FEASIBILITY AND ACCEPTABILITY OF TELEMEDICINE IN PRENATAL CARE FOR LOW-RISK PREGNANCIES: A COMPARATIVE STUDY OF REMOTE AND IN-PERSON APPROACHES IN THE CZECH REPUBLIC

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SUMMARY

Objectives: The aim of the study was to evaluate the feasibility and acceptability of remote prenatal care using a smartphone application for women with low-risk pregnancies, and to compare outcomes with standard in-person care.

Methods: A prospective observational study was conducted at the Institute for Maternal and Child Care in Podolí, Prague. A total of 225 pregnant women were enrolled: 119 received combined telemedicine and standard in-person follow-ups (W-DF group), while 106 received only standard in-person care (W-PF group). Data on patient satisfaction across various domains of care were collected and analysed.

Results: Women in the W-DF group reported significantly higher satisfaction with information adequacy, confidentiality, and understanding of test results ($p < 0.001$). Conversely, the W-PF group showed greater satisfaction in childbirth preparedness, access to community programmes, and lifestyle guidance ($p < 0.05$). Overall satisfaction scores were comparable between the two groups (W-DF mean = 263.0, W-PF mean = 275.1; $p = 0.263$).

Conclusions: Telemedicine in prenatal care offers advantages such as reduced time and logistical burdens and improved personalization of care. However, psychosocial and lifestyle support remains stronger in traditional models. A hybrid model that integrates telemedicine with periodic in-person visits may provide more comprehensive support. Further large-scale studies are needed to optimize implementation.

Key words: prenatal care, telemedicine, pregnancy

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INTRODUCTION

Telemedicine is a way of providing health care from a remote access, i.e., without immediate physical contact with the patient (1). In this sense, the use of communication technologies and information sharing is a key aspect of telemedicine. The absence of physical contact is not necessarily negative for the patient or patient in question; on the contrary, it can enable a better and more efficient approach to health care delivery in a number of ways, including by limiting the possibility of infection (2). In general, there are a number of practical algorithms and disciplines that already work with telemedicine practices (3). Although this practice is coming into greater popularity worldwide, its full potential is still not being exploited in the Czech Republic (1). Within Czech antenatal care, the system distinguishes several levels of pregnancy risk, according to which a specific procedure regarding the monitoring of patients is required in good clinical practice (1). For women whose pregnancies are assessed as low risk based on these algorithms, physical anchorage at the antenatal care provision represents a relatively high burden in terms of time (waiting at the provider's office, arranging transport to the place of health check-up, etc.), as well as psychological (providing care for the other offspring in the absence of the mother, or possibly waiting and attending such a check-up with older offspring at the same time, having to take time off work, etc.), all in the case of low-risk pregnancies for the mother and the foetus. It is therefore appropriate to look for ways to facilitate patients' antenatal care while ensuring their maximum safety. Given that antenatal healthcare service could be safely delivered in low-risk pregnancies (4–7), a specially designed smartphone app that would allow

health data to be shared between the patient and the antenatal care provider seems to be the most appropriate for this purpose. Thus, the aim of this study is to develop an app for remote monitoring of pregnant women with non-risk pregnancies and to assess its feasibility and use from both patients' and personnel perspective. The application will also be evaluated technically, the feasibility of the project and its possible implementation in further clinical practice will be assessed. Furthermore, we want to find out how patients rate the remote monitoring of their pregnancy in some key aspects, such as feeling safe and respected by the provider, either for themselves or for their private data, being able to learn all the necessary information, having questions answered, and being able to discuss the birth itself and the preparatory steps leading up to it at their discretion. We will also assess whether there is a difference between the perceptions of these key aspects of women in attendance at traditional healthcare delivery and those who were followed using telemedicine approaches.

MATERIALS AND METHODS

This study included patients who delivered at the Institute for the Care of Mother and Child in Prague between 2022 and 2023. Eligible participants were fluent Czech-speaking women with low-risk pregnancies (approximately 2,000 women in total). A total of 500 women agreed to participate. These participants were initially assessed during their first check-up with the Institute for the Care of Mother and Child, which took place at 35–36 weeks of pregnancy as part of standard care protocols in the Czech Republic.

Participants were offered two antenatal care regimens:

- Standard care (W-PF): physical check-ups at the provider's outpatient clinic every two weeks until delivery, with additional check-ups as indicated after the scheduled delivery date.
- Extended care (W-DF): in addition to the standard check-ups, this group participated in remote follow-ups using a smartphone application. These remote visits included completing a brief questionnaire (approximately 5 minutes) and participating in a telephone consultation (up to 30 minutes, depending on the patient's needs).

Women enrolled in the W-DF regimen received at least two additional remote follow-ups compared to those in the W-PF group. Both groups received care as per established Czech standards, ensuring no additional health risks for participants or their pregnancies. All participants also had the opportunity to take part in in-person seeding check-ups.

Of the 500 women enrolled, 119 opted for the W-DF regimen, while 106 chose to follow standard care. The remaining women declined further participation. The course of antenatal care was uncomplicated for all participants, as all were healthy women with physiologically normal pregnancies.

Participants in the W-DF group were introduced to the smartphone application during their initial antenatal clinic visit. They received access credentials, basic instructions for using the app, and an explanation of the extended follow-up regimen.

After delivery, all participants received a questionnaire designed to assess their pre-delivery experience with prenatal care. Participants in the W-DF group received the questionnaire via the mobile application, several weeks after delivery. In contrast, participants in the standard care group (W-PF) were given the questionnaire in the postpartum ward and completed it within three days after childbirth. The questionnaire consisted of 35 questions, with responses rated on a 10-point Likert scale, where 1 represented the lowest level of agreement and 10 the highest. Table 1 provides an overview of the questionnaire items.

Twenty-seven women in the W-DF group did not return the completed questionnaire and provided no reason for their non-compliance; they were therefore excluded from the study.

Both groups were comparable in terms of maternal age. The average age in the standard care group (W-PF) was 32.7 years, while the average age in the telemedicine group (W-DF) was 31.5 years.

Statistical Analysis

Statistical analysis was performed using the Mann-Whitney U test to compare questionnaire responses between the remote care (W-DF) and in-person care (W-PF) groups. This non-parametric test was selected due to the ordinal nature of the Likert-scale data and non-normal distribution of several variables, as confirmed by normality checks. All analyses were conducted using SPSS version 23.

Ethical Statement

The study was conducted in compliance with the approval of the Ethics Committee. All participants (W-DF and W-PF groups) voluntarily agreed to take part in the study after providing informed consent. Participation in the study was not financially incentivized. The research adhered to all healthcare standards established in the Czech Republic. Participants had the right to withdraw from the study at any time without providing a reason, as demonstrated by the 27 participants who chose not to return the completed questionnaire. All data collected through the application were anonymized and securely stored, ensuring they were not accessible to third parties.

RESULTS

The complete questionnaire was completed by 119 women who underwent remote monitoring during the antenatal period and 106 women who attended standard in-person antenatal clinic visits.

Women in the remote monitoring group were more likely to agree with the statement that those involved in their antenatal care had all their questions answered honestly (mean = 9.447, SD = 1.89) compared to those in the in-person group (mean = 9.423, SD = 0.84; $p < 0.001$). They also reported higher agreement that they had been adequately screened for potential pregnancy problems (mean = 9.611, SD = 1.15) compared to the in-person group (mean = 9.528, SD = 0.74; $p = 0.033$).

Women in remote care were more likely to feel that test results were well explained and understood (mean = 9.647, SD = 1.18) compared to those in in-person care (mean = 9.423, SD = 0.82; $p = 0.001$). They also agreed more strongly that their care provider answered questions clearly and directly (mean = 9.623, SD = 1.42) compared to the in-person group (mean = 9.423, SD = 0.82; $p < 0.001$).

Table 1. *Questionnaire*

Question	W-DF Mean (SD)	W-PF Mean (SD)	p-value
I was provided with sufficient information about prenatal tests and procedures.	9.306 (1.72)	9.327 (1.02)	<0.001
My questions were always answered honestly.	9.447 (1.89)	9.423 (0.84)	<0.001
Everyone involved in my prenatal care had access to important information about me.	9.705 (1.15)	9.432 (0.83)	<0.001
I was adequately screened for potential problems during my pregnancy.	9.611 (1.15)	9.528 (0.74)	0.033
Test results were explained to me in a way that I could understand.	9.647 (1.18)	9.423 (0.82)	0.001
My prenatal care provider answered my questions clearly and directly.	9.623 (1.42)	9.423 (0.82)	<0.001
My prenatal care provider gave me enough information to make informed decisions.	9.611 (1.22)	9.288 (0.89)	<0.001
My prenatal care provider maintained the confidentiality of my information.	9.894 (0.43)	9.375 (1.19)	<0.001
I fully understood the reasons for the blood tests and other examinations my provider ordered.	9.623 (1.24)	9.375 (0.86)	<0.001
My prenatal care provider offered me options for how I could experience my childbirth.	8.329 (2.61)	8.961 (1.72)	0.479
I was provided with enough information about breastfeeding to meet my needs.	7.929 (2.60)	8.114 (1.62)	0.369
My prenatal care provider adequately prepared me for my childbirth experience.	7.364 (2.98)	8.663 (1.52)	0.018
My prenatal care provider took time to discuss my expectations for childbirth with me.	6.447 (3.41)	7.807 (2.34)	0.036
I was given ample information about the safety of moderate exercise during pregnancy.	7.200 (3.27)	8.548 (2.04)	0.029
I was given sufficient information about dietary recommendations during pregnancy.	6.717 (3.30)	6.040 (3.47)	0.001
My prenatal care provider showed interest in how my pregnancy was affecting my life.	6.047 (3.44)	7.307 (2.53)	0.042
I was connected to community programmes that were helpful to me.	5.341 (3.43)	7.067 (3.19)	<0.001
I was provided with adequate information about alcohol consumption during pregnancy.	7.788 (3.21)	8.855 (2.15)	0.27
I was given sufficient information about mental health during pregnancy.	6.341 (3.65)	7.778 (2.97)	0.014
My prenatal care provider took the time to ask me about issues that were important to me.	7.094 (3.42)	8.471 (2.18)	0.076
I was given as much time as I needed with my prenatal care provider.	8.517 (2.23)	8.903 (1.54)	0.079
My prenatal care provider seemed rushed during our visits.	2.929 (2.67)	3.423 (2.08)	0.002
My prenatal care provider always made time to answer my questions.	9.047 (1.87)	9.057 (1.20)	0.238
My prenatal care provider took the time to actively listen to me.	8.917 (3.05)	8.951 (1.23)	0.446
My prenatal care provider treated me harshly.	2.364 (2.69)	1.721 (1.68)	0.036
I felt rushed during my prenatal care visits.	2.223 (2.26)	2.278 (1.78)	0.150
My prenatal care provider made me feel like I was wasting their time.	1.729 (1.94)	1.490 (1.05)	0.261
I felt afraid to ask my prenatal care provider questions.	1.858 (2.04)	1.634 (1.37)	0.835
I knew how to contact my prenatal care provider when needed.	8.894 (2.54)	9.230 (1.38)	0.425
Someone from my prenatal care provider's office always answered my calls.	8.611 (2.65)	8.836 (1.24)	0.009
My prenatal care provider was available whenever I had questions or concerns.	8.835 (2.15)	8.865 (1.48)	0.160
I was able to reach someone at the clinic/office whenever I needed assistance.	8.717 (2.20)	8.913 (1.46)	0.446
I could always reach my prenatal care provider when necessary.	8.623 (2.25)	8.586 (1.74)	0.098
My prenatal care provider treated me with respect.	9.505 (1.35)	9.442 (0.83)	0.036
My prenatal care provider valued my knowledge and experiences.	9.211 (1.47)	9.365 (1.03)	0.497
Total count	263.058 (39.30)	275.115 (19.74)	0.263

Participants in remote care reported receiving sufficient information to make informed decisions (mean = 9.611, SD = 1.22) compared to the in-person group (mean = 9.288, SD = 0.89; $p < 0.001$). They also reported greater agreement that their care provider kept their information confidential (mean = 9.894, SD = 0.43) compared to those in the in-person group (mean = 9.375, SD = 1.19; $p < 0.001$).

Women in remote monitoring felt they fully understood the reasons for blood tests and other examinations (mean = 9.623, SD = 1.24) compared to the in-person group (mean = 9.375, SD = 0.86; $p < 0.001$). Additionally, remote participants were more likely to agree they had been given sufficient information about diet during pregnancy (mean = 6.717, SD = 3.30), compared to in-person participants (mean = 6.040, SD = 3.47; $p = 0.001$). Remote care participants also felt more strongly that their care provider respected them (mean = 9.505, SD = 1.35) compared to in-person participants (mean = 9.442, SD = 0.83; $p = 0.036$).

Conversely, women in the in-person care group were more likely to agree that they always received sufficient information about prenatal test and procedures (mean = 9.327, SD = 1.02) compared to the remote care group (mean = 9.306, SD = 1.72; $p < 0.001$). In-person participants also agreed more strongly that

their care provider prepared them for their childbirth experience (mean = 8.663, SD = 1.52) compared to the remote group (mean = 7.364, SD = 2.98; p = 0.018).

In-person participants were more likely to report receiving adequate information about the safety of moderate exercise during pregnancy (mean = 8.548, SD = 2.04) compared to remote participants (mean = 7.20, SD = 3.27; p = 0.029). They also reported higher agreement that their provider showed interest in how pregnancy affected their life (mean = 7.307, SD = 2.53) compared to the remote group (mean = 6.047, SD = 3.44; p = 0.042).

In-person participants were more likely to report feeling connected to community programmes relevant to them (mean = 7.067, SD = 3.19) compared to remote participants (mean = 5.341, SD = 3.43; p < 0.001). They were also more likely to feel they received adequate information about mental health during pregnancy (mean = 7.778, SD = 2.97) compared to remote participants (mean = 6.341, SD = 3.65; p = 0.014).

However, in-person participants were also more likely to report that their care provider seemed rushed during visits (mean = 3.423, SD = 2.08) compared to remote participants (mean = 2.929, SD = 2.67; p = 0.002). In-person participants more frequently agreed that their care provider always returned phone calls (mean = 8.836, SD = 1.24) compared to remote participants (mean = 8.611, SD = 2.65; p = 0.009).

No statistically significant differences were found between the groups for other questionnaire items. Additionally, the total scores for all questionnaire responses did not differ significantly between women in remote care and those in in-person care (Table 1).

Telemedicine (W-DF) Group Findings

Women in the telemedicine (W-DF) group demonstrated significantly higher agreement with several positive aspects of their antenatal care compared to women in the in-person (W-PF) group (Table 1):

- Access to information: women in the W-DF group were more likely to agree that everyone involved in their antenatal care had access to important information compared to the W-PF group.
- Screening: telemedicine participants agreed more strongly that they were adequately screened for possible pregnancy issues compared to in-person attendees.
- Test explanation: women in telecare reported a higher likelihood of test results being well explained and understood versus in-person attendees.
- Clarity in communication: participants in the W-DF group felt their provider answered questions clearly and directly compared to the W-PF group.
- Information for decision-making: telemedicine participants reported receiving enough information to make decisions versus in-person attendees.
- Confidentiality: women in telecare rated confidentiality of information significantly higher compared to in-person care.
- Understanding of tests: women in the W-DF group were more likely to feel they fully understood the reasons for blood tests and other examinations compared to the W-PF group.
- Dietary information: telemedicine participants felt they received more sufficient dietary information compared to in-person attendees.
- Respect: women in telecare felt their care provider showed higher levels of respect compared to in-person care participants.

In-person (W-PF) Group Findings

In-person attendees demonstrated higher agreement with certain aspects of their antenatal care compared to telemedicine participants (Table1):

- Honest communication: women in the W-PF group were more likely to agree that their provider always responded honestly compared to the W-DF group.
- Preparation for childbirth: in-person participants felt better prepared for their childbirth experience compared to the W-DF group.
- Exercise information: women in the W-PF group were more likely to report receiving adequate information about moderate exercise during pregnancy compared to remote participants.
- Provider interest: in-person participants felt their provider showed greater interest in how pregnancy impacted their lives compared to the W-DF group.
- Community connections: women in the W-PF group felt better connected to relevant community programmes compared to W-DF participants.
- Mental health information: participants in the in-person group were more likely to agree they received sufficient mental health information during pregnancy to W-DF participants.
- Provider rush: in-person participants were more likely to feel their provider was rushed during visits compared to remote participants.
- Phone communication: in-person attendees felt their provider was more consistent in returning phone calls compared to telemedicine participants.

Overall Comparison

No statistically significant difference was found between the total satisfaction scores for the two groups, with W-DF participants scoring a mean of 263.06 (SD = 39.30) and W-PF participants scoring a mean of 275.12 (SD = 19.74). This indicates similar overall satisfaction with both care models.

Travel and Childcare Challenges for Telemedicine Participants

Among women in the telemedicine (W-DF) group, 29 participants (26.68%) reported needing to arrange childcare for their antenatal check-ups. Regarding travel times to their in-person check-ups:

- 30 women (27.6%) required less than 30 minutes,
- 41 women (37.72%) required 30–60 minutes,
- 14 women (12.88%) required 60–90 minutes,
- 4 women (3.68%) required 90–120 minutes,
- 4 women (3.68%) reported travel times exceeding 2 hours, and
- 13 women did not provide an answer (12%).

Positive Aspects of Telemedicine (W-DF) Group

Participants in the telemedicine group reported high levels of satisfaction in areas such as receiving sufficient information, straightforward answers, confidentiality, and understanding test results.

- Statistically significant differences (p < 0.001) favoured the W-DF group regarding the adequacy of information provided about prenatal tests, the confidentiality of their information, and the clarity of test result explanations (Table 1).

Higher Satisfaction with In-person (W-PF) Group

Women in the in-person care group (W-PF) felt better prepared for the childbirth experience and received greater attention on topics such as moderate exercise, diet, and mental health during pregnancy.

- For example, the W-PF group scored significantly higher on feeling prepared for childbirth (Table1).

No Significant Difference between Groups

Several aspects, including the amount of time spent with the provider, provider availability to answer questions, and respectful treatment, showed no significant differences between the two groups.

- The total satisfaction scores for both groups were also comparable, with the W-DF group scoring a mean of 263.06 (SD=39.30) and the W-PF group scoring a mean of 275.12 (SD=19.74) (Table 1).

Areas of Concern

Some areas emerged as potential challenges for telemedicine services:

Provider perception: women in the W-PF group were more likely to feel that their providers were rushed during appointments.

Community connections: participants in the W-DF group reported a lower sense of connectedness to relevant community programmes compared to the W-PF group.

Overall Evaluation

Both telemedicine and in-person care achieved high levels of patient satisfaction. Each approach demonstrated unique strengths:

- Telemedicine excelled in providing clear information, ensuring confidentiality, and offering convenience.
- In-person visits provided stronger support for preparing for childbirth and addressing lifestyle factors such as diet, exercise, and mental health.

These findings highlight the complementary benefits of telemedicine and in-person care models, emphasizing the potential value of a hybrid approach to antenatal care.

DISCUSSION

Our observations indicate that there were no major technical flaws in the system. No information leaks or system failures occurred, and patient records were consistently available to the examining physician at the time of consultation.

From the perspective of attending physicians and nursing staff, this type of monitoring proved to be feasible and practical. Our results demonstrate that the remote monitoring of pregnant women is applicable within the Czech Republic and meets expectations in terms of feasibility. The provision of enhanced follow-up through telemedicine (W-DF) offers notable advantages over traditional in-person care (W-PF) in several areas.

Women in the W-DF group, who received additional check-ups via telephone and data-sharing within the app, reported high levels of satisfaction with the adequacy of information provided about their health. They felt reassured by the explanations of test results and the purposes of blood tests, which is consistent with expectations given the additional time and interactions involved in remote follow-up. The sense of being adequately informed is a critical aspect of medical care, and modern technology enhances opportunities for patients to interact with their care providers (8, 9).

Women in the W-DF group also expressed confidence that their personal information was handled securely and respectfully. Privacy is a key concern in e-health and telemedicine (10–12). Our study assured participants that their data were anonymized and safeguarded, alleviating concerns about information breaches.

In contrast, women in the W-PF group reported higher levels of preparedness for childbirth, as well as greater attention to personal expectations, quality of life during pregnancy, and guidance on moderate exercise. The in-person care model also provided more information about community programmes relevant to pregnancy. These differences are likely influenced by individual factors and the timing of information delivery during routine care by outpatient gynaecologists, often occurring earlier in pregnancy. Since participants entered the study at 35–36 weeks of pregnancy, much of this information should have been conveyed prior to their enrolment in the study.

One notable drawback reported by W-PF participants was that their care providers appeared rushed during appointments. Conversely, they were more likely to report that their providers responded promptly to telephone inquiries. The W-DF group benefited from additional opportunities to contact their physician, including telephone consultations, which may have contributed to their sense of sufficient communication and care.

The overall similarity in total satisfaction scores between the two groups suggests that telemedicine follow-up (W-DF) is comparable to conventional in-person prenatal care (W-PF) in terms of subjective patient experiences.

Implications of Outpatient Visits

Outpatient visits impose logistical and psychological burdens on patients, particularly mothers with multiple children. In our study, 26.68% of women reported needing to arrange childcare for their appointments. Additionally, travel times for in-person check-ups ranged from less than 30 minutes to over two hours for some participants. Travel and waiting times, coupled with time away from work or household responsibilities, exacerbate the burden of in-person care. Remote monitoring has the potential to alleviate these challenges by reducing travel and waiting times, offering a cost-effective and time-saving alternative for patients.

Several factors unrelated to the telemedicine intervention may have influenced our findings. For example, participants had already received long-term prenatal care from outpatient gynaecologists before joining the study, potentially affecting their experiences and expectations. Although prenatal care in the Czech Republic is generally of high quality (13, 14), gaps in meeting patient expectations may still exist (15).

This study highlights the strengths and limitations of telemedicine in prenatal care for women with low-risk pregnancies. Telemedicine offers a feasible and satisfactory alternative to traditional care, excelling in areas such as information delivery,

confidentiality, and accessibility (4). However, differences in patient experiences reveal unique strengths and weaknesses of each model. Telemedicine provides convenience and clarity, while in-person care offers superior preparation for childbirth and lifestyle guidance.

A hybrid model that combines the strengths of both approaches may provide optimal outcomes for prenatal care. Future research with larger sample sizes and extended follow-up periods could further validate these findings and refine telemedicine's role in antenatal care.

Limitations

This study has several limitations. Participants in the telemedicine (W-DF) group received only 2–4 remote follow-ups, depending on the individual course of their pregnancy (e.g., pre-term or post-term delivery). While the application proved to be user-friendly and functioned without technical or communication complications, a more comprehensive evaluation of its effectiveness would require longer-term follow-up and additional check-ups. Increasing the sample size in future studies would also enhance the generalizability of the findings.

The study highlighted areas where telemedicine may currently fall short compared to traditional in-person care. Women in the W-DF group reported lower satisfaction with their preparedness for childbirth and their connection to community resources, which are often better addressed in face-to-face consultations (1). Additionally, topics such as moderate exercise and dietary guidance received lower ratings among telemedicine participants, likely due to the reduced opportunities for extended, personalized discussions that occur during in-person appointments (4).

These findings reveal potential gaps in telemedicine services that could be addressed by enhancing the app's content and incorporating supplementary telehealth sessions. Such additions could include structured guidance on lifestyle modifications, video consultations for personalized discussions, and greater access to community resources. Improvements in these areas may help telemedicine participants feel more prepared for childbirth and improve their overall satisfaction with care (8).

Another limitation is the relatively high dropout rate in the telemedicine group, where 27 women did not return the postnatal questionnaire. All of these participants had an uncomplicated course of pregnancy, and no adverse outcomes were reported. We assume that the main reason for dropout was a lower motivation to complete the survey rather than dissatisfaction with care, as participation required additional effort several weeks after delivery via an online platform. Nevertheless, this non-response may have introduced a selection bias, and the findings should therefore be interpreted with caution.

Potential Bias in Satisfaction Ratings due to Timing and Mode of Questionnaire Administration

An important limitation of this study relates to the timing and method of questionnaire administration, which differed between the two groups and may have introduced bias into patient satisfaction scores.

Participants in the in-person care group (W-PF) received the satisfaction questionnaire in paper form on the postpartum ward within 1–4 days after delivery, when physical exhaustion, hormonal changes, and heightened emotional reactivity may have influenced their immediate perceptions of care. In contrast, participants in the telemedicine group (W-DF) received the same questionnaire electronically, several weeks to months after childbirth, with greater temporal and emotional distance from the delivery experience, i.e., in a more reflective state, but with a greater risk of recall bias. These differences in emotional and cognitive context could partly explain variations in satisfaction reporting between the groups and should be taken into account when interpreting the results.

Additionally, the mode of administration – paper-based vs. electronic – may have influenced the depth and care with which participants engaged with the questionnaire, as prior research suggests that self-administered online surveys often promote more thoughtful and less socially desirable responses (18, 19).

Given these differences, direct comparison of absolute satisfaction scores between groups should be interpreted with caution, as they may partly reflect differences in emotional state and context at the time of survey completion rather than purely differences in care quality.

CONCLUSIONS

Our findings demonstrate that incorporating remote monitoring into prenatal care for low-risk pregnancies has practical and meaningful applications. The use of our telemedicine application was safe, user-friendly, and effective, with no technical or communication complications reported. Women in the telemedicine group benefited from enhanced understanding of their examinations and greater awareness of their health status while maintaining confidence in the security of their personal data.

Telemedicine also has the potential to reduce the social and logistical burdens on patients, such as minimizing the time spent traveling to in-person visits, enabling women to maintain work commitments, or care for other household members (20). These features highlight its value as a flexible and accessible alternative to traditional prenatal care.

However, face-to-face interactions remain essential for addressing certain aspects of prenatal care, such as preparing patients for childbirth, discussing psychosocial concerns, and connecting them to community resources. A hybrid model that combines the convenience of telemedicine with periodic in-person visits could optimize prenatal care delivery, addressing both the practical and emotional needs of patients (4, 5).

This study illustrates the viability of telemedicine for prenatal care, particularly in delivering clear, secure, and accessible information to low-risk patients. While telemedicine provides significant benefits, further research is needed with larger sample sizes and extended follow-up periods to validate these findings. Future studies should also explore strategies to bridge the gaps in areas such as lifestyle guidance, community connections, and preparation for childbirth, thereby refining telemedicine's role in prenatal care.

Conflicts of Interest
None declared

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