97–1.06)
Not privileged areas – Q3-Q5, n (%)	24 (17.9)	44 (14.9)	1 (ref)	1 (ref)
Residence in privileged areas (Q1-Q2), n (%)	110 (82.1)	252 (85.1)	1.25 (0.72–2.14)	1.25 (0.70–2.22)
No employment during early pregnancy, n (%)	23 (17.3)	46 (15.6)	1 (ref)	1 (ref)
Employment during early pregnancy, n (%)	110 (82.7)	248 (84.4)	1.13 (0.64–1.93)	1.04 (0.58–1.87)
<b>Current pregnancy, n (%)</b>				
Multiparous (Parous)	83 (62.4)	158 (53.4)	1 (ref)	1 (ref)
Nulliparous (Primiparous)	50 (37.6)	138 (46.6)	1.45 (0.96–2.21)	1.37 (0.89–2.11)
No antenatal hospitalisation	120 (89.6)	268 (91.2)	1 (ref)	1 (ref)
Antenatal hospitalisation	14 (10.4)	26 (8.8)	0.83 (0.43–1.69)	0.7 (0.36–1.54)
<b>Birth, n (%)</b>				
Spontaneous onset of labour	75 (57.7)	195 (67.0)	1 (ref)	1 (ref)
Labour induction	55 (42.3)	96 (33.0)	0.67 (0.44–1.03)	0.68 (0.44–1.05)
No spinal or epidural analgesia	23 (17.6)	49 (16.8)	1 (ref)	1 (ref)
Spinal or epidural analgesia	108 (82.4)	242 (83.2)	1.05 (0.60–1.80)	0.94 (0.53–1.62)
Assisted or Caesarean birth	44 (33.8)	106 (36.3)	1 (ref)	1 (ref)
Spontaneous vaginal birth	86 (66.2)	186 (63.7)	0.90 (0.58–1.38)	0.79 (0.50–1.24)
No perineal tears	39 (30.5)	122 (42.8)	<b>1 (ref)</b>	<b>1 (ref)</b>
Perineal suture	89 (69.5)	163 (57.2)	<b>0.59 (0.37–0.91)</b>	<b>0.57 (0.36–0.89)</b>
<b>Postpartum hospitalisation, n (%)</b>				
Formula feeding	36 (27.7)	68 (23.2)	1 (ref)	1 (ref)
Breastfeeding	94 (72.3)	225 (76.8)	1.27 (0.71–1.98)	1.23 (0.76–1.99)
No visit restriction	41 (30.6)	141 (47.6)	<b>1 (ref)</b>	<b>1 (ref)</b>
Restricted to one visit per day	93 (69.4)	155 (52.4)	<b>0.48 (0.31–0.74)</b>	<b>0.60 (0.38–0.96)</b>
Postpartum pain score < 5/10	50 (39.4)	134 (47.0)	1 (ref)	1 (ref)
Postpartum pain score ≥ 5/10	80 (61.1)	156 (53.4)	0.73 (0.48–1.11)	0.66 (0.42–1.01)
Postpartum exhaustion score < 5/10	20 (15.3)	66 (22.6)	1 (ref)	1 (ref)
Postpartum exhaustion score ≥ 5/10	111 (84.7)	226 (77.4)	0.62 (0.35–1.05)	0.66 (0.37–1.14)
<b>Stress and well-being</b>				
Well-being level WEMWBS, mean (SD)	52.5 (9.1)	54.9 (8.1)	<b>1.03 (1.01–1.06)</b>	1.03 (1.00–1.06)
Pandemic-related stress score < 5/10, n (%)	94 (72.3)	236 (81.7)	<b>1 (ref)</b>	1 (ref)
Pandemic-related stress score ≥ 5/10, n (%)	36 (27.7)	53 (18.3)	<b>0.59 (0.36–0.96)</b>	0.63 (0.38–1.04)

\*Adjusted odds ratios (ORa) were calculated by adjusting only for the centre effect, which was first identified through the Directed Acyclic Graph and then treated as a fixed effect in the analysis. Estimates in bold have a p-value of less than 0.05. Estimates in bold have a p-value of less than 0.05

responses, as the questionnaires, although anonymous, were completed in the hospital during the stay, which might have affected the mothers' willingness to express dissatisfaction. Moreover, while the choice of the five maternity hospitals allowed for a swift and efficient study without external funding, it does limit the generalisability of the findings. The selected hospitals provided a snapshot of practices in urban and semi-urban settings, but including smaller hospitals could have offered additional insights. Although the exact proportions observed in this study may not be generalisable, the overall finding that most mothers were satisfied with some degree of visitation restriction – albeit not overly strict – offers valuable insights. Moreover, measuring patient satisfaction (Patient Reported Experience Measures, PREM) is a challenge, especially in the context of a pandemic. To simplify

the assessment of PREM, we decided to focus on a specific aspect: satisfaction related to visitation restriction policies. The use of a Likert scale with an even number of response options required mothers to position themselves as either somewhat dissatisfied or somewhat satisfied, without the possibility of a neutral response.

#### Research and clinical implications

Our study underscores the vital role of family support in the early postpartum period, especially from partners and siblings, in enhancing the well-being of new mothers. This support often surpasses what medical care alone can provide. However, many hospital policies restrict family presence. To remedy this, a balanced approach is needed that values family support while ensuring a calm and secure environment for mothers and newborns. For

**Table 4** Determinants of Health Care workers' satisfaction

Characteristics	Dissatisfied <i>n</i> = 48	Satisfied <i>n</i> = 173	OR (CI95)	ORa* (CI95)
<b>Demographics</b>				
Age in years, <i>mean</i> (SD)	34.8 (8.0)	34.8 (10.1)	1.00 (0.97–1.03)	0.96 (0.90–1.03)
<b>Professional activity</b>				
Duration of practice in years, <i>mean</i> (SD)	10.0 (8.2)	10.6 (9.4)	1.01 (0.97–1.05)	1.08 (0.97–1.13)
Duration of practice in hospital, <i>mean</i> (SD)	7.7 (7.4)	7.5 (7.0)	1.00 (0.95–1.05)	1.00 (0.90–1.03)
<b>Stress and well-being</b>				
Exhaustion level, <i>n</i> (%)	13 (27.1)	64 (37.0)	1 (ref)	1 (ref)
Low	16 (33.3)	54 (31.2)	0.69 (0.30–1.55)	0.73 (0.30–1.75)
Moderate	19 (39.6)	55 (31.8)	0.59 (0.26–1.29)	0.60 (0.24–1.47)
High				
Depersonalisation level, <i>n</i> (%)	20 (41.7)	84 (48.6)	1 (ref)	1 (ref)
Low	16 (33.3)	58 (33.5)	0.86 (0.41–1.82)	0.82 (0.37–1.85)
Moderate	12 (25.0)	31 (17.9)	0.62 (0.27–1.43)	0.43 (0.17–1.11)
High				
Personal accomplishment level, <i>n</i> (%)	22 (45.8)	76 (43.9)	1 (ref)	1 (ref)
High	13 (27.1)	41 (23.7)	1.25 (0.58–2.74)	0.96 (0.42–2.26)
Moderate	13 (27.1)	56 (32.4)	0.91 (0.42–2.04)	1.29 (0.57–3.05)
Low				

\*Adjusted odds ratios (ORa) were calculated by adjusting for age, gender, duration of practice, and the centre effect, which was first identified through the Directed Acyclic Graph (DAG) analysis and then treated as a fixed effect in the model

Estimates in bold have a p-value of less than 0.05

example, adopting flexible visiting hours and enabling co-parent overnight stays, as seen in Scandinavian hospitals, can significantly improve the postpartum experience [34].

Although the length of stay was not a direct focus of this study, it is worth considering that the relatively long average postpartum hospital stay in France, which is approximately 4 days, could intensify the impact of visitation restrictions [12]. While longer stays could increase the risk of dissatisfaction under restrictive policies and the risks of hospital-acquired infections, they may also provide valuable time for breastfeeding support and adaptation to the new situation [35]. In contrast, several OECD countries report shorter postpartum stays, averaging around 3 days, highlighting a potential area for policy reassessment in France [12]. By promoting earlier discharge combined with enhanced home-based midwife support, healthcare providers could offer a more comfortable, personalised, and secure postpartum experience, mitigating the negative effects of extended hospitalisation under restricted visitation policies.

## Conclusions

The majority of mothers and caregivers were satisfied with the maternity visit restrictions, especially as the mothers' partners were authorised to visit. In light of these results, caregivers should reconsider the visiting policy during postpartum stay, the length of stay, and co-parent overnight stay so as to help every maternity unit provide the best environment to mothers and their newborns.

## Supplementary Information

The online version contains supplementary material available at <https://doi.org/10.1186/s12884-024-06854-9>.

Supplementary Material 1

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## Author contributions

SL, AR, and LG participated in the study conceptualisation, methodology, formal analysis, investigation, visualisation, and project administration. LM and MC contributed significantly to the participant inclusions, coordination of the study, and reviewed the manuscript. SL drafted the first version of the manuscript. AR and LG reviewed and edited the manuscript.

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Not applicable.

## Data availability

The datasets generated and analysed during this study are not publicly available due to privacy and ethical concerns. The data contain sensitive information obtained from participants who have not consented to public sharing. Therefore, in compliance with our ethical obligations and to respect the privacy of our participants, the data cannot be made openly accessible. However, the datasets are available from the corresponding author upon reasonable request and subject to necessary approvals and data protection protocols. We ensure that any data provided will be de-identified to maintain participant confidentiality.

## Declarations

### Ethics approval and consent to participate

Individual informed consent was obtained from all subjects. Individual consent was specifically gathered from each participant, ensuring their understanding and willingness to participate. The questionnaire used was anonymous, and participants were informed that they could withdraw their consent and discontinue participation at any time. At the beginning of the

questionnaire, detailed information was provided, including the objectives of the study, the estimated duration of the survey, data storage details (location and duration), investigator identities, the registered number of the Ethics Committee, and the procedure for submitting objections to the research to national authorities. No incentives were offered for participation. This study received ethics approval from the Ethics Committee of the *Hospices Civils de Lyon* (number 21–128 dated 8th June, 2021) and was registered with the *Commission Nationale de l'Informatique et des Libertés* (CNIL, MR-004 number 2222367 dated 17th May, 2021). The procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation and with the Helsinki Declaration of 1975, as revised in 2000.

#### Consent for publication

As our study does not include any details, images or videos about an individual person, consent for publication is not applicable. As mentioned in the previous paragraph, consent to collect, analyse and publish the results was obtained from each participant prior to data collection.

#### Competing interests

The authors declare no competing interests.

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