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Adaptation of independent midwives to the COVID-19 pandemic: A national descriptive survey

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ABSTRACT

Objective: : The main objective of this survey was to identify how independent midwives, mainly working in primary care, adapted their practices at the beginning of the COVID-19 pandemic in France. Our assumption was that this practice adaptation would vary according to both geographical area (timing of pandemic effect) and whether they practiced alone or in a group.

Design: We conducted an online national survey of independent midwives in France from March 16–23, 2020.

Setting: All districts in mainland France and the overseas territories.

Participants: Respondents from the population of all independent midwives working in France.

Measurements and findings: The primary outcome measure was the proportion of midwives reporting that they had adapted their practices to the context of the COVID-19 pandemic, and the rank, in order of frequency, of the postponed or cancelled activities.

Results: : Of the 1517 midwives who responded, i.e., 20.3% of the independent midwives in France, 90.6% reported adapting one or more of their practices . The main adjustment was the postponement or cancellation of consultations deemed non-essential, listed in descending order: postpartum pelvic floor rehabilitation (n = 1270, 83.7%), birth preparation (n = 1188, 78.3%), non-emergency preventive gynaecology consultation (n = 976, 64.3%), early prenatal interview (n = 170, 11.2%), and postnatal follow-up (n = 158, 10.4%).

Key conclusions: Without guidelines, each midwife had to decide individually if and how to adapt her practice. Postpartum pelvic floor rehabilitation and birth preparation have been strongly affected. The results of this national survey indicate that a large majority of midwives have adapted their practices, independently of the local course of the pandemic, and that this reduction of contacts with women raises questions in this period of anxiety about intermediate-term adaptations to guarantee the continuity and safety of care.

Implications for practice: This study's results can be used to develop tools to handle cancelled consultations. Video, also called virtual, visits and coordination between independent practitioners and hospitals are probably the major challenges in the current context.

Introduction

On December 31, 2019, the World Health Organization (WHO) issued an alert about several cases of pneumonia in the city of Wuhan in China (Huang et al., 2020; WHO, 2020a). On January 7, 2020, the Chinese authorities confirmed that these cases were caused by a new virus of the coronavirus family. On January 29, France officially notified WHO of four confirmed cases of COVID-19 (WHO, 2020b). On March 1,

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France had more than 5000 confirmed cases, and on March 16, the government closed all schools before confining (locking down) the entire population except for essential workers on March 17 (WHO, 2020c).

Few studies thus far have reported the impact of coronaviruses during pregnancy, and they are all case reports or series (H. Chen et al., 2020). To the best of our knowledge, there are currently no data on first trimester COVID-19 infections, and the morbidity and mortality associated with this disease remain uncertain. Nevertheless, since the immune system of the pregnant woman is compromised, we might expect an equally impaired response to viral infection. The Chinese series showed an increase in preterm births for women with COVID-19, but it is unclear how many of these preterms births were iatrogenic and how many spontaneous. (L. Chen et al., 2020).

Despite the lack of evidence, and in accordance with the precautionary principle, various professional societies have proposed guidelines aimed at limiting the risk of contamination (RCOG, 2020; CNGOF, 2020; ACOG, 2020; Favre et al., 2020). These guidelines differ between countries; for example, the RCOG recommends separating mother and child at birth in the case of a coronavirus-infected mother, whereas the French prefer they not be separated (CNGOF, 2020; Ioannidis, 2020).

Faced with this pandemic of uncertain consequences for the pregnant woman, and with guidelines changing daily as new data are reported, we wondered how primary-care pregnancy professionals are adapting their practices to limit the risk of contamination while ensuring continuity of care.

In France, the activities that midwives can perform are specified by statutes and regulations (1.Public Health Code, 2020; 2.Public Health Code, 2012). Independent midwives are authorised to monitor healthy pregnancies and offer birth preparation. They can also provide postpartum follow-up care for mothers and newborns, practice postpartum pelvic floor rehabilitation, and prescribe and practice vaccinations of mothers and newborns and anyone living in their household. Midwives are authorised to perform preventive gynaecological monitoring, prescribe contraception, and terminate pregnancy by medical methods. Apart from their medical skills and trained judgement, independent midwives are involved in primary care and thus have a key role in prevention and in informing women.

The main objective of this survey was to identify how independent midwives, who work mainly in primary care, modified their practices at the beginning of the pandemic in France. Our assumption was that this practice adaptation would vary according to both geographical area (timing of pandemic effect) and whether they had a solo or group practice. Secondary objectives were to understand their office organisation and to quantify the amount of protective equipment available to them.

Material and methods

Screening and recruitment

This descriptive cross-sectional survey using an on-line questionnaire took place from March 16 to March 23, 2020. All participants included in the survey were independent midwives working in France.

The link to the survey was distributed by email and Twitter to all independent midwives who had signed up to receive news from the French national college of midwives (Collège National des Sages-Femmes de France) and the French union of midwives (Organisation nationale syndicale des sages-femmes).

Survey instrument

The survey was adapted from a questionnaire aimed at general practitioners and designed on the basis of information from an expert group working on COVID-19 guidelines for outpatient care (Haut Conseil de la Santé Publique, 2020). The questionnaire was then reworked in a multiprofessional setting with the Accord group (a multi-professional group whose objective is to Assemble, Coordinate, Understand, Research, Debate in Primary Care). It was tested with 10 midwives to verify the clarity of the questions and its reliability.

The midwives received a link to a self-administered questionnaire with closed-ended questions and one open-ended questions (Appendix 1).

The survey included 28 questions, 7 of which focused on the midwives' characteristics (i.e., age, sex, practice setting: solo or group, and if the latter, if the others were all also midwives or if it was a multiprofessional medical office); 8 concerned modifications of their office organisation (i.e. secretarial work, number of and distance between patients in the waiting room, children in the waiting room, communications that others could hear or see) and adaptation of practices concerning postponed or cancelled activities. Of these 8 questions, 7 were closed-ended questions and one was an open-ended question allowing participants who answered that they had cancelled or postponed an activity to specify which ones. Finally, 13 questions covered the various protective equipment available and procedures in use (i.e. hand washing, masks, medical gowns, protective eyewear, and non-contact thermometers). Midwives were also asked if they would like to be authorised to perform virtual visits, as they were not allowed to do so at the time of the survey.

Measures and definitions

The primary outcome was the proportion of participant midwives who reported cancelling or postponing one or more of the activities they practiced. It was obtained by the closed-ended question "Since the beginning of the epidemic, have you changed practices?" The primary outcome was clarified with the rank, in descending order of frequency, of the postponed or cancelled activities. It was obtained by the open-ended question asking for a list of the activities they had cancelled or postponed. Two co-authors (AR and SB) independently conducted the content analysis of the open-ended questions. They classified responses by themes; discrepancies were analysed and resolved through discussion. The secondary outcomes were: 1) office adaptations (3 questions), and 2) protective equipment available (5 questions).

Statistical analysis

Qualitative variables were described with numbers and percentages, with proportions compared with the Chi-2 or Fisher exact test, as appropriate. Percentage were calculated for available data. Quantitative variables were described by their means and standard deviations, or by their medians and interquartile ranges, as appropriate.

To overcome response bias and on the assumption that geographic area may play a role in the adaptation of midwives' practices, we describe both raw and weighted midwives' characteristics. Weighting is based on the proportion of midwives who responded per administrative district amongst the number of independent midwives registered in that district according to the National Council of the Order of Midwives (Conseil National de, 2020).

We first calculated the percentage of midwives reporting that they adapted at least one of the activities of their practices to the context of the COVID-19 pandemic. Secondly, we calculated the percentage of midwives reporting that they adapted each specific activity of their practice. Lastly, we described office adaptations and protective equipment available, again with raw and weighted data. The 95% confidence intervals (95% CIs) of these percentages were calculated by the exact binomial method, for raw and weighted data. Next, from the sample of observed (raw) data, we compared the various aspects of these modifications according to whether the midwives had solo practices or worked in a group office and according to whether their district was affected by the pandemic early or later on. The early pandemic area was defined as districts with a ratio of more than 2 deaths per 100,000 residents on March 23, 2020, according to Santé Publique France (Santé

Table 1
Midwives' characteristics.

		Unweighted result	Weighted result
		N = 1517	*N* = 1494
Age (years), mean +/- SD		40.7 +/−10.3	40.2 +/- 24.5
Gender, n (%)	Female	1469 (96.9)	1441 (96.5)
Medical office, n (%)	Group practice	705 (46.5)	700 (46.9)
Medical office, n (%)	Multiple medical / paramedical professionals	384 (25.3)	387 (25.9)
Early pandemic area, n (%)		609 (40.1)	543 (36.3)

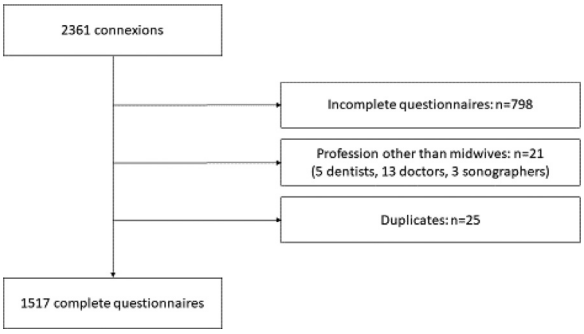

Fig. 1. Flow chart.

Publique France, 2020). Finally, we used a multivariate analysis to look at the factors predictive of modifications of professional activities, again from observed data. Adaptation of activities was defined by the postponement or cancellation of at least one of the types of professional activities they practiced (i.e., pelvic floor rehabilitation, birth preparation, non-emergency preventive gynaecology consultation, early prenatal interview, postnatal follow-up). All independent variables (i.e., age, gender, office type, early pandemic district) with $p < 0.20$ were included in the multivariate model. Odds ratios (ORs) and their 95% CIs were estimated.

All statistical tests were two sided, and $p<0.01$ was considered statistically significant, in view of the number of statistical tests carried out. Statistical analysis was conducted with R 3.6.2.

Results

As the flow chart shows (Fig. 1), complete responses were received from 1517 participants, i.e., 20.3% of French independent midwives (n = 7478, L. CNOSF, 2020). Table 1 summarises their characteristics. The raw and weighted descriptions were relatively similar, except for those in early pandemic areas. All mainland districts were represented except Vienne, and the distribution according to the number of independent midwives in each district was fairly homogeneous.

. Responses to the question concerning our main objective showed that almost all midwives (90.6%) have modified their activities, by cancelling or postponing at least one type; this finding did not differ according to type of practice (solo vs group) or geographical area (early vs later pandemic). Cancelled or postponed activities identified by the open-ended question were, listed in descending order: postpartum pelvic floor rehabilitation (n = 1270, 83.7%), birth preparation (n = 1188, 78.3%), non-emergency preventive gynaecology consultation (n = 976, 64.3%), early prenatal interview (n = 170, 11.2%), and postnatal follow-up (n = 158, 10.4%). Similarly, most midwives have changed their organisation of their office; patients encounter one another significantly less often in solo practitioners' offices (75.8% versus 50.9%, $p<0.001$), and the proportion of midwives who closed their offices was lower amongst those in group practice. There were significantly more e-mail responses to women in early pandemic districts (37.4% versus 30.0%, p = 0.003). Table 2 describes the total raw (n = 1517) and weighted (n = 1494) adaptations of activities and office organisation. Note that the subgroup analysis is reported only for observed data (n = 1517): solo versus group practice and early versus later pandemic development.

Three-quarters of midwives had masks (n = 1136, 74.9%), half of them had hand sanitizer available for women (n = 935, 61.6%), but few had medical gowns (n = 237, 15.6%) or protective eyewear (n = 118, 7.8%).

Overall, 1356 (89.4%) midwives wanted to be able to perform video visits. As shown in Table 3, the only factor predicting the adaptation of activities was age, after adjustment for gender and type of practice (solo or group); midwives aged 45 years or older were less likely to have modified their activities (adjusted OR: 0.53, 95% CI [0.37; 0.75]).

Discussion

Main findings

Independent midwives have adapted their practices, especially by cancelling or postponing non-urgent consultations and activities (gynaecology: 64.3%, birth preparation: 78.3%, pelvic floor rehabilitation: 83.7%). They reorganized the flow of patients in their offices (to prevent women from contact with others in the waiting room and by forbidding the presence of children). These adjustments were more frequent for midwives working in solo practices than for those in a group office with other professionals. Ten percent of respondents closed their practices, and the percentage was again higher for those in solo practice. Most midwives answered questions and provided advice to women by telephone or videoconference. However, many independent midwives reported they did not have a sufficient quantity of protective equipment: some had masks (74.9%) and hand sanitizer for patients (61.6%); very few of them had medical gowns (15.6%) or protective glasses (7.8%).

Strengths and limitations

Our survey is a 20.3% sample of the population of all French independent midwives (L. CNOSF, 2020), with homogeneous geographical coverage and including all but one French district. The weighting applied was based on the assumption of differential response rates by districts. This enabled us to consider the higher response rate in early pandemic districts (unweighted percentage 40.1% versus 36.3% weighted).

It has however some limitations. First, the responses are based wholly on self-report. Second, the midwives who participated in our survey were probably those most interested in the topic, and those who were best informed, since they follow news from the CNSF or ONSSF. Moreover, midwives in early pandemic zones were more likely to respond and probably also more likely to have modified their practices, which could have resulted in an overestimation of the adaptation of practices in our sample. Finally, each midwife is likely to have different proportions of clinical activities, including some with none of one kind or another: some may not practice an activity at all (before and during the COVID-19 pandemic) that others reported cancelling or postponing; as a result our percentages might be underestimated, because this percentage is calculated over the total number of answers collected. Thus, it is not possible for us to interpret non-responses.

Table 2
Description of midwives' adaptation.

	Raw description $N = 1517$ n (%)	Weighted description $N = 1494$ n (%)	Solo $N = 812$ n (%)	Group $N = 705$ n (%)	p	Later pandemic area $N = 885$ n (%)	Early pandemic area $N = 609$ n (%)	P
Adaptation of medical activities (cancelled or postponed activities)								
pelvic floor rehabilitation	1270 (83.7)	1258 (84.2)	690 (85.0)	580 (82.3)	0.18	759 (85.8)	494 (81.1)	0.02
birth preparation	1188 (78.3)	1165 (78.0)	621 (76.5)	567 (80.4)	0.07	693 (78.3)	481 (79.0)	0.80
non-emergency preventive gynaecology consultations	976 (64.3)	978 (65.5)	519 (63.9)	457 (64.8)	0.75	600 (67.8)	370 (60.8)	**0.006**
early prenatal interview	170 (11.2)	156 (10.4)	84 (10.3)	86 (12.2)	0.29	86 (9.7)	83 (13.6)	0.02
postnatal follow-up	158 (10.4)	150 (10.0)	80 (10.0)	69 (9.8)	0.44	90 (10.2)	69 (11.3)	0.53
At least one of the above adaptations	1375 (90.6)	1364 (91.3)	731 (90.0)	644 (91.3)	0.43	812 (91.8)	545 (89.5)	0.16
Adaptation of office								
women do not meet in the waiting room	893 (58.9)	872 (58.4)	534 (75.8)	359 (50.9)	**<0.001**	531 (60.0)	351 (57.6)	0.39
children not allowed in the waiting room	1188 (78.3)	1175 (78.6)	639 (78.7)	549 (77.9)	0.74	708 (80.0)	460 (75.5)	0.05
increased phone use to answer questions	1199 (79.0)	1174 (78.6)	631 (77.7)	568 (80.6)	0.19	695 (78.5)	487 (80.0)	0.54
increased email use to answer questions	500 (33.0)	482 (32.3)	248 (30.5)	252 (35.7)	0.04	265 (30.0)	228 (37.4)	**0.003**
closed office	177 (11.7)	158 (10.6)	115 (14.2)	62 (8.8)	**0.002**	99 (11.2)	77 (12.6)	0.44
At least one of the above adaptations	1465 (96.6)	1444 (96.7)	789 (97.2)	676 (95.9)	0.22	855 (96.6)	589 (96.7)	1
Protective equipment available								
masks	1136 (74.9)	1119 (74.9)	606 (74.6)	530 (75.2)	0.85	655 (74.0)	467 (76.7)	0.27
hand sanitizer for women	935 (61.6)	905 (60.6)	493 (60.7)	442 (62.7)	0.46	533 (60.2)	391 (64.2)	0.13
medical gown	237 (15.6)	228 (15.3)	121 (14.9)	116 (16.5)	0.45	137 (15.5)	97 (15.9)	0.87
protective eyewear	118 (7.8)	123 (8.2)	65 (8.0)	53 (7.5)	0.80	65 (7.3)	53 (8.7)	0.39
non-contact thermometer	359 (23.7)	355 (23.8)	189 (23.3)	170 (24.1)	0.75	188 (21.2)	171 (28.1)	**0.003**

Table 3
Multivariate predictors of midwives' adaptation*.

	Adaptation of medical activities			
	n (column%)	n (row%)	Crude OR (95% CI)	Adjusted OR (95% CI) **
	n = 1517	*n* = 1375		
Age		***		
≤45years	1012 (66.8)	936 (92.5)	**1**	**1**
>45years	502 (33.2)	437 (87.1)	**0.55 [0.38; 0.78]**	**0.53 [0.37; 0.75]**
Gender:		***		
Female	1469 (96.9)	1334 (90.8)	1	1
Male	47 (3.1)	40 (85.1)	0.57 [0.27;1.43]	0.46 [0.21;1.15]
Office practice:				
Solo	812 (53.5)	731 (90.0)	1	
Group	705 (46.5)	644 (91.3)	1.17 [0.83; 1.66]	
Office:				
Midwives only	1133 (74.7)	1033 (91.2)	1	
Multiple medical/ paramedical professionals	384 (25.3)	342 (89.1)	0.79 [0.54; 1.16]	
Crisis area		***		
Later pandemic area	885 (59.2)	812 (91.8)	1	1
Early pandemic area	609 (40.8)	545 (89.5)	0.77 [0.54; 1.09]	0.77 [0.54; 1.10]

*overall observed sample (*n* = 1517).
**multivariate logistic regression adjusted for age, gender, and pandemic timing.
***p <0.20 (chi-2 test or Fisher exact test as appropriate).
Values in bold are statistically significant.

Interpretation

At the beginning of the pandemic and early during confinement, we observed that some non-urgent activities were postponed or cancelled: postpartum pelvic floor rehabilitation (83.7%), birth preparation (78.3%), and non-urgent preventive gynaecology consultations (64.3%). Without guidelines, each midwife had to decide individually which activities she considered to be non-essential, or at least non-urgent. The postponement of birth preparation is worrisome, because these appointments provide an important opportunity for midwives to detect and support maternal mental fragility, especially as a Chinese study has shown that young adults are the most susceptible to anxiety in this pandemic period (Huang et Zhao, 2020). It is important to remember that maternal mental disorders are associated with adverse outcomes, both somatic and psychological, for both mother and child (Oates et al., 2003; Stein et al., 2014). Another source of concern is repercussions due to lack of screening on the removal of breast and cervical cancers and on the management of interruptions of pregnancy. As this pandemic and its consequences continue to spread without any certainty about when it will end, these cancellations unfortunately may contribute to a reduction in the availability of care, without alternatives possible. A few days after our survey closed, several associations issued recommendations to help independent midwives and enable a collective adaptation of practices in the face of the virus, (L. CNSF, ANSFL, ONSSF, 2020). The HAS (Haute Autorité de Santé, equivalent of NICE in France) issued recommendations on March 30 (HAS, 2020). All recommend maintaining accessibility and continuity of care for pregnant women, with priority to video or virtual visits whenever possible.

In the survey, 89.4% of midwives reported they wanted to have these visits not only to maintain their activity but also to ensure close follow-up of women. Since March 20, midwives have been authorised to perform — and reimbursed for — these visits. It would be interesting to know what use they make of it and if they have adapted their activity. Telemedicine by virtual visits should help midwives to keep in regular contact with women and to reduce their patients' anxiety and stress in the current situation (Rashidi Fakari and Simbar, 2020). Regarding prevention, we observed that midwives were rigorous in washing their hands (100% reported they do so between each patient), but some lacked some protective equipment. Hand washing is one of the most important barrier measures of prevention (Lotfinejad et al., 2020). The lack of available protective equipment remains a major difficulty for professionals; only 6 masks per week were available in French pharmacies for midwives from the beginning of the crisis until mid-June. In this respect, the rights that WHO recommends be accorded for health workers (WHO, 2020d) have been undermined. Access to protective equipment is crucial to ensure the safety and quality of care, and to prevent transmission of the virus to and via professionals. This lack of materiel may be one of the causes for the cancellation of some activities and may therefore have contributed to a decrease in the availability of care.

As mentioned above, we observed that it was easier in solo practice to prevent patients from meeting each other in the waiting room but solo practitioners were also obliged to close their offices more often. This suggests that it may be more difficult to modify activity within offices that are multi-professional or in group practices. On the other hand, we did not explore other potential adaptations, such as greater distance between chairs and specific pathways for COVID-19 patients, which also exist in those practices. Video and home visits appear to be good alternatives to avoid higher risks of contamination due to unnecessary social meeting. Nevertheless, compliance with the barrier rules is difficult to implement during home visits without sufficient protective equipment (masque, gown, etc.).

Perspectives

Our survey was conducted before the publication of guidelines. A new survey should take place to assess subsequent adjustments, especially with the use of video visits. We are entering a long outbreak period, which will require sustainable adaptations of primary care services to maintain accessibility and continuity of care while protecting patients and providers from COVID-19 disease. It would also be interesting to see the adaptations by midwives and other perinatal health professionals elsewhere.

Implication for practices/conclusions

French independent midwives have strongly modified their practices to adapt to the pandemic without waiting for guidelines; this was especially true for the youngest of these professionals and for those in areas where the pandemic struck early. This study had important practical implications; on the basis of these data, the CNSF alerted the public authorities, who revised regulations rapidly to enable midwives to participate in telemedicine. The CNSF also produced its own guidelines for independent midwives before it was requested to do so by the HAS. However, the reduction of contacts with pregnant women and young mothers is

worrisome. Evaluation and support for women's mental health during this period of lockdown remains a major concern for which we lack data.

Video visits and improved coordination between private practitioners and hospitals are probably major challenges in the current context.

Ethics approval

The questionnaire was anonymous. Participants gave their consent by participating in the study, which they were able to stop at any time to withdraw permission. The objective of the study was clearly stated at the beginning of the questionnaire. This study was appoved by the National Data Protection Authority: 'Commission Nationale de l'Informatique et des Libertés', 13 March 2020 (CNIL, number 2,217,247).

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Clinical trial registry

None

Declaration of Competing Interest

The authors certify that they have NO affiliations with or involvement in any organisation or entity with any financial or non-financial interests in the subject matter of this article.

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Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.midw.2020.102918.

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