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Pregnant women's perceptions of antenatal care in a specialised mobile health unit (Opti'care) in rural municipalities: the PERCEP'Care qualitative study

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Research Article

Keywords: Perceptions, pregnant women, Health promotion, Prevention, Mobile health unit, Antenatal care

Posted Date: January 22nd, 2026

DOI: https://doi.org/10.21203/rs.3.rs-8114884/v1

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Additional Declarations: No competing interests reported.

Version of Record: A version of this preprint was published at BMC Pregnancy and Childbirth on September 4th, 2026. See the published version at https://doi.org/10.1186/s12884-026-09913-5.

Abstract

Background

This study is a component of the Opti'care project — a mobile clinic intended for pregnant women living in remote rural municipalities covered by the regional of Auvergne perinatal network to promote their access to antenatal care throughout pregnancy. To characterise the favourable and unfavourable perceptions of women using the Opti'care services in phase 1 (trimester 1), phase 2 (trimesters 2 and 3) and phase 3 (≥ 6 weeks postpartum).

Methods

This study was cross-sectional and qualitative. It took place among pregnant and postpartum women using the Opti'care mobile clinic in 4 French districts in the region of Auvergne-Rhône-Alpes (AURA, France. Semi-directive interviews using the e.Photoexpression© tool as support were conducted to obtain the perceptions of pregnant women about the services provided by Opti'care at each phase of the study. The qualitative analysis of the data was performed by categorising the units of meaning derived from the content analysis. We conducted a statistical analysis of this categorisation.

Results

The results of this study allowed us to model the perceptions of 50 pregnant women about the Opti'care services through the analysis of 35 dimensions: 19 dimensions of favourable perceptions and 16 dimensions of unfavourable perceptions. We observed changes in these perceptions across the 3 phases. In phase 1, the women's discourse focused mostly (80%) on the proximity of access to care. During phase 2, they mentioned in priority (49%) the team's positive personal and human qualities. In phase 3, they spoke most about the quality of the follow-up, which was appropriate to their needs (59%). The unfavourable perceptions were associated mainly with the fears linked to their lack of knowledge about this mobile clinic at the beginning of the pregnancy; these faded over time and were not replaced by any other unfavourable feelings.

Conclusions

This study revealed that the multidisciplinary support provided by the Opti'care programme offered an individualised and personalised follow-up, focused on the real needs of the pregnant women living in rural municipalities and thus responded to this major public health issue.

Trial registration :

The Patient Protection Committee North-West II approved this study on February 04, 2021 (IRB 2020-A02247-32). The protocol was registered as Clinical Trial NCT04823104 on March 30, 2021. All women included in the study consented in writing to participate.

BACKGROUND

Management of mother and child must be based on evidence-based medical care and the organisation of screening that enables risk situations to be identified from early in pregnancy. Nonetheless, the resources available vary widely, especially for inhabitants of rural areas increasingly deserted by — and thus distant from — medical professionals and medical facilities able to provide them with appropriate care.

Rural residence thus appears to be a vulnerability factor among pregnant women by making their antenatal (and postpartum) care more complicated. The distribution of maternity units across France, as elsewhere, is unequal and inequitable, with specialised services often located in large cities and thus requiring long travel times and the need to give birth far from the family home [1, 2]. Moreover, the risk of maternal death or severe maternal disease is higher among women living in rural areas [3, 4]. Inadequate clinical monitoring of pregnancy prevents early screening for and management of the most frequent diseases and may thus lead to aggravation of the mother's health status and a higher risk of severe maternal morbidity [3, 5].

The consequences of this poor antenatal care have also been measured by newborns' health status. The children of women in rural areas are at higher risk being born preterm or in a hospital providing an inappropriate level of care, with poor adaptation at birth as well as a higher risk of macrosomia [3, 5–7]. These risks increase with how isolated the residence is [8]. Recent studies have shown that a distance between home and health-care facility of more than 30 minutes is associated with an increased risk of complications during pregnancy or delivery that affect the health of mother and child [9, 10]. Auvergne contains 220 municipalities meeting the criteria for a medical desert and more than 400 women living in them are pregnant every year [11].

The Auvergne perinatal network therefore set up a solution for mobile consultations facilitating antenatal care as near as possible to women's homes for those living in remote areas: the Opti’care project. The project uses a truck equipped for obstetric consultations, with an ultrasound device, an examination table, an instrument for monitoring fetal heart rate, and the equipment and supplies needed to take samples for laboratory testing, etc.) as well as the staff necessary to use the equipment and provide care for the women. This new organisation of care should make it possible to optimise the accessibility of appropriate antenatal care to women via this mobile care infrastructure that can go as close as possible to the areas of residence of the women in Auvergne who need it.

This process of optimising pregnant women's health care pathway requires that we be able to measure the levels of adherence and of satisfaction of the women participating in this programme. An essential prerequisite to this measurement is that we accord importance to the conceptions that allow us to

understand how populations perceive the world that surrounds them [12, 13]. These conceptions together comprise the ideas and knowledge that enable individuals to describe not only their health but also what determines their health from a biopsychosocial perspective [14, 15]. Investigating conceptions in health remains a complex process and a true research challenge especially as the settings of life are constantly evolving [16].

The principal objective of our study was to identify the favourable and unfavourable perceptions women formed about the Opti'care programme during the antenatal portion of their pregnancy (phase 1 being trimester 1, and phase 2, trimesters 2 and 3), and in the postpartum period (phase 3: ≥ 6 weeks postpartum). The secondary objectives were to describe the course of the favourable and unfavourable perceptions that these women had during each of these phrases about the mobile clinic and to measure the changes in their perceptions of the levers needed for a healthy pregnancy.

METHODS

Aim

To characterise the favourable and unfavourable perceptions of women using the Opti'care services in phase 1 (trimester 1), phase 2 (trimesters 2 and 3) and phase 3 (≥ 6 weeks postpartum).

Study design

This is a qualitative cross-sectional study of women during pregnancy and postpartum.

Population

Inclusion criteria

Women seen by a perinatal professional at their first consultation to confirm their pregnancy were eligible if they lived in one of the municipalities considered to be geographically vulnerable, that is, requiring a half hour or more of travel time to a facility or professional able to provide antenatal care. They had to understand, read and speak French and be able to provide informed consent to participate in this study.

Exclusion criteria

Women residing in Auvergne but in a municipality not receiving the Opti'care intervention were excluded, as were those women living outside the region seeking care for an obstetric emergency and those wanting to give birth in a maternity ward outside the region of Auvergne.

Description of Materials

This study was conducted as part of the Opti'care mobile clinic intervention in the 4 districts (*départements*) of Auvergne: Allier, Cantal, Puy-de-Dôme and Haute-Loire. Auvergne is one part of the Auvergne-Rhône-Alpes region (AURA, France). AURA had 8.1 million inhabitants on January 1, 2020, but Auvergne accounted for only 1,368,667 of them in 2021 (Allier: 334,872; Cantal: 144,226; Haute-Loire: 227,284; and Puy-De-Dôme: 662,285). There are 10 hospital maternity units (1 Level III, 6 Level II, and 3 Level I) in Auvergne, 3 perinatal centres, and more than 100 perinatal health-care professionals in private practice, all coordinated by a perinatal network. These comprise 100% of the health-care facilities managing pregnant women and/or new-borns in Auvergne. Fewer than 12,000 deliveries take place annually in this region.

All municipalities in Auvergne were geolocated by their postal code. The municipalities where perinatal health-care professionals practiced and health-care facilities provided perinatal care were also geolocated by postal code. We used Geoclip® software to calculate the real-time road travel by automobile between each municipality of residence and each municipality where one of these professionals practised or one of these establishments was located. The residential municipalities were divided in two groups: isolated municipalities if the travel time to reach a professional or a facility was 30 minutes or longer (exposed group) and municipalities that were not isolated, that is, with travel times less than 30 minutes (unexposed group).

This mobile clinic was created to deal with the geography of Auvergne and the difficulties it causes in access to medical care. This truck is designed for medical consultations, equipped to enable ultrasound imaging, the performance of clinical, obstetric, and gynaecological examinations, the taking of biological samples (for laboratory tests), and interviews. The vehicle's journeys are planned according to the place of residence of the pregnant women. In all, 220 municipalities were considered isolated, and the mobile unit was available for the antenatal care of the pregnant women living in these villages.

Recruitment took place from October 2022 to August 2024. A total of 50 pregnant women took part in this study, at 3 key moments: phase 1 (trimester 1), phase 2 (trimesters 2 and 3) and phase 3 (≥ 6 weeks postpartum).

Outcome measures

These are the women's favourable and unfavourable perceptions of the services provided by Opti’care, collected during the interviews. The data were collected in telephone interviews by 2 independent researchers in social sciences (PhDs). Just before each interview, they sent the digitised e.Photoexpression© [17] pictures to the participant by email. The decision not to send them earlier allowed the photographs to be chosen spontaneously as they were discovered.

Made up of a copyrighted corpus of 40 colour photographs, e.Photoexpression© is a tool for mediation by images that guarantees an ethical framework and a non-invasive posture. The corpus was developed in a process intended to promote the emergence of conceptions of health. Tools using images for mediation make it possible for interview subjects to remain decentred, to avoid having to talk about

themselves but to focus instead on the theme in question: The person interviewed uses the photographs chosen to guide her discourse. She thus becomes a participant in the data collection and furnishes an interpretation of the pictures she chose.

Any photograph may be appropriate, but it must meet several overall criteria used to constitute the corpus. First, it must meet an overall aesthetic criterion including sharpness and framing. Next, it must have significance, that is, it must be suggestive, potentially meaningful to the subjects, and open to diverse readings. Finally, the entire collection must be heterogeneous, covering as wide a spectrum as possible so that each participant can find ones that allow her to express herself.

The photographs are in colour, in tune with current media style. Photographs based on the three criteria described above make it possible to co-construct a reality (or object of research) in this triadic interaction between researcher, photograph, and subject. The photograph made available by the researcher is thus an object re-appropriated by the subject, who offers her personal interpretation of it.

Interview phase 1 (trimester 1)

Stage 1 of the interview "e.Photoexpression©": The women had to choose 2 images among the 40 in response to this prompt: *"Choose one picture that represents what made you want to participate in this programme"*. *"Choose another photo that represents what might have held you back from participating in this programme".* All the women were able to describe the reasons for their choice of pictures during the telephone interviews.

Stage 2 of the interview: "5 keywords": The women were asked to give 5 keywords: *"Can you tell me 5 keywords that you feel characterize pregnancy? In your opinion, what are the five behaviours that will help you have a healthy"*.

Interview in phase 2 (trimesters 2 and 3)

Stage 1 of the interview "e.Photoexpression©": The women had to choose 2 images among the 40 in response to this instruction: *"Choose a photo that represents what pushes you to continue in this programme"* and "*Choose a photo that represents what might lead you to stop this programme*".

Stage 2 of the interview is an open question *"How are you experiencing your pregnancy in this programme?"*

Interview in phase 3 (≥ 6 weeks postpartum)

Stage 1 of the interview "e.Photoexpression©: The women had to choose 2 images among the 40 in response to this instruction: *"Choose a photo that you think represents one or more positive aspects linked to this experience"* and *"Choose a photo that you think represents one or more negative aspects linked to this experience"*.

Stage 2 of the interview was an open question: "*In your opinion, what could be improved?"*

Stage 3 of the interview: 5 keywords: The women had to list 5 keywords: "*Can you tell me 5 keywords that you feel characterize pregnancy? In your opinion, what are the five behaviours that would have helped you have a healthy pregnancy ? ".*

Qualitative data analysis

All of the transcripts collected during the 3 phases of the interviews, pre- or post-partum, comprised the data we analysed. The content in these transcripts was classified into two groups of dimensions of perceptions favourable or unfavourable. A category grouped together elements of a vocabulary or an information organised according to some common semantic or grammatical criteria. Each point raised by the women questioned was moved from the transcript to an Excel® spreadsheet, in which it was categorized. The convergent points were regrouped by blocks of meaning [19].

The perception dimensions were created according to the granularity (that is, the specificity and detail) of the woman's words to preserve the authenticity, nuance, and accuracy of the data. For those reasons, as well as well as to preserve the degree of granularity of the data sources and thus to avoid overinterpretation, we ran back and forth checks at all levels: between the data sources, the conceptual and the theoretical models of health determinants [18], and the discussions with the Opti'care multidisciplinary research team. These conversations between researchers from different disciplines contributed substantially to enriching the analysis and to shaping our approach to the data so that we could be prudent but keep a distance from the conceptual framework and thus avoid the shortcut of grafting the data directly onto the health determinants model.

The analysis enabled us to determine when we had reached data saturation so that we could stop recruiting pregnant women. All of the data were collected by the same investigators. Two investigators coded the data for the analysis. In cases of disagreement, a third author was asked to help reach a consensus.

Statistical analyses

The age of women was presented as median with the minimum and maximum. The qualitative variables, the perception dimensions, were reported as the number of individuals and as percentages. The qualitative variables were compared by a Chi2 test for trend to describe the course of the women's favourable and unfavourable perceptions about the mobile clinic during the 3 study phases. BiostaTGV, an online software, was used for the statistical analysis. Significance was set at a 5% threshold.

RESULTS

Population

During the first phase, 50 women participated in semi-directive interviews; 39 were questioned during phase 2 and 32 in the postnatal phase. The significant reduction in the number of inclusions between

phases is explained by several factors: miscarriages, the end of the Opti'care project, women dropping out of the project, and non-response. Fifty women agreed to participate in phase 1 of this study, 39 in phase 2 and 32 phase 3 (Fig. 1).

Population

The median age of the women who participated in this study was 31 years [21;41]. The 50 participating in phase 1 of the study were interviewed at a median term of 16 weeks of pregnancy, the 39 in phase 2 at a median term of 30 weeks, and the 32 in phase 3 at a median of 8 weeks postpartum.

Qualitative results

The qualitative analysis of the women's discourse revealed 35 dimensions of perceptions of Opti'care, including 19 dimensions of favourable perceptions (Fig. 2). and 16 unfavourable (Fig. 3). The favourable perceptions mentioned most often were: "proximity of access to care", "practicality and flexibility of services", "quality care appropriate to needs", and "the team's personal and human qualities". The unfavourable perceptions mentioned most frequently were: "fear of unavailability" and "lack of discretion" as well as most often, their complete absence, that is, "no unfavourable feelings".

Among these 35 dimensions of perceptions identified among these pregnant women, 11 differed significantly in their course over the study period. The way they perceived Opti'care evolved significantly for 6 of the 19 favourable perceptions found in phase 1 (Fig. 2): "proximity of access to care", "practicality and flexibility of services", "quality care appropriate to needs", "team's personal and human qualities", "services of public utility (benefiting the public)", and "support for getting through tough times". There were also significant changes in their perceptions of 5 of the 16 unfavourable perceptions in phase 1 (Fig. 3): "no unfavourable feelings", "fear of unavailability", "lack of discretion," "services costly to society", and "project ending".

The first semi-circle represents the dimensions for which women had favourable perceptions of the Opti'care services in phase 1, the second semi-circle, those dimensions in phase 2, and the third semi-circle in phase 3. These dimensions correspond to a dominant idea, to global or broad general levels that regroup and structure similar themes.

The first semi-circle represents women's unfavourable perceptions of Opti'care services in phase 1, the second, their unfavourable perceptions in phase 2, and the third their unfavourable perceptions in phase 3.

The women's favourable (Table 1.) and unfavourable (Table 2.) perceptions of Opti'care changed over the course of the study. The proximity of access to care mattered to them throughout the study. Inversely, the importance of its social role, represented by 4 dimensions of favourable perceptions ("the team's human and personal qualities", "the relationships developed with the team", "trust", and "support through tough times") as well as 1 dimension of the quality of their care ("quality of care, appropriate to needs", increased significantly.

The weight they attributed to proximity of access to care fell significantly between phase 1 and phase 2 and then rose again in the postnatal phase. The significance of the social role and the relationships with the health care team increased over the three phases of the study. The participants mentioned the quality of care and the team's personal and human qualities in the first interview, but it was in phase 2 that they underlined the importance of the relationships built and the trust developed with the multidisciplinary team. The support provided by the programme was raised in phase 3. These aspects show the prominent role that the women attributed to the social aspects and to trust in the care teams. They also underlined the importance of always seeing the same health professionals. The qualitative analysis also showed the Opti'care services provided psychological benefits, which increased throughout all three phases of the study.

More than a third of the pregnant women (32%) had no unfavourable feelings at all about Opti'care in the initial phase, a sentiment that increased significantly between phase 1 and phase 3 (43.6%). In phase 1, one third (32%) of the pregnant women had unfavourable perceptions linked to fears about the mobile clinic; these perceptions shrank significantly by phase 3 (9.3%). These fears were related to its geographic site: it was stationed in Clermont-Ferrand, a city more than 40 min from the women's place of residence. They thus worried about its possible unavailability and the inconvenience that could cause. This truck was specially designed and equipped for prenatal care, but 10% of the women nonetheless feared it would lack medical equipment. By phase 3, this fear dropped to 3.1%.

They also worried about the lack of certainty about the continued existence of these services, because Opti'care is a research project that would not necessarily be renewed (and indeed ended early). The possible termination of the project was mentioned by 15.6% of the women in phase 3. Another 5.1% regretted that there was no gynaecologic care available to follow the postnatal care.

Table 1
Course of women's favourable perceptions of the Opti'care programme from phase 1 (trimester 1) to phase 2 (trimesters 2 and 3) and then at phase 3 (≥ 6 weeks postpartum).

Favourable perceptions	**Phase 1**	**Phase 2**	**Phase 3**	***P***
	n = 50	**n = 39**	**n = 32**	
	%	**%**	**%**	
Proximity of access to care	80	35.9	43,7	**< 0.001**
Practicality and flexibility of the services	28	10.3	28.1	0.0895
Quality care appropriate to needs	26	28.2	59,4	**0.004**
Team's personal and human qualities	28	48.7	53.4	**0.041**
Services of public utility (benefiting the public)	24	5.1	3.1	**0.0049**
Saves time	22	10.3	15.6	0.330
Differs from the hospital:	0	7.7	6.2	0.152
They take more time	18	10.3	6.2	0.256
Same staff each time	6	0	0	0.127
Multidisciplinary support	16	20.5	18.7	0.857
Saves money	16	0	0	**0.002**
Psychological benefits	10	20.5	21.9	0.265
Allows partner to participate	6	0	6.2	0.289
Serene and safe environment	4	12.8	6.2	0.277
Better fit with work life	4	0	6.2	0.320
Relationships developed with the team	0	23.1	25	**< 0.001**
Trust	0	15.4	9.4	**0.02**
Baby in good health	0	7.7	21.9	**0.002**
Support for getting through tough times	0	0	12.5	**0.003**

Table 2
The course of women's unfavourable perceptions of the Opti'care mobile clinic from phase 1 (trimester 1) to phase 2 (trimesters 2 and 3) and then at phase 3 (≥ 6 weeks postpartum).

Unfavourable perceptions	**Phase 1**	**Phase 2**	**Phase 3**	***P***
	n = 50	**n = 39**	**n = 32**	
	%	**%**	**%**	
No unfavourable feelings	32	43.6	65,6	**0.011**
Fear of unavailability	12	0	0	**0.009**
Lack of discretion	10	2.6	3,1	0.248
Fear of lack of medical equipment	10	5.1	3,1	0.428
Experimental project	10	5.1	0	0.163
Difficulty making appointments	6	5.1	0	0.38341
Tiny space	6	17.9	6,2	0.125
Fear of inconvenience	6	10.3	0	0.183
Could break relationship w/midwives	6	0	9,4	0.176
Fear of a lack of guarantee	4	0	0	0.236
Limited social support	4	5.1	0	0.456
Lack of specialists	4	0	3,1	0.467
Costly for society	0	7.7	0	**0.039**
No gynaecologic follow-up	0	5.1	3,1	0.293
Can't be contacted holidays/weekend	0	2.56	0	0.346
Termination of project	0	0	15,6	**< 0.001**

The perceptions about best behaviours for a healthy pregnancy were collected at 2 important points: during the interviews in phase 1 and phase 3 (Fig. 4).

The 5 keywords mentioned most often by the Opti'care clients/patients to characterise a healthy pregnancy at the beginning of pregnancy (phase 1) were:

- "healthy diet", "support from family and close friends", "lack of stress", "appropriate medical care", and "sleep and rest". "Physical activity" was ranked in 6th position.

The 5 keywords mentioned most often in phase 3, after the birth, were:

- “self-care”, “healthy diet”, “appropriate medical care”, “self-confidence”, and “sleep and rest”.

The keywords mentioned in both phases show that the women receiving Opti’care services accorded importance to well-being, a healthy diet, appropriate medical care, and to sleep and rest. When we look at all of the keywords they suggested, new levers for action appeared in the postnatal phase, with the mention of the importance of preparation for childbirth, vaccination, breastfeeding and general advice about the postpartum period.

DISCUSSION

Main results

Using the e.Photoexpression tool [17], the PERCEP’Care qualitative study conducted 50 semi-directive interviews with pregnant women receiving antenatal care from the Opti’care mobile clinic. The analysis of this image-elicited oral expression provides a model of the perceptions of this mobile clinic programme by its users; the model covers 35 dimensions, including 19 dimensions of favourable perceptions and 16 of unfavourable perceptions.

Their perceptions of the Opti'care services evolved over the 3 phases of data collection. In phase 1, the discourse of 80% of the women focused mostly on the proximity of care access; this percentage decreased to 36% in phase 2 and then climbed slightly to 44% in the postnatal phase. During phase 2, the pregnant women most often spoke first (49%) about the team's personal and human qualities; this percentage rose slightly (53%) in the postnatal phase, when they talked most about the quality of the care, which was appropriate to their needs (59%).

The unfavourable perceptions were associated mainly with the fears linked to their lack of knowledge about this mobile unit at the beginning of this pregnancy. As their care continued, these fears dissipated and were replaced by an absence of any unfavourable feelings about Opti'care: 32% in phase 1, 44% in phase 2, and 66% in phase 3.

The strengths and limitations of the study

A major strength of this study is its innovativeness: it is the first mapping of the course of women's perceptions of care during pregnancy and post-partum. The data collection and the analyses generated qualitative data that provide new and essential information for understanding the perceptions of pregnant women about antenatal and postnatal care by a mobile medical clinic. These major elements about the importance and impact of non-clinical factors for the women and families living in a rural area should be recognised and considered by the professionals who care for them. This study reveals the challenges to rural communities on the ground and provides food for thought about how to adapt local and national policies to them.

Its principal limitation is that it took place in a single French region — Auvergne-Rhône-Alpes. It would be interesting to enlarge it to a national, even international, scale to be able to compare the perceptions of

pregnant women about this particular response to these challenges — a mobile clinic — in different regions and countries. Some interviews planned for phase 2 (n = 6) and 3 (n = 4) could not take place because the funding for Opti'care was stopped before the date initially planned; this explains in part the smaller number of interviews in phase 2 and 3.

Pregnant women's perceptions in this study were structured around dimensions associated with the biopsychosocial model [14] and the model of health determinants [18], such as access to care, relation to the environment, psychological benefits, social support, physical health, and economic factors.

There is a crucial need for the point of view of mothers and future mothers in the development of policies and practices about the care options for pregnancy. Residence more than 30 minutes by car from a maternity ward is a risk factor for neonatal morbidity, especially in rural areas [20;25]. According to Watson et al. [26], mothers in rural area confront particular difficulties in choosing where to give birth. Besides the clinical decisions concerning "place of birth" agreed upon with health-care professionals, they must take to consider the aspects linked to delivery remote from family support and in an unfamiliar environment. The study by Cabaillot et al. [27] showed the importance of the social and familial environment in overcoming pregnant women's geographic isolation. Munro [28] also described how bringing antenatal care closer to rural women enables them to escape social isolation, furnishes them psychological support, and avoids the costs and risks associated with trips to the maternity unit [29].

The results of the PERCEP'Care study showed that in addition to the importance of being near to their antenatal care providers, pregnant women must be able to receive support from their family, close friends, and health-care professionals; it is also important for them to trust the latter and to have access to high-quality medical care. The importance of support also involves the possibility of involving their partner in the pregnancy. By offering nearby prenatal care and thus reducing the travel time for these appointments, Opti'care made it possible to involve partners and promote their support. Some women noted this in relation to the flexibility and practicality of this mobile clinic (28.1%): it allowed their partners to participate in these antenatal visits (6.2%).

On the other hand, Franzen et al [30] show that partners also need support from health-care professionals to promote their positive experiences of the birth. Their experiences of delivery were associated with strong worries. Involving them in antenatal care should reduce these worries, supporting them in their process of becoming fathers and thereby also increasing the support for the future mothers. This study shows that Opti'care, by bringing their antenatal care as close as possible to these future parents' residence, enabled them to combat their isolation and thus supported them.

Although few authors have demonstrated an interest in the impact of rural life on pregnancy-related care, a Canadian qualitative study conducted in 2006 [31] showed that women living in rural areas complained about the financial costs of transportation, the lack of accessible childcare, and an overall loss of income — all linked to their geographic situation. Similarly, the women interviewed in the PERCEP'Care study mentioned the importance of being able to reconcile their working life with their personal life and the time and money saved by local antenatal care. By its effect on all of the factors mentioned above,

Opti’care provides a serene and safe environment that contributed to these women's well-being. These psychological benefits make it possible to limit stress specifically related to pregnancy by reducing the fears and worries associated with it. The results concerning the 5 keywords showed that the women receiving services from Opti’care considered their priorities to be their well-being, a healthy diet, and appropriate medical care, as well as sleep and rest. These perceptions of priority levers for action for a healthy pregnancy changed with the stage of pregnancy and the recommendations received during the consultations at that stage.

The unfavourable perceptions of Opti’care — substantially fewer than the favourable ones —focused principally on worries and apprehensions related to its innovative aspects. These perceptions diminished significantly throughout their pregnancy. The percentage of women with no any unfavourable feelings about mobile care increased across the 3 phases of the study.

CONCLUSION

Opti’care prenatal services proved to be a springboard to access to good pregnancy care for women living in rural areas. Some went so far as to state that it is a public service — benefiting the public in general. Making mobile health units such as Opti’care permanent could help respond to the desertification of rural regions in France. The PERCEP’Care study revealed that the multidisciplinary support provided by the Opti’care programme offers an individualised and personalised follow-up, focused on the real needs of the pregnant women living in rural municipalities and thus responded to these major public health issues. The public funding of similar services in several isolated areas of Europe in diverse settings based on our findings should be relevant for assessing the external validity of this approach.

Declarations

Ethics approval and consent to participate

This study was conducted and is reported in accordance with the "Consolidated Criteria for Reporting Qualitative Research" (COREQ) guidelines. The Patient Protection Committee North-West II approved this study on February 04, 2021 (IRB 2020-A02247-32). The protocol was registered as Clinical Trial NCT04823104. All women included in the study consented in writing to participate.

Consent for publication

Not applicable

Competing interests

No competing interests.

Funding

This work was supported by a grant from the French Ministry of Health [PREPS 2019 No. 0018].

This research was funded by IReSP as part of the 2022 call for research projects on Health-Friendly Services, Interventions, and Policies (SIP).

Author Contribution

Chloé Gay : Conceptualization, Methodology, Original draft preparation, Writing, Editing. Maéliane Deyra : Conceptualization, Methodology, Original draft preparation, Editing. Frank Pizon : Supervision, Original draft preparation, Reviewing. Isabelle Raimbault: Reviewing. Nathalie Dulong : Reviewing. Guillaume Legrand: Reviewing, Validation. Françoise Vendittelli : Supervision, Reviewing, Validation. Anne Debost-Legrand : Conceptualization, Methodology, Original draft preparation, Reviewing, Validation

Acknowledgements

The women who participated in this study and Jo Ann Cahn for the English translation of this work.

Data Availability

The datasets generated and/or analysed during the current study are not publicly available due because it involves telephone interviews but are available from the corresponding author on reasonable request.

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Figures

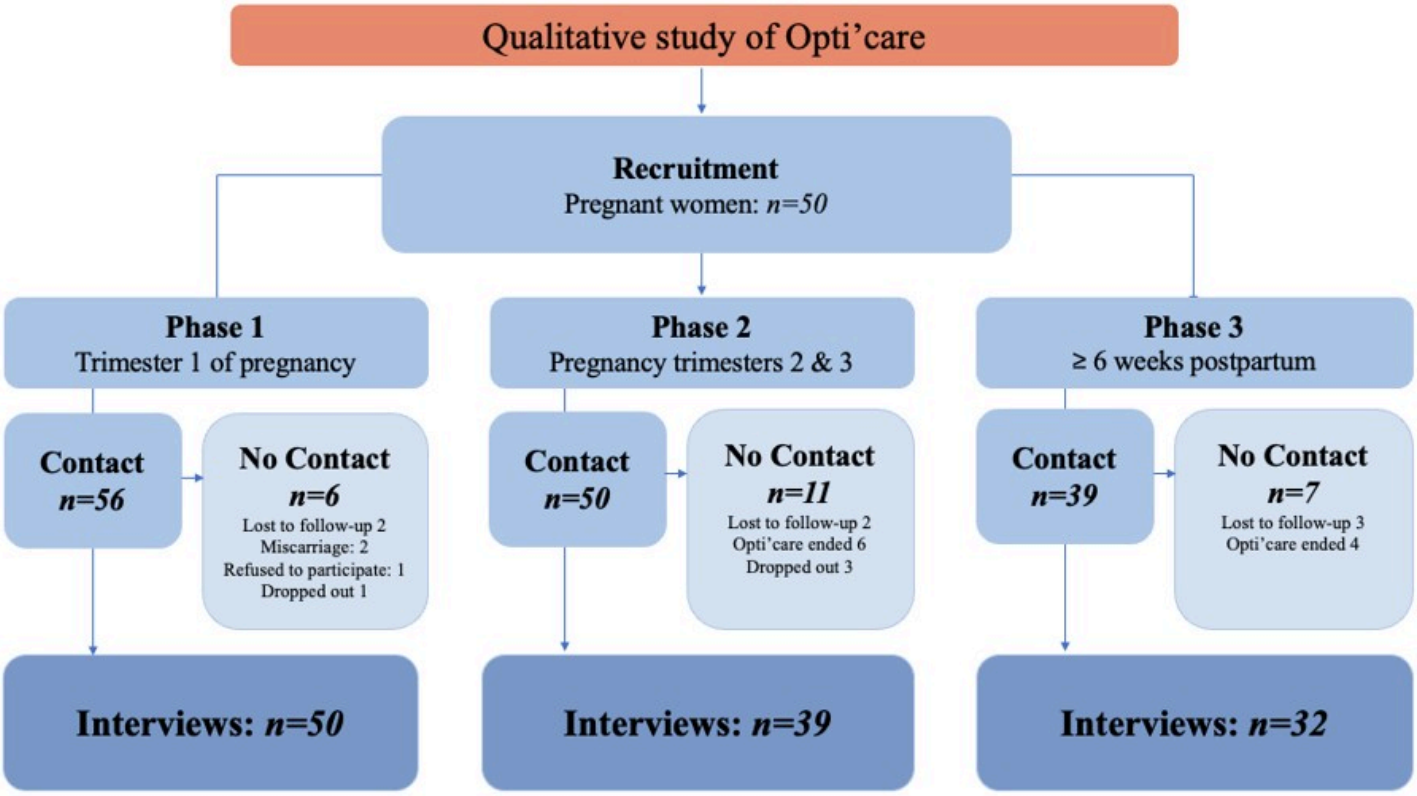


Figure 1

Flow chart, illustrating the inclusion of patients during the three phases of the study.

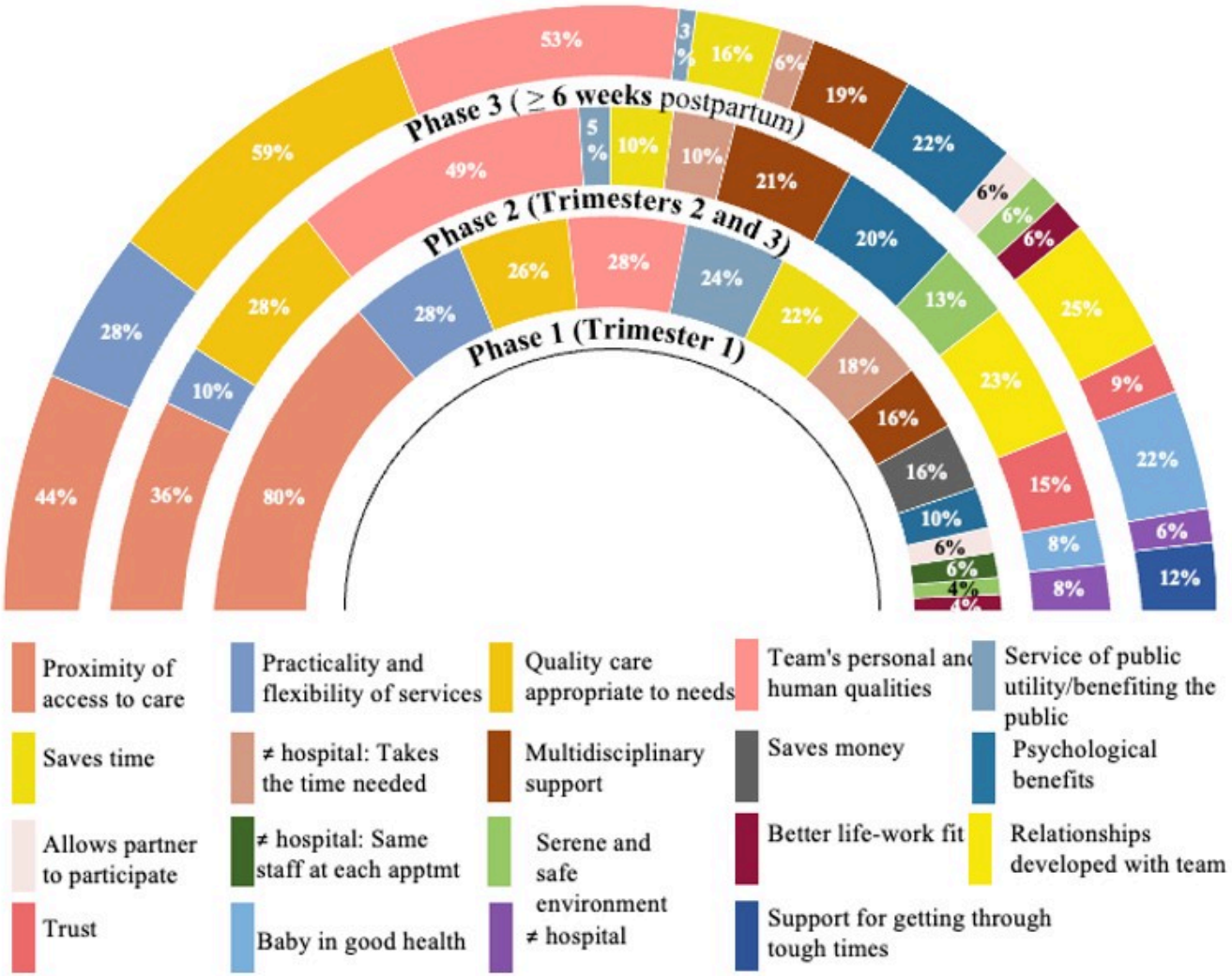


Figure 2

Women's favourable perceptions of the Opti'care mobile clinic during phase 1 (trimester 1), phase 2 (trimesters 2 and 3) and phase 3 (≥ 6 weeks post-partum).

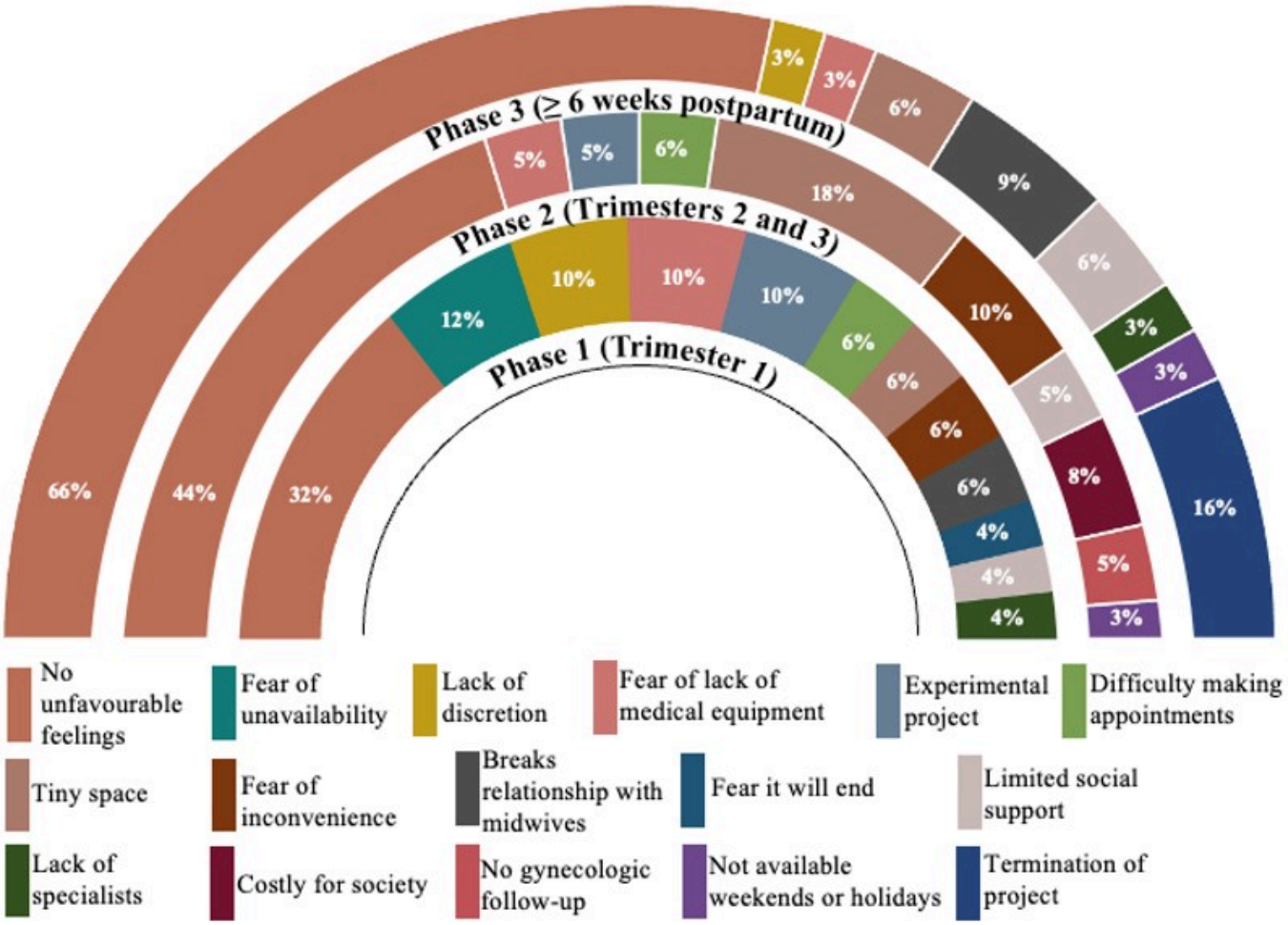


Figure 3

Women's unfavourable perceptions of the mobile clinic during phase 1 (trimester 1), phase 2 trimesters 2 and 3) and phase 3 (≥ 6 weeks postpartum).

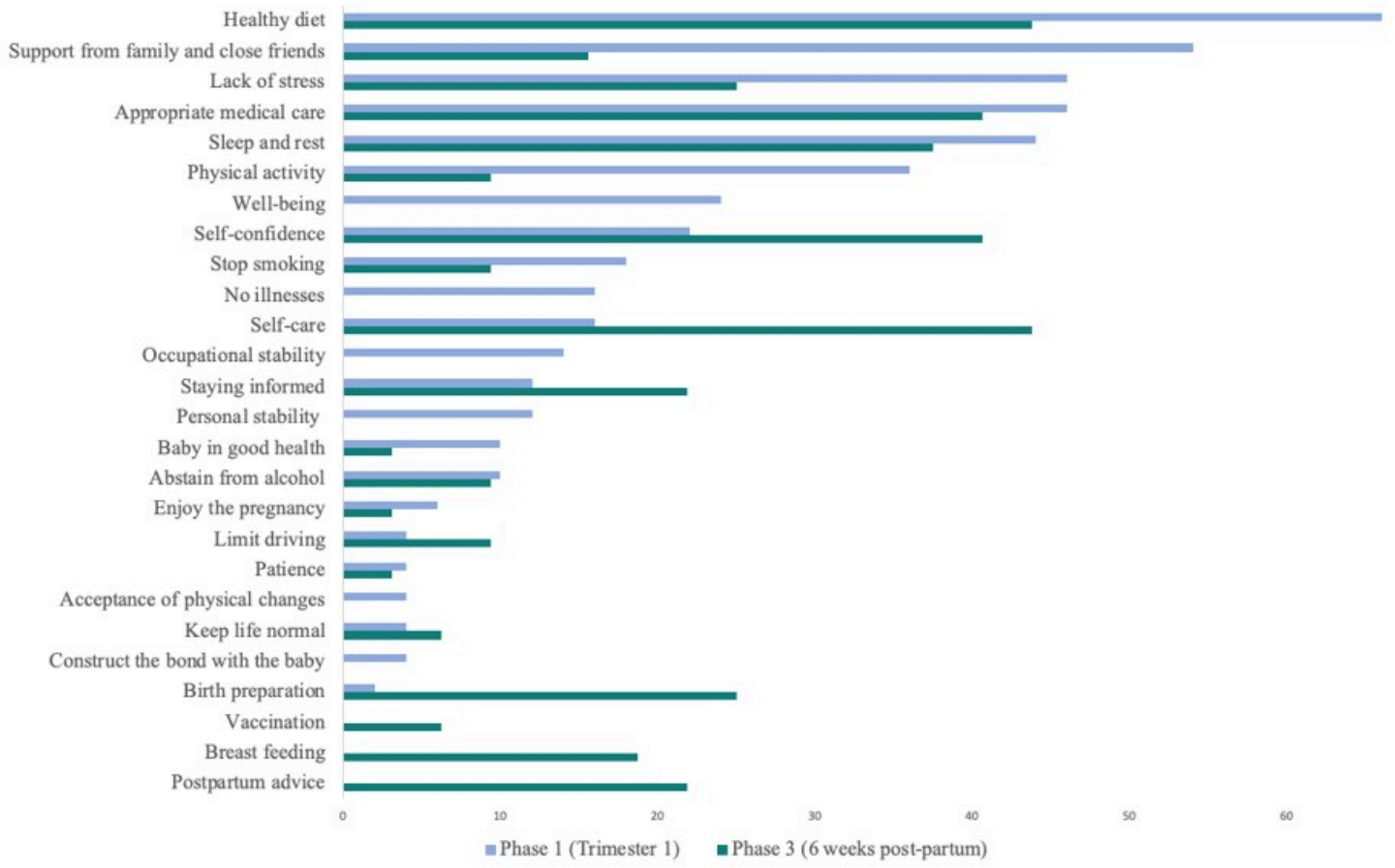


Figure 4

Trends in perceptions about levers to ensure a healthy pregnancy