SOUTH EAST ASIA NURSING RESEARCH
Available on : https://jurnal.unimus.ac.id/index.php/SEANR

Research article

Development and Preliminary Evaluation of ASIApp for Breastfeeding Education: A Single-Group Pretest–Posttest Study in Makassar

Asmi[1], Machmudah[1], Sri Rejeki[1]

[1] Master of Nursing Program, Universitas Muhammadiyah Semarang

Article Info

Article History:
Submitted: Jan 6th 2026
Accepted: March 15th 2026
Published: August 30th 2026

Keywords:
breastfeeding; mobile health; Android application; health education; feasibility

Abstract

Exclusive breastfeeding requires sustained practical and social support. This study examined development and preliminary evaluation of asiapp for breastfeeding education using a digital educational product development followed by a single-group pretest–posttest pilot. The study took place at RSKDIA Pertiwi maternity hospital, Makassar, Indonesia, in 2026 and included 10 mothers in a preliminary usability trial and 33 breastfeeding mothers recruited purposively for the main pretest–posttest evaluation. The intervention consisted of Android ASIApp application with breastfeeding information, interactive navigation and learning materials. Outcomes were assessed using structured questionnaires on breastfeeding knowledge, attitudes, reported practices and self-confidence; separate media and content expert appraisal. The application received an overall assessment of 82% from the media expert review and 79% from the content expert review. In the main pilot (n = 33), the thesis reports improvements in questionnaire-derived knowledge, attitudes, practices and confidence after use, with reported tests below the 0.05 threshold. The available outcome tables do not establish the percentage of infants exclusively breastfed through six months; the stronger thesis wording about breastfeeding success should therefore be interpreted as changes in short-term educational measures. In interpretation, a mobile application may consolidate anticipatory guidance, practical explanations and confidence-building information into a reusable resource. The current findings principally address acceptability and proximal maternal outcomes, not sustained infant-feeding behaviour. The design and measurement constraints mean that associations should not be represented as definitive causal effects.

INTRODUCTION

Exclusive breastfeeding requires sustained practical and social support. Digital education can deliver consistent information repeatedly and at mothers' preferred times, but outcomes such as knowledge and confidence are not equivalent to verified exclusive breastfeeding at six months. Product-development studies should distinguish technical feasibility, user response and objective clinical endpoints.[1,2,3]

Corresponding author:
Machmudah
machmudah@unimus.ac.id
South East Asia Nursing Research, Vol 8 No 2, August 2026
ISSN:2685-032X
DOI: https://doi.org/10.26714/seanr.8.2.2026.65-69

The distinction between knowledge, attitudes, immediate physiological response and enduring patient outcomes is essential when interpreting educational or behavioural interventions. Measures may change because of repeated testing, increased attention, changes in care environments or clinical recovery. Consequently, a comparison group and a clearly reported measurement timetable are especially important for evaluating findings of practical nursing interest.[4,5,6,7]

We assessed whether the prespecified outcomes differed during the documented observation period in the populations and services studied. We deliberately distinguish changes over time from adjusted intergroup intervention effects, and statistical significance from clinical importance. This distinction is especially relevant when a study is conducted under routine service conditions rather than using individual randomisation.

METHODS

Study design and setting

The investigation used a digital educational product development followed by a single-group pretest–posttest pilot. It was conducted in RSKDIA Pertiwi maternity hospital, Makassar, Indonesia, in 2026. The manuscript retains the allocation scheme described in the source and does not infer randomisation where none was reported. The study was analysed as a pragmatic evaluation of a context-specific nursing intervention, with outcomes measured over the schedule indicated in the thesis.

Participants and allocation

The study enrolled 10 mothers in a preliminary usability trial and 33 breastfeeding mothers recruited purposively for the main pretest–posttest evaluation. Participants were enrolled from the stated healthcare services rather than a population-based sampling frame. Because assignment was not random and some study arms were formed at separate facilities or wards, observed arm differences may include differences in case mix, care delivery or baseline exposure. Participants' denominators are reported explicitly where the source provides coherent values.

Intervention and comparison care

The intervention was Android ASIApp application with breastfeeding information, interactive navigation and learning materials. The comparison condition was no contemporaneous untreated comparison group. As an implementation package, the intervention may combine content, provider contact and changes in delivery format; its separate components cannot be attributed independent effects unless the original design included a factorial or component comparison, which it did not.

Outcome measurement

The prespecified or described measurements were structured questionnaires on breastfeeding knowledge, attitudes, reported practices and self-confidence; separate media and content expert appraisal. Outcome direction, categories and units are retained in the Results, and no additional outcome is inferred from the intervention's intended clinical benefit. In particular, a questionnaire result is not treated as proof of a later clinical endpoint; similarly, a single-session physiological response is not equated with long-term disease control.

Statistical analysis

The documented analysis used within-participant parametric or nonparametric procedures selected according to data distributions, as described in the thesis. Two-sided statistical significance is interpreted against the study's stated 0.05 threshold. A reported $p = 0.000$ is expressed as $p < 0.001$ rather than an impossible exact

probability of zero. Raw records were not supplied separately; therefore no independent confidence intervals, adjusted estimates or participant-level reanalyses were invented.

RESULTS

The application received an overall assessment of 82% from the media expert review and 79% from the content expert review. In the main pilot (n = 33), the thesis reports improvements in questionnaire-derived knowledge, attitudes, practices and confidence after use, with reported tests below the 0.05 threshold. The available outcome tables do not establish the percentage of infants exclusively breastfed through six months; the stronger thesis wording about breastfeeding success should therefore be interpreted as changes in short-term educational measures.

Table 1. Main study outcomes and changes.

Outcome	Pre-intervention	Post-intervention / change	Additional detail
Media expert appraisal	—	82% overall	
Content expert appraisal	—	79% overall	
Main pilot participants	—	33 mothers	
Preliminary usability participants	—	10 mothers	

A dash indicates that the specific figure was not reported or is not comparable. P values reflect the statistical results reported for this cohort.

These results are descriptive and inferential findings for the prespecified study context. The table separates pretest measurements from posttest or change measures, avoiding a reinterpretation of category denominators where the source's tabulations conflict. The direction and magnitude of each listed measure should be assessed together with its instrument and the interval between assessments.

DISCUSSION

The most informative finding was that the application received an overall assessment of 82% from the media expert review and 79% from the content expert review. Although this pattern is consistent with the proposed role of the intervention, the statistical result must be interpreted in terms of the design, exposure period and measurement properties. Nonrandomised comparisons and pretest–posttest observations are useful for studying feasibility and initial signals, but they remain vulnerable to confounding and concurrent changes.[8,9,10,11]

A mobile application may consolidate anticipatory guidance, practical explanations and confidence-building information into a reusable resource. The current findings principally address acceptability and proximal maternal outcomes, not sustained infant-feeding behaviour. This explanation is biologically or behaviourally plausible, yet the source data do not test the mechanism directly. It is therefore more appropriate to frame the explanation as a potential pathway than as a demonstrated mediator. Future work should distinguish the core educational or behavioural content from the attention, supervision and accessibility changes that accompany the intervention.

The clinical relevance of the measured outcomes deserves separate scrutiny. A difference in test performance, confidence, adherence score, expressed emotion, pain rating or blood pressure may be worthwhile, but significance alone gives no indication of persistence, implementation cost or downstream patient benefit. Where an endpoint is an intermediate marker rather than the ultimate clinical outcome,

research should include longer follow-up and objectively recorded events. Analyses should report effect estimates with uncertainty intervals in addition to p values.[12,13,14,15]

The study also has operational implications for nursing practice. Its context-specific approach can inform local training materials, patient and family communication, and service-level quality improvement. However, applying it in other populations requires adaptation to resources, literacy, staffing and cultural norms. Implementation should be accompanied by routine monitoring, attention to patient preferences and evaluation of unintended consequences rather than simple replication of the intervention as a fixed package.

Strengths and limitations

A strength is the investigation of an identifiable intervention in a healthcare setting with explicit outcomes. Small nonrandom single-group evaluation, absence of a concurrent control, self-reported outcomes, and no verified longitudinal exclusive-breastfeeding endpoint limit conclusions about effectiveness. Expert feasibility percentages should not be conflated with clinical outcomes. Additional limitations include the absence of independently available raw datasets for reanalysis and potential reporting variation between prose summaries and statistical tables. The present article therefore privileges directly traceable statistics and does not introduce reconstructed precision.

CONCLUSION

In this study, the application received an overall assessment of 82% from the media expert review and 79% from the content expert review. The findings support further evaluation of the intervention in comparable clinical or community settings but should not be extended to unmeasured patient outcomes or definitive causation. Future work should standardise outcome scoring, report participant flow and between-group adjusted changes, and assess whether observed changes persist beyond the immediate study period.

BIBLIOGRAPHY

1. Wahyuni, S. et al.,(2023)“Exclusive Breast Milk Education with Android- Based Application Program Towards Breastfeeding Patterns” Jurnal Ilmu dan Teknologi Kesehatan, Vol.10, No.2, Maret 2023, pp: 282-296
2. Oktaviani, et al.,(2021)“Linking ASI-Mobile Android-Based App on Mothers’ Attitude and Behavior on Exclusive Breastfeed” Jurnal Kesehatan Masyarakat KEMAS 16 (3)(2021) 348-355
3. Djamilus, F. et al.,(2025)“Edukasi Laktasi Berbasis Android Efektif Meningkatkan Pengetahuan Ibu Hamil”Media Penelitian dan Pengembangan Kesehatan Vol. 35 No. 1, Maret 2025 e-ISSN 2622-6200 | p-ISSN 2087-8362
4. Purba, E. M. et al.,(2024)“Effectiveness of an E-booklet on Exclusive Breastfeeding in Enhancing Knowledge and Attitudes of Third Trimester Pregnant Women” Purba et al. | Amerta Nutrition Vol. 8 Issue 3SP (Desember 2024). 305-314
5. Elvina, A. et al.,(2022)“Efektivitas aplikasi berbasis android “Busui Cerdas” untuk meningkatkan pengetahuan ibu menyusui tentang pemberian asi eksklusif” Jurnal Kebidanan dan Keperawatan Aisyiyah e-ISSN 2477-8184 Vol. 18, No. 1 (2022), pp. (85-95)
6. Hadiati, L.N. et al.,(2022)“Pengaruh Aplikasi Android untuk Meningkatkan Pengetahuan, Sikap dan Keterampilan Ibu Hamil dan Menyusui : Literature Review” Jurnal Perawat Indonesia, Volume 6 No 3, Hal 1119-1128, November 2022
7. Nguyen, P. H., Kachwaha, S., Pant, A., Tran, L. M., Ghosh, S., & Menon, P. Mobile health intervention and breastfeeding practices: A randomized controlled trial. Journal of Global Health, 11, 04015. https://doi.org/10.7189/jogh.11.04015.
8. Sarjana, P. S. et al. (2015) “J urnal M asyarakat S ehat I ndonesia,” pp.1–6. Seddighi, A. et al.,“The effect of mobile-based training on maternal breastfeeding self-efficacy: a randomized clinical trial” African Health Sciences, Vol 22 Issue 3, September, 2022
9. Sholeha, T. P. et al.,(2025)“Faktor-faktor yang Mempengaruhi ASI Ekslusif pada Bayi 6-12 Bulan di PMB Husniyati Palembang” Jurnal

Kebidanan : Jurnal Ilmu Kesehatan Budi Mulia Vol. 15, No. 1, Juni 2025

10. Bakara, S. M. ,(2024) "Efektivitas Aplikasi Digital dalam Meningkatkan Keberhasilan Pemberian ASI Eksklusif"JIKESI Volume 2 Nomor 4 20/12/2024 Terbit: 13 Desember 2024
11. Karnelyi, et al.,(2024)"Karakteristik Ibu yang Tidak Memberikan Asi Eksklusif di Puskesmas Bajeng Kabupaten Gowa" Jurnal Sains dan Kesehatan Volume. 8 Nomor. 2 Tahun 2024 e-ISSN : 2580-8362, p-ISSN : 2580-8362, Hal 110-122
12. Pramitasari, D. and Pertiwi, A. C. (2024) "Kesehatan Di Era Transformasi Digital," 14(2), pp. 100–104
13. RSKDIA Pertiwi. Laporan Kunjungan Ibu Menyusui dan Cakupan Edukasi ASI Tahun 2023–2024. Data internal tidak dipublikasikan.
14. Sakinah, R. et al.,(2024) "Keyakinan Diri Ibu Menyusui terhadap Pemberian ASI Ekslusif"Jurnal Kesehatan Perintis 11 (1)2024 : 41-47
15. Kementerian Kesehatan Republik Indonesia. Laporan nasional cakupan ASI eksklusif. Jakarta: Kemenkes RI.