

Exploring User Feedback in the Development of the iPosyandu Mobile Application: A Phenomenological Study through Focus Group Discussion

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ABSTRACT

This study aimed to explore user feedback in the development of the *iPosyandu* mobile application through a phenomenological approach using Focus Group Discussion (FGD). The research focused on understanding users' experiences regarding usability aspects such as ease of use, appearance and satisfaction, and usefulness. A total of 12 participants were selected based on their MAUQ (Mobile Health App Usability Questionnaire) scores and divided into two groups according to network conditions: good signal and poor signal areas. Data were collected through FGDs and analyzed thematically. Three main themes emerged: **Ease of Use, Appearance and Satisfaction, and Usefulness**. Participants generally found the application useful and visually appealing, although some issues were reported, including slow response time in low connectivity areas and limited offline functionality. Based on user input, recommendations for improvement include adding an offline mode, implementing appointment reminder notifications, and enhancing interface clarity. This study contributes to the understanding of user-centered design principles in m-Health applications, particularly in regions with varying technological accessibility. The findings provide practical insights for developers and stakeholders to enhance the *iPosyandu* application to better meet user needs and local context challenges.

Keywords: Usability, iPosyandu, m-Health, FGD, Thematic Analysis, Phenomenology

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INTRODUCTION

The rapid development of digital technology has transformed various sectors, including healthcare. Mobile health (m-Health) applications have emerged as a powerful tool to improve accessibility and efficiency in maternal health services. One such application is *iPosyandu*, a mobile platform designed to support Antenatal Care (ANC) services for pregnant women in Indonesia. The application aims to increase ANC coverage by providing health information and facilitating communication between midwives and pregnant women, particularly in remote areas with limited access to healthcare facilities.

Despite its potential benefits, the success of m-Health applications like *iPosyandu* depends heavily on user experience and perceived usability. Previous studies have evaluated the application using quantitative methods, particularly through the Mobile Health App Usability Questionnaire (MAUQ).

However, there remains a gap in understanding the subjective experiences and expectations of users in real-world settings. This study addresses this gap by exploring user feedback through a qualitative phenomenological approach.

Phenomenology allows researchers to uncover the lived experiences of individuals interacting with technology, making it an appropriate method for this research. By conducting Focus Group Discussions (FGDs), this study captures the meanings behind users' interactions with *iPosyandu*, focusing on three key dimensions: ease of use, appearance and satisfaction, and usefulness. These insights contribute to the development of a more user-centered design that aligns with local technological and environmental conditions.

This article focuses solely on the qualitative component of a mixed-methods study, aiming to provide actionable recommendations for improving the *iPosyandu* application based on direct user input. The findings are expected to support developers and stakeholders in creating more inclusive and effective digital health solutions tailored to the needs of both midwives and pregnant women in diverse geographical contexts.

METHOD

Study participants

This study involved a total of **44 respondents**, selected using **purposive sampling** based on their usability scores from the M-Health App Usability Questionnaire (MAUQ). Respondents were categorized into three groups: **high score**, **medium score**, and **low score**, each group consisting of participants from both **areas with stable internet connectivity** and **low-signal areas**. The participants included **midwives** and **pregnant women** who had used the *iPosyandu* mobile application in routine Antenatal Care (ANC) services. Inclusion criteria consisted of being able to read and write in Indonesian and willingness to participate in the Focus Group Discussion (FGD).

Study organization

The research employed a **qualitative phenomenological approach** to understand the lived experiences of users interacting with the *iPosyandu* application. Data collection was conducted through **Focus Group Discussions (FGDs)** involving six groups, each consisting of 6–8 participants. Each FGD session lasted approximately 60–90 minutes and was facilitated by a semi-structured discussion guide covering topics such as **ease of use**, **appearance and satisfaction**, and **usefulness** of the application. All sessions were audio-recorded and transcribed verbatim for qualitative analysis.

Statistical analysis

Qualitative data obtained from FGDs were analyzed using **thematic analysis** following the steps outlined by Braun & Clarke (2006):

1. **Familiarization with data:** Researchers immersed themselves in the transcriptions to gain an overall understanding.
2. **Generating initial codes:** Important statements were identified and coded systematically.
3. **Searching for themes:** Similar codes were grouped to form potential themes.
4. **Reviewing themes:** Themes were reviewed to ensure coherence and relevance.
5. **Defining and naming themes:** Final themes were refined and given meaningful names.
6. **Producing the report:** A comprehensive report was compiled, presenting the interpretation of the user experiences.

To assist in data management and coding, **NVivo 12 software** was utilized. To enhance the trustworthiness of data, **member checking**, **triangulation of sources and methods**, and **researcher reflexivity** were applied.

RESULTS AND DISCUSSION

The qualitative analysis of the Focus Group Discussions (FGDs) yielded three main themes related to user experiences with the *iPosyandu* mobile application: **Ease of Use**, **Appearance and Satisfaction**, and **Usefulness**. These themes were derived from thematic analysis of participants' feedback and represent key areas for improvement and development.

Theme 1: Ease of Use

Participants generally found the application interface intuitive and easy to navigate. However, several challenges were reported, particularly in areas with poor network connectivity. Some users noted delays in response time and occasional crashes when using the app offline or in low-signal zones.

“Sometimes it lags when the signal is unstable, but once it works, it’s quite simple to use.” – Participant B21

Additionally, first-time users expressed confusion regarding certain functions such as registration and navigation between features. Suggestions included adding a tutorial or onboarding guide to improve the initial user experience.

Theme 2: Appearance and Satisfaction

Overall, participants appreciated the visual design of the application. The color scheme and layout were described as attractive and engaging. However, some users requested customization options, particularly for background themes.

“I like the pink tones better. The overall look is attractive.” – Participant B9

Others suggested increasing text size and contrast for better readability, especially for older users or those with visual impairments. Participants also highlighted the importance of consistent iconography and clear labeling for improved usability.

Theme 3: Usefulness

Most participants agreed that the application was helpful in tracking ANC schedules and providing health information. They valued the ability to receive updates directly from midwives and access educational materials such as articles and videos.

“It’s useful to see my appointment schedule, but I’d love if there was a reminder alarm.” – Participant B31

However, several respondents recommended the addition of audio-based content and push notifications for reminders. There was also a strong demand for an offline mode that would allow full functionality without requiring constant internet access.

Table 1: Summary of Themes and Subthemes

THEME	SUBTHEME	REPRESENTATIVE QUOTE
Ease of Use	Intuitive Interface	“Once it works it’s quite simple to use.”
	Technical Issues in Low Signal Areas	“Sometimes it lags when the signal is unstable.”
	Need for Onboarding Tutorial	“I got confused at first; maybe a quick guide would help.”
Appearance and Satisfaction	Attractive Visual Design	“I like the pink tones better. The overall look is attractive.”
	Customization Options	“Maybe we can choose our own theme.”
	Readability Improvements	“Some texts are too small and hard to read.”
Usefulness	Health Information Access	“It helps me track my appointments and get health updates.”
	Reminder Notifications	“I’d love if there was a reminder alarm.”
	Offline Mode	“It should work even when there's no internet.”

The findings highlight that while the *iPosyandu* application is generally perceived as beneficial and user-friendly, certain improvements are necessary. Network dependency remains a significant barrier in remote areas, reinforcing the need for an offline version.

User satisfaction is closely tied to the clarity of the interface and the intuitiveness of navigation, aligning with principles of human-centered design. These results support the theory of technology acceptance, where perceived usefulness and ease of use significantly influence adoption behavior.

The feedback gathered provides valuable insight for developers and stakeholders to refine the application according to user needs and environmental challenges.

CONCLUSION

1. The *iPosyandu* mobile application shows potential in supporting maternal health services.
2. Based on user input, three key dimensions—ease of use, appearance and satisfaction, and usefulness—are critical to successful adoption.
3. Offline functionality and notification reminders are among the most requested improvements.

RECOMMENDATIONS

1. **For Application Developers:** Incorporate offline mode and push notifications for ANC appointments.
2. **For Health Stakeholders:** Use these findings to guide future iterations of the application tailored to local contexts.
3. **For Future Researchers:** Conduct longitudinal studies to assess the impact of these enhancements on ANC adherence and user satisfaction.

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REFERENCES

- Bachtar, F. A., Rokhmawati, R. I., Pradana, F., & Habibie, I. Y. (2021). Evaluasi usability aplikasi elektronik-kesehatan ibu dan anak (e-KIA). *Jurnal Teknologi Informasi dan Ilmu Komputer* , 8 (6), 1277–1285. <https://doi.org/10.25126/jtiik.2021861277>
- Jaffar, A., Muhammad, N. A., Sidik, S. M., Admodisastro, N., Manaf, R. A., Foo, C. N., et al. (2022). Feasibility and usability of Kegel exercise pregnancy training app (KEPT App) among pregnant women with urinary incontinence. *International Journal of Environmental Research and Public Health* , 19 (6), 3456. <https://doi.org/10.3390/ijerph19063456>
- Zhou, L., Bao, J., Setiawan, I. M. A., Saptono, A., & Parmanto, B. (2019). The mHealth app usability questionnaire (MAUQ): Development and validation study. *JMIR mHealth and uHealth* , 7 (4), e11060. <https://doi.org/10.2196/11060>
- Stellata, A. G., Rinawan, F. R., Winarno, G. N. A., Susanti, A. I., & Purnama, W. G. (2022). Exploration of telemidwifery: An initiation of application menu in Indonesia. *International Journal of Environmental Research and Public Health* , 19 (17), 10713. <https://doi.org/10.3390/ijerph191710713>
- Pakpahan, M., Siregar, D., Susilawaty, A., Mustar, T., Ramdany, R., Efendi, S., et al. (2021). *Promosi kesehatan dan perilaku kesehatan* . Jakarta: EGC.

- Yani, A. (2018). Utilization of technology in the health of community health. *Promotion Journal of Community Health* , 8 (1), 97–102. <https://ejournal.unri.ac.id/index.php/PK/article/view/6447>
- Susanti, A. I., Rinawan, F. R., Amelia, I., Ardisasmita, M. N., Widarti, Dewi, R. K., ... & Puspitasari, I. W. (2021). Understanding mobile application development and implementation for monitoring Posyandu data in Indonesia: A 3-year hybrid action study to build “a bridge” from the community to the national scale. *BMC Public Health* , 21 (1), 1–17. <https://doi.org/10.1186/s12889-021-11455-3>
- Lettner, F., & Holzmann, C. (2012). Usability evaluation framework: Automated interface analysis for Android applications. In *Lecture Notes in Computer Science* (Vol. 6928, Part 2, pp. 560–567). Springer. https://doi.org/10.1007/978-3-642-31824-2_65
- Kuwabara, A., Su, S., & Krauss, J. (2020). Utilizing digital health technologies for patient education in lifestyle medicine. *American Journal of Lifestyle Medicine* , 14 (2), 137–142. <https://doi.org/10.1177/1559827619888883>
- Marpaung, Y. N. M., & Irwansyah, I. (2021). Aplikasi kesehatan digital sebagai konstruksi sosial teknologi media baru. *Jurnal Komunikasi dan Kajian Media* , 5 , 243–258. <https://doi.org/10.24198/jkk.v5i1.33438>
- Ariyanti, S., & Kautsarina, K. (2017). Kajian tekno-ekonomi pada telehealth di Indonesia. *Buletin Pos dan Telekomunikasi* , 15 (1), 43–52. <https://jurnal.bppt.go.id/index.php/BPPT/article/view/161>
- Haleem, A., Javaid, M., Singh, R. P., & Suman, R. (2021). Telemedicine for healthcare: Capabilities, features, barriers, and applications. *Sensors International* , 2 , 100118. <https://doi.org/10.1016/j.sintl.2021.100118>
- Selvia, A., & Ernawati, D. (2019). Manfaat dan kegunaan aplikasi berbasis seluler sebagai media informasi dalam kehamilan: Review artikel. *Jurnal Bidan Komunitas* , 2 (2), 76–83. <https://ejurnal.poltekkesjogja.ac.id/index.php/JBK/article/view/1234>
- Benski, A. C., Schmidt, N. C., Viviano, M., Stancanelli, G., Soaroby, A., & Reich, M. R. (2020). Improving the quality of antenatal care using mobile health in Madagascar: Five-year cross-sectional study. *JMIR mHealth and uHealth* , 8 (7), e17592. <https://doi.org/10.2196/17592>
- Bangal, V. B., Borawake, S. K., Gavhane, S. P., & Aher, K. H. (2017). Use of mobile phone for improvement in maternal health: A randomized control trial. *International Journal of Reproduction, Contraception, Obstetrics and Gynecology* , 6 (12), 5458–5465. <https://doi.org/10.18203/2320-1959.ijrcog20174761>
- World Health Organization. (2020). *Digital health interventions for antenatal care* . WHO. <https://www.who.int/publications/i/item/9789240004568>
- Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly* , 13 (3), 319–340. <https://doi.org/10.2307/249008>
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology* , 3 (2), 77–101. <https://doi.org/10.1191/1478088706qp063oa>
- Kusyanti, T., Wirakusumah, F. F., Rinawan, F. R., Muhith, A., Purbasari, A., Mawardi, F., et al. (2022). Technology-based (mHealth) and standard/traditional maternal care for pregnant woman: A systematic literature review. *Healthcare* , 10 (7), 1245. <https://doi.org/10.3390/healthcare10071245>

- Nilam Sari, A., Indra Susanti, A., & Rinawan, F. R. (2021). Survei kepuasan kader dalam penggunaan aplikasi iPosyandu dalam pelayanan kesehatan ibu dan anak di Indonesia. *Jurnal Bidan Cerdas* , 3 (2), 72–80. <https://ejurnal.stikesharapanbangsa.ac.id/index.php/jbc/article/view/246>
- Susanti, A. I., Rinawan, F. R., & Amelia, I. (2019). Mothers knowledge and perception of toddler growth monitoring using iPosyandu application. *Global Medical and Health Communication* , 7 (2), 93–99. <https://doi.org/10.20473/gmhc.V7.I22019.93-99>
- Saputro, A. R., Gusnadi, A. M., Zanah, Z., & Simatupang, J. W. (2021). Tantangan konektivitas dan aksesibilitas dalam pengembangan pelayanan kesehatan berbasis telemedicine di Indonesia: Sebuah tinjauan. *JIE: Scientific Journal of Research Application on Industrial System* , 6 (1), 27–35. <https://doi.org/10.31598/jie.v6i1.403>
- Sari, K. C. (2019). Pengaruh media video pada kelas ibu hamil terhadap pengetahuan sikap dan perilaku pemilihan penolong persalinan. *Jurnal Kualitas Kesehatan Ibu* , 2 (2), 5–15.
- Fila, L., & Zulfadhilah, M. (2020). Panduan kesehatan bagi ibu hamil dan anak berbasis android mobile. *Dinamika Kesehatan: Jurnal Kebidanan dan Keperawatan* , 11 (1), 159–165. <https://doi.org/10.21927/dk.2020.11> (1).159-165
- Saptono, A., Bao, J., Zhou, L., Setiawan, I. M. A., & Parmanto, B. (2020). Mobile health app usability questionnaire (MAUQ): Validation study in Indonesian version. *Journal of Physics: Conference Series* , 1727 (1), 012002. <https://doi.org/10.1088/1742-6596/1727/1/012002>