

Pregnant Women's Reasons for Using Mobile Applications, Trust Levels, and Integration into Daily Life: A Turkish Case Study

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Abstract

Introduction: Mobile health (mHealth) applications are increasingly used in pregnancy for information access, symptom tracking, and self-management. However, variability in content quality and concerns about privacy and usability may affect women's engagement. This study aimed to describe pregnant women's reasons for using pregnancy-focused mHealth applications in Türkiye, assess trust in app content, and examine how these tools are integrated into daily life.

Methods: This descriptive cross-sectional study was conducted between June 2025 and September 2025 with 544 pregnant women who had used at least one pregnancy-related mobile application. Data were collected using a researcher-developed questionnaire covering sociodemographic and obstetric characteristics, reasons and patterns of app use, trust in app content, and integration of apps into daily routines. Descriptive statistics were used for analysis.

Results: Participants had a mean age of 30.10 ± 5.83 years, and a mean gestational age (weeks) of 23.94 ± 9.58 . The primary reasons for app use were pregnancy tracking (44.7%) and information seeking (43.4%). Social media was the most common source of app discovery (77.2%). While 66.9% considered app information reliable, most preferred physicians' advice when conflicts occurred. Reported benefits included quick information access and easier monitoring, whereas 51.1% reported increased anxiety.

Discussion and Conclusion: mHealth use among pregnant women in Türkiye is widespread; however, gaps remain between information acquisition and behavioral change. Integrating app curation, digital health-literacy counseling, notification management, and clear privacy guidance into nursing practice may enhance the safe and effective use of mHealth as a complementary component of antenatal care.

Keywords: Activities of daily living; Mobile applications; Patient satisfaction; Pregnancy; Smartphones; Türkiye

Pregnancy is a physiological yet transformative period during which women's information needs increase and self-management skills gain critical importance. With the rapid expansion of digital technologies, mobile health

(mHealth) applications have become widely used tools for accessing pregnancy-related information, tracking symptoms, and regulating daily routines.^[1,2] Evidence suggests that such applications may support antenatal

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follow-up, enhance self-care behaviors, and improve adherence to recommended practices.^[3–5] However, commercial pregnancy apps vary considerably in scientific accuracy, content quality, and user safety, which may limit their clinical benefit and lead to inconsistent user experiences.^[6] This variability underscores the need to reconsider how digital tools can be safely and effectively integrated into routine maternal care.

Nurses play a pivotal role in guiding pregnant women to reliable information sources, translating digital information into individualized care plans, and monitoring behavioral changes. Within this framework, nurses act as a clinical interface by curating trustworthy applications and evaluating and strengthening digital health literacy. In addition, they incorporate app-derived data – such as symptom logs, physical activity, sleep, and nutrition – into face-to-face consultations.^[7] eHealth literacy is central to this process, and instruments such as the eHEALS scale help assess a user's ability to interpret and appropriately use digital information.^[8]

Privacy, data protection, and transparency also strongly shape pregnant women's trust in and continued use of pregnancy-related mHealth applications. Concerns related to data sharing, commercial advertisements, and ambiguous scientific sources may influence engagement and perceived usefulness.^[2,6] Prior studies indicate that clear consent procedures, data minimization, secure authentication, and appropriate notification management help reduce information overload and strengthen trust.^[1,4,5,8]

Considering the growing digital penetration in Türkiye, understanding how pregnant women engage with pregnancy-related mHealth applications – why they use them, how much they trust them, and how they integrate them into daily life – has become increasingly important. Recent research emphasizes the need for culturally appropriate, evidence-based digital tools with personalized content and improved usability, guided when necessary by healthcare professionals.^[9–12] International recommendations, including the World Health Organization Digital Health Guidelines, further highlight the importance of validated, privacy-protective, and clinically integrated digital interventions in maternal care.^[13,14]

In this context, the present study aims to describe pregnant women's reasons for using pregnancy-related mHealth applications in Türkiye, their trust levels, and how these applications are integrated into daily life. The findings are expected to support the development of nursing

practices incorporating digital health-literacy counseling, institution-approved app curation, notification hygiene, and privacy-focused guidance, thereby positioning mHealth as a complementary component of antenatal care.

Materials and Methods

Study Design

This descriptive and cross-sectional study examined the use of pregnancy-related mobile health (mHealth) applications among pregnant women in Türkiye. The research questions were as follows:

1. What are the purposes and frequencies of pregnancy-related mHealth application use among pregnant women?
2. What is the level of trust in the information provided by these applications?
3. What perceived positive and negative effects of these applications on daily life are reported by pregnant women?

Setting and Sample

The study was conducted in Türkiye between June 2025 and September 2025 with a sample of 544 pregnant women who had internet access and had used at least one pregnancy-related mHealth application. Because a non-probabilistic purposive and snowball sampling approach was used, formal sample size or power calculations were not performed; instead, the final sample size was determined based on feasibility and participant accessibility during the study period.

Inclusion criteria: age ≥ 18 years; ongoing pregnancy; use of at least one pregnancy-related mobile application; Turkish literacy. Exclusion criteria: not currently pregnant and/or not using a mobile application; unwillingness to participate.

Data Collection

Data were collected using an online survey distributed through social media platforms and pregnancy-related online communities. All items were mandatory to minimize missing data.

Data Collection Tools

Based on a comprehensive literature review, a 32-item questionnaire was developed to assess mHealth use during pregnancy.^[1,3,7,9,10,12,14] Content validity was confirmed by expert review (I-CVI: 0.83–1.00; S-CVI:

0.94), and the tool was piloted with 20 pregnant women. Data obtained from the pilot study were used only to refine the questionnaire and were not included in the final analysis. As the instrument was developed as a multidimensional structured questionnaire assessing conceptually distinct domains rather than a single latent construct, the items were analyzed individually; therefore, internal consistency analysis (e.g., Cronbach's alpha) was not applicable. The final survey comprised four sections: (i) Sociodemographic and obstetric variables (age, education, marital and employment status, gestational week, parity, history of miscarriage/preterm birth, current high-risk status); (ii) Reasons and patterns of mobile-application use (device type, daily use time, app types/names, purpose and frequency of use, proportion of content enacted, partner sharing, social-media referral, effects on decision-making); (iii) Trust and perceptions; (iv) Integration into daily life and perceived effects (behavior change, birth preparation, sense of control/empowerment, anxiety, most useful features, trust in physician vs. app, perceived effectiveness, motivation, facilitators, and areas for improvement). Multiple-choice items allowed more than one response where appropriate.

Data Analysis

Analyses were performed using IBM Statistical Package for the Social Sciences Statistics, Version 27 (IBM Corp., Armonk, NY, USA). Continuous variables were summarized as mean $\pm$ standard deviation where appropriate, and categorical variables were presented as number (n) and percentage (%). For multiple-response items, percentages were calculated at the participant level (i.e., the denominator was the number of respondents to the item). Sociodemographic and obstetric variables were summarized using descriptive statistics.

In addition to descriptive analyses, exploratory inferential analyses were conducted to examine potential associations between selected variables. Chi-square tests were used to assess relationships between categorical variables. Furthermore, binary logistic regression analysis was performed to identify predictors of reported behavioral change. Odds ratios (OR) with 95% confidence intervals (CI) were calculated to estimate the strength of associations. Variables included in the logistic regression model were selected based on theoretical relevance to the outcome variable and their direct association with mobile health (mHealth) application use. Specifically, trust in app information, frequency of application use, and anxiety related to app use were considered key

variables reflecting participants' cognitive engagement with application content, intensity of exposure to digital information, and emotional responses to mHealth use during pregnancy. Sociodemographic and obstetric variables such as gestational trimester, education level, parity, previous miscarriage/preterm birth history, and high-risk pregnancy status were examined separately using chi-square analyses rather than being included in the regression model. A $p < 0.05$ was considered statistically significant. These inferential analyses were interpreted as exploratory and were used to provide additional insight into patterns observed in the descriptive findings.

Ethical Considerations

The study was approved by the Scientific Research and Publication Ethics Committee of Istanbul Health and Technology University (Approval No: 08-08, Date: May 2025). The first page of the online questionnaire provided information about the purpose of the study, the voluntary nature of participation, participant anonymity, and data confidentiality. Electronic informed consent was obtained from all participants before they began the survey. The study was conducted in accordance with the principles of the Declaration of Helsinki.

Results

The study included 544 pregnant women with a mean age of 30.10 ± 5.83 years and a mean gestational age of 23.94 ± 9.58 weeks. Participants were predominantly university educated and mostly in their first pregnancy, while a relatively small proportion reported a current high-risk pregnancy (Table 1).

Participants reported frequent use of pregnancy-related mHealth applications, primarily for pregnancy tracking, information seeking, and lifestyle-related guidance. Several widely used commercial applications were preferred, and app engagement was often notification-driven, with varying levels of content implementation. Social media emerged as the main channel for app discovery (Table 2).

Overall, participants expressed moderate-to-high trust in the information provided by applications, although physician recommendations were consistently preferred when conflicting advice occurred. Trust was most strongly influenced by perceived privacy and security measures, scientific accuracy, and professional recommendations, while approximately half of the participants reported data security concerns (Table 3).

Table 1. Sociodemographic and obstetric characteristics of participants (n=544)

Variable	n	%
Age (min–max), mean±SD	(20–40) 30.10±5.83	
Education level		
Primary school	27	5.0
Middle school	21	3.9
High school	147	27.0
University	293	53.9
Postgraduate	56	10.3
Employment status		
Employed	197	36.2
Unemployed	155	28.5
Homemaker	192	35.3
Gestational week, mean±SD	23.94±9.57	
Number of pregnancies		
One	358	65.8
Two	111	20.4
Three or more	75	13.8
High-risk pregnancy		
Yes	49	9.0
No	495	91.0

n: number; %: Percentage; SD: Standard deviation.

Regarding integration into daily life, some participants reported positive behavioral changes – particularly in stress management, sleep habits, physical activity, and diet – whereas others indicated no noticeable change. Emotional responses to app use were mixed, with a substantial proportion reporting increased anxiety despite perceived informational benefits. Technical issues, time burden, and data security concerns were commonly identified as barriers, and participants emphasized the need for improved usability, personalization, and technical support (Table 4).

A statistically significant association was observed between perceived trust in app information and reported behavioral change ($\chi^2=8.92$, $p=0.032$). Participants expressing higher levels of trust were more likely to report positive health-related behavioral adaptations compared to those with lower trust levels. This finding suggests that perceived reliability may influence the integration of digital health information into daily self-care behaviors during pregnancy (Table 5).

A statistically significant association was found between perceived trust in app information and anxiety related to app use ($\chi^2=11.1$, $p=0.026$), indicating that the likelihood

of reporting increased anxiety differed across trust-level categories (Table 6).

Binary logistic regression analysis was performed to assess whether trust in app information, frequency of app use, and anxiety independently predicted behavioral change among participants. The model demonstrated that trust and anxiety were significant predictors of behavioral change, whereas frequency of use was not statistically significant. As perceived trust in the app content increased, the likelihood of reporting behavioral change increased significantly ($\beta=0.180$, $OR=1.20$, 95% $CI: 1.02–1.40$, $p=0.027$). In other words, each one-point increase in trust level was associated with approximately a 20% increase in the odds of reporting behavioral change. Conversely, higher anxiety related to app use was associated with a decreased likelihood of behavioral change ($\beta=-0.366$, $OR=0.69$, 95% $CI: 0.49–0.98$, $p=0.039$). Participants experiencing anxiety had approximately 31% lower odds of reporting behavioral change compared to those without anxiety. Overall, these findings indicate that emotional and cognitive responses to app content may play a more critical role in shaping behavioral adaptation than the frequency of app use itself (Table 7).

Chi-square analyses were performed to examine the association between increased anxiety and selected obstetric and sociodemographic variables (Table 8). A statistically significant association was found between gestational trimester and increased anxiety ($\chi^2=6.91$, $p=0.032$). In addition, education level was significantly associated with anxiety ($\chi^2=9.70$, $p=0.046$). Parity (number of pregnancies) also showed a significant association with anxiety ($\chi^2=7.82$, $p=0.021$). Furthermore, previous miscarriage/preterm birth history was significantly associated with increased anxiety ($\chi^2=4.13$, $p=0.041$). No statistically significant association was observed between high-risk pregnancy status and increased anxiety ($\chi^2=0.21$, $p=0.644$) (Table 8).

Discussion

This study demonstrates that digitally connected pregnant women in Türkiye frequently use mobile health (mHealth) applications; however, the extent to which they translate app-based information into sustained behavioral change appears limited. The demographic characteristics of the sample – particularly the mean age and gestational week, the predominance of first pregnancies, and the high proportion of university-educated participants – suggest that the findings largely reflect the experiences of digitally literate, second-trimester users. This context helps

Table 2. Use of mobile health applications: Reasons and habits (n=544)

Item/question	Category	n	%
Devices used for mobile health apps	Smartphone	174	32.0
	Tablet	185	34.0
	Computer	185	34.0
Average daily use of mobile devices	<1 h	38	7.0
	1–3 h	341	62.7
	3–5 h	109	20.0
	More than 5 h	56	10.3
Purpose of mobile health app use [†]	Pregnancy tracking	243	44.7
	Nutrition guidance	220	40.4
	Exercise programs	219	40.3
	Prenatal education and information	230	42.3
	Baby monitoring	225	41.4
Which apps do you use most frequently? [†]	Baby center	173	31.8
	My pregnancy tracker	173	31.8
	Piquq	169	31.1
	What to expect	168	30.9
	Preglife	164	30.1
	Happy mom	166	30.5
	Pregnancy+	160	29.4
	Countdown to birth	161	29.6
	Elika pregnancy	152	27.9
	Miracle mom	147	27.0
Main purposes of app use [†]	Tracking pregnancy progress	230	42.3
	Acquiring health information	236	43.4
	Learning about childbirth	227	41.7
	Communicating with professionals	221	40.6
	Monitoring diet and exercise	229	42.1
How often do you check the app?	Once per week	110	20.2
	Several times per week	101	18.6
	Once per day	108	19.9
	More than once per day	106	19.5
	Whenever notified	119	21.9
How much of the app content do you apply?	None	127	23.3
	Part of it	139	25.6
	Most of it	145	26.8
	All	133	24.4
Sharing app content with partner	Yes	175	32.2
	No	191	35.1
	Rarely	178	32.7
Downloaded via social media recommendation	Yes	420	77.2
	No	124	22.8
Effect of apps on decision-making	More conscious decisions	96	17.6
	Some effect	178	32.7
	No effect	189	34.7
	Makes decisions unclear	81	14.9

†: Multiple responses possible; percentages may exceed 100; n: number; %: Percentage.

Table 3. Trust and perception toward mobile health applications (n=544)

Item	Category	n	%
I find the information provided in the apps reliable	Strongly disagree	27	5.0
	Disagree	50	9.2
	Neutral	103	18.9
	Agree	222	40.8
	Strongly agree	142	26.1
When app content conflicts with my doctor's advice, I trust my doctor	Strongly disagree	18	3.3
	Disagree	58	10.7
	Neutral	108	19.9
	Agree	222	40.8
	Strongly agree	138	25.4
The app content is based on scientific evidence	Strongly disagree	24	4.4
	Disagree	61	11.2
	Neutral	97	17.8
	Agree	229	42.1
	Strongly agree	133	24.4
The apps help me monitor pregnancy more consciously	Strongly disagree	19	3.5
	Disagree	56	10.3
	Neutral	110	20.2
	Agree	240	44.1
	Strongly agree	119	21.9
The content is unbiased and ad-free	Strongly disagree	19	3.5
	Disagree	48	8.8
	Neutral	98	18.0
	Agree	213	39.2
	Strongly agree	166	30.5
The app information positively affects my mood	Strongly disagree	31	5.7
	Disagree	149	27.4
	Neutral	199	36.6
	Agree	128	23.5
	Strongly agree	37	6.8
Factors influencing trust [†]	Recommendation by health professionals	280	51.5
	User reviews and ratings	261	48.0
	Scientific accuracy	267	49.1
	Privacy and security measures	283	52.0
Do you have security concerns?	Yes	273	50.2
	No	271	49.8

†: Multiple responses possible; percentages may exceed 100. n: number, %: Percentage.

explain several patterns observed in the study, including the prominence of social media as a discovery channel, relatively high perceived reliability of app content, and the persistence of a knowledge–action gap despite high levels of engagement.^[8,10,15]

When compared with international findings, the patterns of pregnancy-related mHealth application use observed in Türkiye show broad similarities as well as some contextual differences. Consistent with studies conducted in Australia, Europe, and other high-income settings, pregnant women

Table 4. Integration and impact of mobile applications on daily life (n=544)

Item	Category	n	%
Changes in daily life due to app use†	Change in diet	143	26.3
	Started exercising	155	28.5
	Paid more attention to sleep	156	28.7
	Managed stress better	159	29.2
	No change	208	38.2
Did the information you learned affect your birth preparation?	Yes	123	22.6
	No	284	52.2
	Partly	137	25.2
Did app use make you feel stronger/in control?	Yes	127	23.3
	No	289	53.1
	Neutral	128	23.5
Does app content increase your anxiety?	Yes	278	51.1
	No	266	48.9
Most beneficial aspects of appst	Easy access to information	243	44.7
	Tracking my own process	232	42.6
	Strengthening maternal feelings	219	40.3
	Saving time	228	41.9
	Reducing worry and stress	230	42.3
Have you trusted apps instead of health professionals?	Yes, a few times	142	26.1
	No	257	47.2
	Unsure	145	26.7
How effective were apps in addressing your knowledge gaps?	Very effective	83	15.3
	Effective	200	36.8
	Somewhat effective	167	30.7
	Ineffective	94	17.3
Motivation for starting to use appst	Health professional recommendation	285	52.4
	Personal concerns	273	50.2
	Other users' suggestions	280	51.5
	Useful content	267	49.1
How much do apps make daily life easier?	Not at all	15	2.8
	Slightly	135	24.8
	Moderately	248	45.6
	Very much	146	26.8
Main difficulties in integrating apps into daily lifet	Complexity of the app	205	37.7
	Insufficient information	226	41.5
	Technical issues	234	43.0
	Time-consuming	230	42.3
	Data security concerns	237	43.6
Areas for improvement†	User-friendly interface	290	53.3
	More personalized content	284	52.2
	Safer data management	276	50.7
	Enhanced technical support	285	52.4

†: Multiple responses possible; percentages may exceed 100. n: number, %: Percentage.

Table 5. Association between trust in app information and behavioral change

Variable: I find the information provided in the apps reliable		
Trust level	No behavioral change (n)	Behavioral change (n)
Strongly disagree	9	18
Disagree	18	32
Neutral	41	62
Agree	90	132
Strongly agree	50	92

 $\chi^2=8.92$; $p=0.032$.**Table 6.** Association between trust in app information and anxiety increase

Variable: I find the information provided in the apps reliable		
Trust level	Anxiety not increased (n)	Anxiety increased (n)
Strongly disagree	8	19
Disagree	29	21
Neutral	53	50
Agree	109	113
Strongly agree	67	75

 $\chi^2=11.1$; $p=0.026$.**Table 7.** Logistic regression analysis predicting behavioral change

Variable	β	SE	OR (Exp β)	95% CI	p
Trust	0.180	0.081	1.20	1.02–1.40	0.027
Frequency	-0.004	0.062	0.996	0.88–1.12	0.943
Anxiety	-0.366	0.178	0.69	0.49–0.98	0.039

SE: Standard error; OR: Odds ratio; CI: Confidence interval. Behavioral change was coded as 1=change reported; 0=no change. OR values >1 indicate increased odds, whereas OR values <1 indicate reduced odds of behavioral change.

Table 8. Associations between increased anxiety and obstetric and sociodemographic characteristics

Variable	Category	Anxiety (Yes) n	Anxiety (No) n	χ^2	p
Trimester	1 st	57	43	6.91	0.032
	2 nd	116	107		
	3 rd	105	116		
High-risk pregnancy	Yes	23	26	0.21	0.644
	No	255	240		
Education level	Primary school	12	15	9.70	0.046
	Middle school	8	13		
	High school	75	72		
	Bachelor's degree	155	138		
Parity	Postgraduate degree	28	28	7.82	0.021
	1	177	181		
	2	59	52		
Previous miscarriage/preterm birth	3+	42	33	4.13	0.041
	Yes	51	55		
	No	227	211		

primarily use mobile applications for information seeking, pregnancy tracking, and lifestyle-related guidance, and often discover these tools through digital platforms and social media.^[1,2,16] Across countries, trust in app content is generally reported as moderate to high; however, in line with international evidence, professional medical advice remains the primary reference point when conflicting information arises.^[2,6,17]

Participants' frequent use of applications for information seeking, pregnancy monitoring, and notification-driven checking aligns with prior research identifying education, monitoring, and reminders as core features of pregnancy-related applications.^[2,5,10] The influence of social media-based recommendations also reflects broader trends in maternal health information pathways, where digital platforms increasingly shape how pregnant women

access and evaluate health information.^[11,16] However, only a minority of participants reported implementing most or all of the information obtained from these applications, suggesting limitations related to usability, personalization, and practical applicability. Similar observations have been reported in studies indicating that many commercial pregnancy applications lack tailored guidance or culturally appropriate content.^[6,9,18]

In addition, exploratory analyses were conducted to examine potential relationships between trust in app information, behavioral change, anxiety, and selected sociodemographic and obstetric variables. Given the non-probabilistic sampling approach and the absence of predefined hypotheses, these analyses were interpreted cautiously and were intended to provide additional insight into patterns observed in the descriptive findings.

A substantial proportion of participants reported increased anxiety related to mobile application use. This finding is consistent with international studies examining intensive digital exposure during pregnancy.^[14,19,20] Emotional responses to digital health tools may vary depending on factors such as digital health literacy, notification frequency, application design, and the extent to which digital tools are integrated into routine clinical care. Similarly, the limited translation of app-based information into sustained behavioral change observed in this study aligns with global research suggesting that pregnancy-related mobile applications often function primarily as informational and supportive resources rather than as independent drivers of health behavior change.^[2,6,10]

Although most participants perceived app information as reliable, concerns related to privacy, advertising, and scientific accuracy indicate a complex trust environment. The preference for physicians' advice when conflicting information arises reinforces the role of mobile applications as complementary rather than substitutive components of antenatal care.^[2,6,12] International recommendations also highlight the importance of transparent privacy safeguards, evidence-based content, and validation mechanisms to strengthen trust in digital maternal health tools.^[13,17]

The widespread adoption of pregnancy applications alongside notable privacy concerns underscores the importance of secure data practices in digital health. Limited translation of digital information into behavioral outcomes is also consistent with global evidence showing that commercial pregnancy applications vary considerably in scientific rigor and may not consistently influence maternal health indicators.^[2,3,6,10] The variability in perceived effects on decision-making – ranging from improved awareness to confusion – may reflect cognitive overload, a recognized

challenge in digital health environments where excessive or poorly structured information can overwhelm users.^[14,21] Strategies such as simplifying information architecture, prioritizing key recommendations, and clarifying symptom thresholds may help reduce this burden.

Exploratory analyses in this study revealed a significant association between perceived trust in app information and reported behavioral change. Participants who considered the information provided by mobile applications reliable were more likely to report adopting health-related behavioral modifications. This finding suggests that the perceived credibility of digital health information may influence whether pregnant women translate app-based knowledge into practical self-care behaviors. Previous studies examining pregnancy-related mobile applications similarly report that trust in app content – particularly when perceived as evidence-based – facilitates adherence to recommended practices such as nutrition monitoring, physical activity, and symptom tracking.^[2,6,22]

A statistically significant relationship was also identified between perceived trust in application information and increased anxiety related to app use. Although greater trust may encourage engagement and behavioral adaptation, emotional responses to digital information can vary across users. Previous research has shown that extensive exposure to online pregnancy information may simultaneously enhance perceived control while increasing anxiety, particularly when applications emphasize risk-related content or deliver frequent notifications.^[14,19,21,23] These findings suggest that while trusted digital information may support self-management, excessive or poorly contextualized information may contribute to psychological distress in some users.

Logistic regression analysis further indicated that trust in app information and anxiety were significant predictors of behavioral change, whereas frequency of application use was not statistically significant. Increased trust was associated with a higher likelihood of reporting behavioral change, while anxiety was associated with a reduced likelihood of such change. These results suggest that cognitive and emotional responses to digital health information may play a more important role in shaping behavioral adaptation than simple exposure to mobile applications. Similar findings have been reported in studies linking certain smartphone usage patterns during pregnancy with higher anxiety levels.^[24]

Furthermore, increased anxiety related to mobile application use was significantly associated with

gestational trimester, education level, parity, and a history of miscarriage or preterm birth. These findings align with previous literature indicating that psychological responses to pregnancy information may vary depending on reproductive experience and perceived vulnerability during pregnancy. Women with previous adverse pregnancy outcomes or those experiencing pregnancy for the first time may demonstrate greater sensitivity to health-related information obtained from digital sources.^[10,25,26]

Taken together, these findings highlight that both trust in digital health information and emotional responses to mobile applications play key roles in determining the effectiveness of pregnancy-related mHealth tools. While trusted applications may encourage beneficial behavioral adaptations, excessive exposure to digital information may also contribute to anxiety among some users. In this context, nurses and midwives play an important role as intermediaries between pregnant women and digital health technologies. Strengthening digital health literacy, recommending evidence-based applications, and integrating app-derived information into antenatal consultations may help ensure safer and more effective use of mHealth tools during pregnancy. Personalized digital counseling and guidance on notification management and privacy protection may further support informed decision-making while reducing information overload. Evidence suggesting that structured professional support improves self-monitoring, emotional regulation, and preparation for childbirth reinforces the importance of professional oversight when incorporating digital technologies into maternal care.^[4,5,12,19,20,25]

In this study, several limitations should be considered. Participants were at different gestational stages, which may have influenced patterns of mHealth application use, levels of trust in app content, and perceived effects. The exclusive use of online data collection and the relatively high proportion of highly educated participants may have contributed to selection bias by favoring women who are more digitally engaged and comfortable with mobile technologies, thereby limiting the generalizability of the findings. Self-reported data are subject to potential recall and social desirability biases. Treating mHealth applications as a single category may obscure substantial heterogeneity in content quality and functionality. Moreover, the study did not assess clinical outcomes such as antenatal care adherence or maternal–infant health indicators. Unmeasured factors – including digital literacy, prior digital experience, and mental health status – may also have influenced the findings.

Conclusion

This study shows that pregnant women in Türkiye actively use mobile health (mHealth) applications; however, a gap remains between accessing digital information and translating it into consistent behavioral change. Although these applications are widely used for information seeking and pregnancy monitoring, frequent notification-driven engagement does not necessarily result in meaningful application of health information in daily life.

While many participants reported moderate-to-high trust in app content, ongoing concerns regarding privacy, usability, and information reliability highlight the limitations of relying solely on digital tools during pregnancy. The strong preference for physicians' guidance when conflicting information arises reinforces the view that mHealth applications should function as complementary tools rather than replacements for professional antenatal care.

These findings suggest that integrating evidence-based mHealth applications into antenatal care with appropriate professional guidance – particularly through digital health literacy support and app recommendation by healthcare professionals – may help improve the safe and effective use of digital technologies during pregnancy.

Ethics Committee Approval: The Istanbul Health and Technology University Scientific Research and Publication Ethics Committee granted approval for this study (date: 07.05.2025, number: 08-08).

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References

1. Brammall BR, Hayman MJ, Harrison CL. Pregnancy mobile app use: A survey of health information practices and quality awareness among pregnant women in Australia. *Womens Health (Lond)* 2024;20:17455057241281236. [\[CrossRef\]](#)
2. Nissen M, Huang SY, Jäger KM, Flaucher M, Titzmann A, Bleher H, et al. Smartphone pregnancy apps: systematic analysis of features, scientific guidance, commercialization, and user perception. *BMC Pregnancy Childbirth* 2024;24(1):782. [\[CrossRef\]](#)

3. Garg N, Arunan SK, Arora S, Kaur K. Application of mobile technology for disease and treatment monitoring of gestational diabetes mellitus among pregnant women: a systematic review. *J Diabetes Sci Technol* 2022;16(2):491-7. [CrossRef]
4. Mishra M, Parida D, Murmu J, Singh D, Rehman T, Kshatri JS, Pati S. Effectiveness of mHealth interventions for monitoring antenatal care among pregnant women in low- and middle-income countries: A systematic review and meta-analysis. *Healthcare (Basel)* 2023;11(19):2635. [CrossRef]
5. Wei HX, Yang YL, Luo TY, Chen WQ. Effectiveness of mobile health interventions for pregnant women with gestational diabetes mellitus: a systematic review and meta-analysis. *J Obstet Gynaecol* 2023;43(2):2245906. [CrossRef]
6. Frid G, Bogaert K, Chen KT. Mobile health apps for pregnant women: systematic search, evaluation, and analysis of features. *J Med Internet Res* 2021;23(10):e25667. [CrossRef]
7. Özkan Şat S, Yaman Sözbir Ş. Use of mobile applications and blogs by pregnant women in Turkey and the impact on adaptation to pregnancy. *Midwifery* 2018;62:273-7. [CrossRef]
8. Norman CD, Skinner HA. eHEALS: The eHealth Literacy Scale. *J Med Internet Res* 2006;8(4):e27. [CrossRef]
9. Lazarevic N, Pizzuti C, Rosic G, Boehm C, Williams K, Caillaud C. A mixed-methods study exploring women's perceptions and recommendations for a pregnancy app with monitoring tools. *NPJ Digit Med* 2023;6(1):50 [CrossRef]
10. Birati Y, Yefet E, Perlitz Y, Shehadeh N, Spitzer S. Cultural and digital health literacy appropriateness of app- and web-based systems designed for pregnant women with gestational diabetes mellitus: scoping review. *J Med Internet Res* 2022;24(10):e37844. [CrossRef]
11. Turkish Statistical Institute. Survey on Information and Communication Technology (ICT) Usage in Households and by Individuals, 2024. Ankara, Türkiye: TurkStat; 2024. Available at: [https://veriportal.tuik.gov.tr/Bulten/Index?p=Hanehalki-Bilisim-Teknolojileri-\(BT\)-Kullanım-Arastırması-2024-53492](https://veriportal.tuik.gov.tr/Bulten/Index?p=Hanehalki-Bilisim-Teknolojileri-(BT)-Kullanım-Arastırması-2024-53492). Accessed July 16, 2026.
12. van Beukering M, Velu A, van den Berg L, Kok M, Mol BW, Frings-Dresen M, et al. Usability and usefulness of a mobile health app for pregnancy-related work advice: mixed-methods approach. *JMIR Mhealth Uhealth* 2019;7(5):e11442. [CrossRef]
13. World Health Organization. WHO guideline: recommendations on digital interventions for health system strengthening. Geneva: WHO; 2019. Available at: <https://www.who.int/publications/i/item/9789241550505>. Accessed July 16, 2026.
14. Lee SH, Nurmatov UB, Nwaru BI, Mukherjee M, Grant L, Pagliari C. Effectiveness of mHealth interventions for maternal, newborn and child health in low- and middle-income countries: systematic review and meta-analysis. *J Glob Health* 2016;6(1):010401. [CrossRef]
15. Hsieh MF, Slavin V, Huang MZ, Wang HH, Hsieh HF. mHealth use during pregnancy: A systematic review. *Int J Gynaecol Obstet* 2025;171(1):124-30. [CrossRef]
16. Mazaheri Habibi M, Moghbeli F, Langarizadeh M, Fatemi Aghda SA. Mobile health apps for pregnant women usability and quality rating scales: a systematic review. *BMC Pregnancy Childbirth* 2024;24:34. [CrossRef]
17. Ameyaw EK, Amoah PA, Ezezika O. Effectiveness of mHealth apps for maternal health care delivery: systematic review of systematic reviews. *J Med Internet Res* 2024;26:e49510. [CrossRef]
18. Lazarevic N, Pizzuti C, Rosic G, Boehm C, Williams K, Caillaud C. Pregnancy apps for self-monitoring: scoping review of the most popular global apps available in Australia. *Int J Environ Res Public Health* 2023;20(2):1012. [CrossRef]
19. Alves L, Ferreira C, Mercê C, Santos-Rocha R. Exploring user profiles and preferences for mobile apps promoting active lifestyles during pregnancy and postpartum: cross-sectional study. *BMC Pregnancy Childbirth* 2025;25(1):558. [CrossRef]
20. Özkan Şat S, Yaman Sözbir Ş. Use of Mobile applications by pregnant women and levels of pregnancy distress during the COVID-19 (Coronavirus) pandemic. *Matern Child Health J* 2021;25(7):1057-68. [CrossRef]
21. Pouriayevali B, Ehteshami A, Kohan S, Saghaeiannejad-Isfahani S. Functionality of self-care for pregnancy mobile applications: A review study. *J Educ Health Promot.* 2022;11(1):415. [CrossRef]
22. Asadollahi F, Ebrahimzadeh Zagami S, Eslami S, Latifnejad Roudsari R. Evaluating the quality, content accuracy, and user suitability of mhealth prenatal care apps for expectant mothers: Critical assessment study. *Asian Pac Isl Nurs J* 2025;9:e66852. [CrossRef]
23. Geusens F, Skalkidou A. A two-wave survey study examining the impact of different sources of pregnancy information on pregnancy-related anxiety among Swedish women. *Eur J Midwifery* 2025;9:1–11. [CrossRef]
24. Guo T, Yu Y, Wang X, Sun Y, Yang C. Correlates of antenatal anxiety: smartphone use, depressive symptoms, and hypertensive disorders in a cross-sectional study in Southwest China. *Front Med (Lausanne)* 2025;12:1682499. [CrossRef]
25. Xu H, Zhou Y, Wang X. Influencing factors of maternal online health information-seeking behavior. *Front Public Health* 2025;13:1592093. [CrossRef]
26. Jamal ME, Al Abed A, El Haj Hassan M, Traboulsi J, Hamze K, Mansour S, Hoballah A, Haidari RE. Internet-based pregnancy information seeking in Lebanon: a cross-sectional study. *BMC Pregnancy Childbirth* 2025;25(1):697. [CrossRef]