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The Use of Mobile Health Applications in Midwifery and Nursing: A Systematic Review of Theses

Mobil Sağlık Uygulamalarının Ebelik ve Hemşirelik Alanındaki Kullanımı: Tezler Üzerine Sistematik Bir Derleme

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Abstract

Aim: This study systematically reviews postgraduate theses conducted in Turkey between 2020 and 2025 that investigated the use of mobile health (mHealth) applications in the fields of midwifery and nursing.

Material and Method: Designed as a retrospective, cross-sectional, and descriptive review, the study examined theses obtained from the National Thesis Center of the Council of Higher Education using the keywords "mobile health," "mobile application," and "digital health." A total of 45 eligible theses (34 doctoral and 11 master's), available in full-text and meeting predefined inclusion criteria, were analyzed. Of these, 5 were descriptive and 40 were quasi-experimental or randomized controlled trials. The data were thematically categorized according to health domains.

Results: Six main thematic areas were identified: maternal and infant health (n=12), chronic disease management (n=15), cancer care and chemotherapy (n=7), caregiver support and education (n=3), mobile health literacy and usage (n=4), and mental health and psychosocial adaptation (n=3). The findings revealed that mobile health applications significantly contributed to improvements in self-care, treatment adherence, symptom management, and quality of life. Particularly in nursing, these technologies were frequently used for chronic disease management and telehealth services. In midwifery, mobile apps supported antenatal care, postpartum follow-up, and breastfeeding counseling. Despite their benefits, challenges such as data security concerns, technological literacy, and user engagement were noted.

Conclusion: This review underscores the growing academic and clinical interest in mobile health applications in nursing and midwifery. These tools hold promise for enhancing patient care, supporting healthcare professionals, and facilitating digital transformation in health systems. Future efforts should focus on user-centered design, integration into clinical workflows, and long-term impact evaluation through robust methodologies.

Keywords: Mobile health, mobile applications, midwifery, nursing, digital health, systematic review

Öz

Amaç: Bu çalışma, Turkiye'de 2020-2025 yılları arasında ebelik ve hemşirelik alanlarında yapılmış, mobil sağlık (m-sağlık) uygulamalarının kullanımını konu alan lisansüstü tezleri sistematik olarak incelemeyi amaçlamaktadır.

Gereç ve Yöntem: Retrospektif, kesitsel ve tanımlayıcı tasarıma sahip olan bu sistematik derleme, Yükseköğretim Kurulu Ulusal Tez Merkezi veri tabanında "mobil sağlık", "mobil uygulama" ve "dijital sağlık" anahtar kelimeleri kullanılarak gerçekleştirilmiştir. Belirlenen dahil etme kriterlerine uyan ve tam metnine erişilebilen toplam 45 tez (34 doktora, 11 yüksek lisans) değerlendirmeye alınmıştır. Tezlerin 5'i tanımlayıcı, 40'ı ise yarı deneysel ya da randomize kontrollü deneysel tasarıma sahiptir. Veriler sağlık alanlarına göre tematik olarak sınıflandırılmıştır.

Bulgular: İncelenen tezler altı ana temada gruplandırılmıştır: Anne ve bebek sağlığı (n=12), kronik hastalık yönetimi (n=15), kanser bakımı ve kemoterapi süreci (n=7), bakım veren desteği ve eğitimi (n=3), mobil sağlık okuryazarlığı ve kullanım durumu (n=4), ruh sağlığı ve psiko-sosyal uyum (n=3). Mobil sağlık uygulamalarının öz bakım, tedaviye uyum, semptom yönetimi ve yaşam kalitesini artırmada etkili olduğu saptanmıştır. Hemşirelik alanında uygulamalar genellikle kronik hastalık yönetimi ve tele-sağlık hizmetleri kapsamında kullanılırken; ebelik alanında gebelik izlemi, doğum sonrası takip ve emzirme danışmanlığı gibi hizmetleri desteklemiştir. Bununla birlikte, veri güvenliği, kullanıcı uyumu ve teknik sınırlılıklar gibi çeşitli zorluklara da işaret edilmiştir.

Sonuç: Bu derleme, mobil sağlık uygulamalarına yönelik artan akademik ve klinik ilgiyi ortaya koymakta ve bu teknolojilerin hemşirelik ve ebelik uygulamalarında hasta bakımını güçlendirmede önemli bir araç olduğunu göstermektedir. Gelecekte, kullanıcı odaklı tasarımların geliştirilmesi, klinik uygulamalara entegrasyonun sağlanması ve uzun vadeli etkilerin güçlü yöntemlerle değerlendirilmesi önerilmektedir.

Anahtar Kelimeler: Mobil sağlık, mobil uygulamalar, ebelik, hemşirelik, dijital sağlık, sistematik derleme

INTRODUCTION

In the digital age, the internet is widely used as a means of communication.[1] In Turkey, the use of mobile devices is increasing each year.[2] According to the Turkish Statistical Institute (TÜİK) Household Information Technologies (IT) Research, the percentage of individuals aged 16–74 using the internet increased from 87.1% in 2023 to 88.8% in 2024. In 2024, internet usage was observed at 92.2% among men and 85.4% among women.[3] As medical information is now frequently searched online, global interest in mobile health applications has increased.[1,4]

By providing portable and readily accessible health information, mobile technology has the potential to improve healthcare standards, increase public awareness, enhance personal health, and deliver timely disease alerts.[5] In addition, these applications contribute to reducing hospital stays, alleviating pressure on healthcare systems, and offering cost-effective, widely accessible solutions—particularly in resource-limited settings. [4,6,7] Furthermore, they enhance access to healthcare services for individuals facing geographical or systemic barriers.[8]

A meta-analysis revealed that Turkey, with a 63% usage rate, ranks among the top countries using mobile health applications.[9] Therefore, the reliability, quality, and applicability of health information used in mobile health applications is of great importance.[1] Although research on mobile applications for women's health in Turkey is limited, the growing popularity of mobile health applications is expected to influence the Turkish market. Thus, there is a need for mobile applications tailored to midwifery care to ensure holistic service delivery.[2]

The growing use of mobile health applications directly affects the professions of midwifery and nursing by reducing workload, supporting chronic disease management, and improving communication between healthcare professionals and patients in remote areas. To improve care quality and strengthen the scientific foundation of both professions, it is crucial that technological innovations are integrated into clinical and educational practices.[2,10]

Therefore, this systematic review aims to examine postgraduate theses conducted in Türkiye that focus on mobile health applications related to midwifery and nursing. The objective is to identify research trends, thematic focuses, and methodological patterns within these studies. This review was carried out in accordance with the PRISMA 2020 guidelines and structured using the PICOS framework to ensure methodological transparency and rigor.[11, 12]

MATERIAL AND METHOD

Study Design

This study employed a retrospective, cross-sectional, and descriptive design. The systematic review process was carried out in accordance with the PRISMA 2020 guidelines to ensure methodological transparency and rigor. The review protocol was not pre-registered.

Search Strategy

The literature search was conducted in April 2025 using the National Thesis Center of the Council of Higher Education of Turkey (YÖK Ulusal Tez Merkezi) database. The search included the keywords: "mobile health", "mobile application", and "digital health", both in English and Turkish. Boolean operators (AND/OR) were used to combine search terms.

Inclusion Criteria
- Theses written in Turkish
- Master's or doctoral level
- Full-text available
- Published between 2020 and April 2025
- Related to midwifery or nursing fields
- Involving use or evaluation of mobile health applications

Exclusion Criteria
- Studies not involving mobile or digital health applications
- Abstract-only records or inaccessible full-texts
- Other disciplines outside midwifery/nursing

Eligibility Framework: PICOS

The inclusion strategy was structured using the PICOS framework:

Component		Description
P	(Population)	Midwives, nurses, students, caregivers, or patients
I	(Intervention)	Use of mobile health (mHealth) or mobile applications
C	(Comparison)	Not applicable
O	(Outcomes)	Educational effectiveness, clinical improvement, self-care, adherence
S	(Study type)	Descriptive, quasi-experimental, RCT, or methodological studies

Selection Process

The selection process included screening of thesis titles and abstracts, followed by full-text review. A total of 45 theses were included: 11 master's and 34 doctoral theses. Of these, 5 were descriptive studies and 40 were either quasi-experimental or randomized controlled trials (RCTs). The selection process is illustrated in the PRISMA flow diagram (**Figure 1**).

Data Extraction

A structured data extraction form was created in Microsoft Excel. The following information was collected from each thesis:
- Thesis title
- Author
- University and department
- Year of publication
- Degree (master's or doctoral)
- Study aim and methodology
- Population/sample size
- Mobile health application used
- Outcomes and key findings
- Conclusion

Data extraction was conducted independently by three reviewers. Disagreements were resolved through discussion or with input from a fourth reviewer.
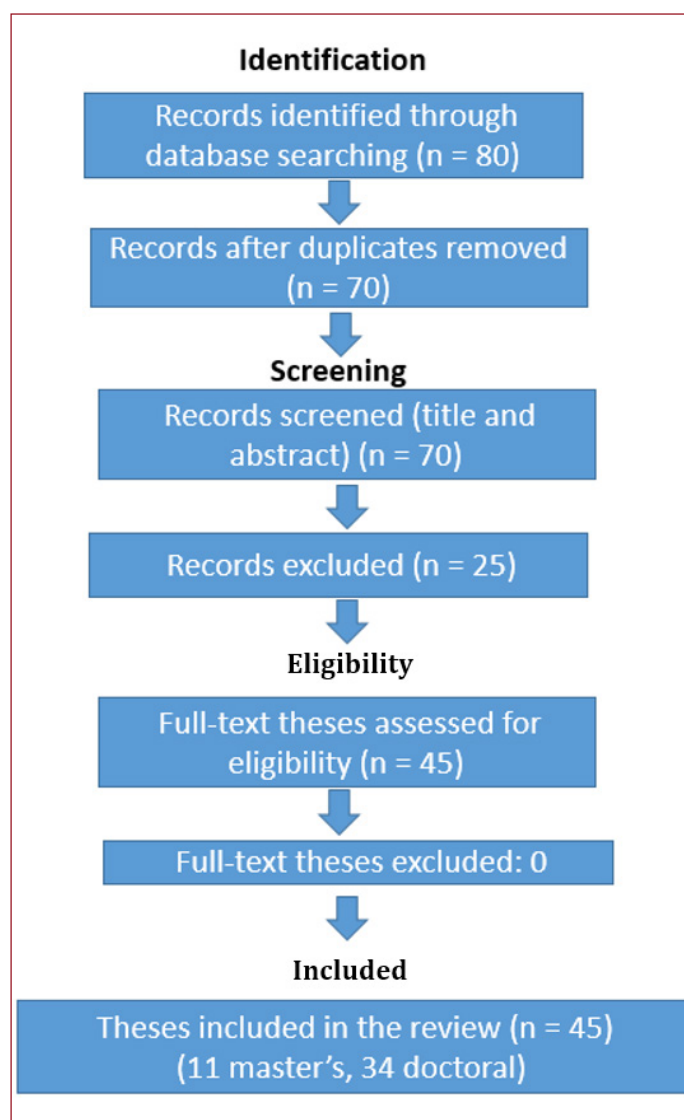
Figure 1. PRISMA Flow Diagram

Data Synthesis and Thematic Categorization

To enhance analytical clarity, all included theses were thematically grouped based on their health domain and research focus. Six thematic categories were identified:

1. Maternal and Infant Health
2. Chronic Disease Management
3. Cancer Care and Chemotherapy
4. Caregiver Support and Education
5. Mobile Health Literacy and Usage
6. Mental Health and Psychosocial Adaptation

Each thesis was assigned to a primary theme, and findings were synthesized accordingly. Within each theme, narrative summaries and representative examples were presented, supported by thematic tables that include thesis title, author, methodology, sample, and key outcomes. Quantitative summaries such as theme-wise thesis counts and distribution by academic degree (master's/doctoral) were also provided.

Quality Assessment

A formal quality appraisal tool was not applied, as the objective of this review was to map and categorize existing postgraduate research rather than conduct a meta-analysis. However, methodological classifications (e.g., descriptive, quasi-experimental, RCT) were reported to provide an overview of scientific rigor.

Ethical Considerations

Ethical approval was not required for this study since all data were collected from a publicly accessible database: https://tez.yok.gov.tr.

RESULTS

In this review, a total of 44 theses were analyzed, including 27 doctoral and 17 master's theses. The largest number of theses focused on chronic disease management (15 theses), followed by maternal and infant health (12 theses). Cancer care and chemotherapy symptom management included 7 theses. Fewer theses were related to caregiver support and education (3), mobile health literacy and usage (4), and mental health and psychosocial adaptation (3). The distribution of doctoral and master's theses varied by theme, with chronic disease management and maternal health featuring more doctoral theses, while mobile health literacy had a higher proportion of master's theses (**Table 1**).

Table 1. Thematic Distribution of Theses by Degree Type			
Theme / Health Domain	Total Number of Theses	Number of Doctoral Theses	Number of Master's Theses
Maternal and Infant Health	12	7	5
Chronic Disease Management	15	10	5
Cancer Care and Chemotherapy	7	5	2
Caregiver Support and Education	3	2	1
Mobile Health Literacy & Usage	4	1	3
Mental Health and Psychosocial Adaptation	3	2	1
Total	44	27	17

A total of 12 theses focused on maternal and infant health, covering topics such as breastfeeding support, postpartum adjustment, and care for premature infants. These studies predominantly used randomized controlled trials and highlighted the positive impact of mobile health applications on breastfeeding self-efficacy, maternal attachment, and postpartum physical symptoms. For example, Topkara (2024) found that a breastfeeding support app significantly improved self-efficacy, while Yenice (2023) reported increased maternal attachment and infant care skills through mobile interventions. These findings underscore the potential of mobile health technologies to enhance maternal and infant health outcomes (**Table 2**).

Table 2. Theses Related to the Theme of Maternal and Infant Health

Thesis Title	Author (Year)	Objective	Method	Findings	Conclusion
Development of Breastfeeding Supportive Mobile Application: Effect on Breastfeeding Self-Efficacy	Topkara (2024) PhD[13]	To determine the effect of a breastfeeding support app on breastfeeding self-efficacy	RCT, n=86	Breastfeeding self-efficacy significantly increased	Mobile app effectively increased breastfeeding self-efficacy
The Effect of Nursing Care on Postpartum Adjustment through Mobile Health Application	Şat (2021) MSc[14]	To evaluate the effect of nursing care via mobile app on postpartum adjustment	RCT, n=62	Positive impact on postpartum adjustment	Mobile application found effective for postpartum adjustment
The Effect of Mobile Application Developed for Home Care of Premature Infants on Maternal Attachment	Yenice (2023) PhD[15]	To assess the effect of a mobile app on maternal attachment and infant care	RCT, n=48	Increased maternal attachment and parental self-efficacy	Mobile intervention enhanced maternal-infant bonding
The Effect of Postpartum Nursing Care and E-Mobile Education on Postpartum Physical Symptoms	Karaçay Yıkar (2022) MSc[16]	To determine effect on postpartum physical symptoms and breastfeeding self-efficacy	RCT, n=75	Reduced physical symptoms and increased breastfeeding self-efficacy	Mobile education and nursing care beneficial postpartum
Development of a Mobile Application Based Breastfeeding Education Program and Evaluation of Its Effectiveness	Acar (2022) MSc[17]	To develop and test a breastfeeding education app	RCT, n=73	Positive impact on exclusive breastfeeding	App contributed to breastfeeding success
The Effect of Education Given to Mothers Through Mobile Application Program on Their Attitudes and Skills Towards Rational Drug Use	İnan (2023) MSc[18]	To assess the effect of mobile education on mothers' attitudes and skills	Experimental, n=140	Significant increase in attitudes and skills	Education via app effective for rational drug use
The Effect of Yoga Practiced Online and with an App on Birth Outcomes	Eroğlu (2022) MSc[19]	To evaluate yoga's effect on birth outcomes via app	RCT, n=74	Increased birth satisfaction, newborn weight, and Apgar scores	Yoga app increased positive birth outcomes
The Effect of Education Given to Women Who Underwent Breast Surgery with Mobile Application on Supportive Care Needs and Quality of Life	Balcı (2023) MSc[20]	To evaluate mobile education impact on supportive care and QoL	RCT, n=81	Decreased care needs, improved QoL	Mobile app improved care and QoL
The Effect of Mobile Application Developed for Gynecologic Cancer Patients Receiving Chemotherapy on Physical and Psychosocial Adaptation	Vardar (2023) MSc[21]	To determine app effect on physical and psychosocial adaptation	RCT, n=64	Increased physical, social, psychological adaptation	Mobile app effective for cancer patients
The Effect of Interactive Nurse Support Program Developed with Mobile Application on Patient Outcomes in Breast Cancer Patients Receiving Chemotherapy During Covid-19	Özdemir (2024) PhD[22]	To evaluate interactive nurse support via app on breast cancer patients	RCT, n=100	Decreased anxiety; improved QoL and social support	Mobile app effective during pandemic care
The Effect of Mobile Application for Medication Reminder on Treatment Adherence in Women with Breast Cancer Receiving Hormone Therapy	Budaycı (2023) MSc[23]	To assess effect of medication reminder app on adherence	Quasi-experimental, n=52	Significant increase in treatment adherence	App improved medication compliance
The Effect of Mobile Application Developed for Caregivers of Patients with Percutaneous Endoscopic Gastrostomy on Caregivers' Knowledge, Skills and Care Burden	Akyüz (2024) MSc[24]	To evaluate impact on caregivers' knowledge, skills, and burden	RCT, n=27	Increased skills; reduced care burden	Mobile app recommended for caregiver support

Fifteen theses investigated chronic disease management, including diabetes, COPD, hypertension, and multiple sclerosis. Most studies employed randomized controlled trials to evaluate mobile health applications aimed at improving self-care, treatment adherence, symptom management, and quality of life. For instance, Şahin (2021) demonstrated increased self-care behaviors among type 2 diabetes patients using a mobile app, and Özdemir (2023) reported significant improvements in self-efficacy and disease management in COPD patients. These results indicate that mobile health tools can effectively support chronic disease patients in managing their conditions (**Table 3**).

Seven theses examined mobile health interventions in cancer care, focusing on medication adherence, symptom management, and psychosocial support for patients undergoing chemotherapy. Several randomized controlled studies revealed that mobile applications enhanced treatment compliance and reduced symptoms in breast and colorectal cancer patients.[23,28] Additionally, awareness-raising applications for cervical cancer demonstrated significant increases in patient knowledge.[39] These findings highlight the role of digital health solutions in improving oncology care and patient outcomes (**Table 4**).

Three theses addressed mobile health applications designed to support caregivers, especially those caring for patients with gastrostomy or tracheostomy. Studies showed that mobile and simulation-based education increased caregivers' knowledge and skills while reducing care burden and anxiety levels.[24,42] These results emphasize the value of tailored digital interventions in empowering caregivers and improving patient care quality (**Table 5**).

Table 3. Theses Related to the Theme of Chronic Disease Management

Thesis Title	Author (Year)	Objective	Method	Findings	Conclusion
The Effect of Using Smart My Diabetes Mobile Health Application on Self-Care of Individuals with Type 2 Diabetes	Şahin (2021) MSc[25]	To evaluate impact of mobile app on self-care in type 2 diabetes patients	Quasi-experimental, n=68	Significant increase in self-care behaviors	Mobile app positively affected self-care
The Effect of Mobile Application Developed for Individuals with Multiple Sclerosis on Symptom Management and Quality of Life	Üstündağ (2021) PhD[26]	To assess app impact on symptom management and QoL	Mixed/RCT, n=63	90.3% found app useful; QoL improved	Mobile app effective for MS symptom management
The Effect of Education via Mobile Phone on DASH Diet Adherence, QoL, Mindfulness and Stress in Hypertensive Individuals	Meşhur (2023) PhD[27]	To determine effect on diet adherence, QoL, mindfulness, stress	RCT, n=134	QoL and mindfulness increased; stress decreased	Mobile education recommended
The Effect of a Mobile Application Developed for COPD Patients on Self-Efficacy and Disease Management	Özdemir (2023) PhD[28]	To evaluate effect on self-efficacy and disease management	RCT, n=40	Significant improvements in self-efficacy and disease control	Mobile app effective for COPD management
Exercise Programs via Mobile App on QoL and Dyspnea in COPD Patients	Kaya (2021) PhD[29]	To assess app-based exercise impact on QoL and dyspnea	RCT, n=76	QoL improved; symptoms decreased	Mobile exercise programs recommended
Investigation of the Effect of a Mobile Application Developed for Individuals with Type 2 Diabetes Using Insulin on Insulin Use Perception and Self-Management	Döner (2024) PhD[30]	To assess impact on insulin perception and self-management	RCT, n=88	Increased knowledge, self-management; reduced negative attitudes	Educational tool for diabetes management
The Effect of Mobile Application Developed for Patients Using Oral Anticancer Drugs in Cancer Treatment on Drug Compliance and Symptoms	Eşer (2020) PhD[31]	To determine effect on medication adherence and symptoms	RCT, n=77	Positive effects on adherence and symptom reduction	Mobile app recommended
The Effect of Mobile Application for Medication Reminder in Breast Cancer Patients Receiving Hormone Therapy	Budaycı (2023) MSc[23]	To evaluate medication reminder app on adherence	Quasi-experimental, n=52	Significant increase in compliance	App improved treatment adherence
Development of a Mobile Application for Patients with Liver Cirrhosis and the Effect of Application on Activity Level, Self-Efficacy and Quality of Life	Çelik (2023) PhD[32]	To assess app effectiveness in liver cirrhosis patients	Methodological + RCT, n=52	Increased activity level, self-efficacy, QoL	Effective mobile health practice
The Effect of Mobile Health Application Supported Education on Lower Urinary System Symptoms and Quality of Life in Children with Voiding Disorders	Çinkir (2023) MSc[33]	To determine educational impact via mobile app	RCT, n=99	Symptom relief and QoL improved	Mobile education recommended
Determination of Community's E-Health Literacy and Use of Mobile Health Applications	Kiral (2022) MSc[34]	To assess e-health literacy and app use	Descriptive, n=1028	Positive correlation between literacy and app use	Need to increase mobile health literacy
The Effect of Mobile Application Based on Omaha System on Physical, Psychosocial, Cognitive Symptoms and QoL in Covid-19 Patients	Torun (2023) MSc[35]	To evaluate app effect on symptoms and QoL in Covid-19 patients	RCT, n=60	Improvement in physical and depressive symptoms	App recommended for Covid-19 care
The Effect of Mobile Application Supported Education and Counseling on Healthy Lifestyle Behaviors of Women with Gestational Diabetes	Karakoç (2023) MSc[36]	To determine effect on healthy lifestyle	RCT, n=52	Improved healthy behaviors	Mobile education effective
Comparison of the Effect of Education Booklet and Mobile Application Used in Discharge Education for Coronary Artery Bypass Graft Surgery on Patients' Discharge Readiness and Self-Efficacy	Şahan (2022) MSc[37]	To compare mobile app and booklet education	Quasi-experimental, n=66	No significant difference between groups	Mobile app highly recommended
Development of a Mobile Health (M-Health) Literacy Scale	Karadayı (2022) MSc[38]	To develop a valid and reliable m-health literacy scale	Methodological, n=448	31 items, 4-factor scale	Reliable and valid tool in Turkey

Table 4. Cancer Care and Chemotherapy Symptom Management

Thesis Title	Author (Year)	Objective	Method	Findings	Conclusion
The Effect of Medication Reminder Mobile Application on Treatment Adherence in Women with Breast Cancer Receiving Adjuvant Hormone Therapy	Budaycı (2023) MSc[23]	To evaluate effect of medication reminder app on treatment adherence	Quasi-experimental, n=52	Treatment adherence increased significantly	Mobile app improved treatment compliance
The Effect of Interactive Nurse Support Program Developed with Mobile Application on Patient Outcomes in Breast Cancer Patients Receiving Chemotherapy During Covid-19 Pandemic	Özdemir (2024) PhD[28]	To determine effect of app on patient outcomes during chemotherapy	RCT, n=100	Anxiety decreased; QoL and social support improved	Mobile application effective in patient support
The Effect of Interactive Nurse Support Developed with Mobile Application Program on Patient Outcomes in Colorectal Cancer Patients Receiving Chemotherapy During Covid-19	Ağdemir (2024) PhD[40]	To evaluate impact of interactive nurse support app on patient outcomes	RCT, experimental n=40, control n=44	Social support and symptom management improved; anxiety decreased	Mobile app enhanced care during chemotherapy
Evaluation of the Effectiveness of Mobile Health Application Developed for Cervical Cancer Awareness	Tunaman (2024) PhD[39]	To assess impact on cervical cancer awareness	RCT, n=48	Significant increase in patient awareness	Mobile app effective in cancer prevention education
The Effect of Education Given to Women Who Underwent Breast Surgery with Mobile Application on Supportive Care Needs and Quality of Life	Balcı (2023) PhD[20]	To evaluate effect of mobile education on supportive care needs and QoL	RCT, experimental n=41, control n=40	Supportive care needs decreased; QoL improved	Mobile app effective in postoperative care
The Effect of Mobile Application Developed for Patients Using Oral Anticancer Drugs in Cancer Treatment on Drug Compliance and Symptoms	Eşer (2020) PhD[31]	To assess effect on medication adherence and symptom control	RCT, experimental n=38, control n=39	Positive effect on adherence and symptom relief	Mobile app recommended for oncology care
The Effect of Education Given with Mobile Application on Supportive Care Needs, Distress and Quality of Life in Hematopoietic Stem Cell Transplant Patients	Başcı (2023) MSc[47]	To determine effect on supportive care needs, distress, and QoL	RCT, n=36	No significant difference in distress and QoL	Mobile app impact limited but supportive

Table 5. Caregiver Support and Education

Thesis Title	Author (Year)	Objective	Method	Findings	Conclusion
The Effect of Mobile Application Developed for Caregivers of Patients with Percutaneous Endoscopic Gastrostomy on Caregivers' Knowledge, Skills and Care Burden	Akyüz (2024) PhD[24]	To evaluate effect on caregivers' knowledge, skills, and care burden	RCT, n=27	Increased skills, reduced care burden	Mobile app recommended for caregiver support
Evaluation of the Effectiveness of Simulation Model and Mobile Application in Teaching Tracheal Aspiration Practice to Caregivers of Patients with Tracheostomy	Alakan (2024) MSc[42]	To determine effectiveness on caregivers' knowledge and skills	Experimental, n=66	Simulation most effective; mobile app also effective	Simulation and mobile education improve caregiver skills
Development of a Mobile Application for the Care of Children with Gastrostomy and the Effect of Application on Gastrostomy Complications, Parents' Care Burden, Self-Efficacy and Anxiety Level	Ergezen (2024) PhD[43]	To assess effect on complications, care burden, self-efficacy and anxiety of parents	RCT, n=60	Decreased care burden and anxiety, increased self-efficacy	Mobile app useful for parent education and support

Four theses focused on e-health literacy and the acceptance and use of mobile health applications among various populations, including healthcare workers and university students. The development of valid and reliable scales measuring mobile health literacy was a notable contribution.[38] Other descriptive studies highlighted the correlation between e-health literacy and mobile app usage, underscoring the need for educational strategies to enhance digital health competencies.[6,34] These findings suggest that improving health literacy is crucial for the effective adoption of mobile health Technologies (**Table 6**).

Three theses explored the effects of mobile health applications on psychosocial outcomes such as cognitive awareness, anxiety, and quality of life. Randomized controlled trials indicated positive impacts of mobile interventions on reducing anxiety and depressive symptoms among patients undergoing infertility treatment and COVID-19.[35,45] However, one study reported limited effects on distress and quality of life in hematopoietic stem cell transplant patients.[41] Overall, these findings point to the potential benefits as well as challenges of mobile health applications in mental health contexts (**Table 7**).

Table 6. Mobile Health Literacy & Usage

Thesis Title	Author (Year)	Objective	Method	Findings	Conclusion
Development of Mobile Health (M-Health) Literacy Scale	Karadayi (2022) PhD[38]	To develop a valid and reliable scale to measure mobile health literacy	Methodological, n=448	31 items, 4-factor scale	Scale is reliable and valid in Turkey
Determination of Community's E-Health Literacy and Use of Mobile Health Applications	Kiral (2022) MSc[34]	To assess e-health literacy and mobile app perception in community	Descriptive, n=1028	Positive correlation between literacy and app use	Need to increase mobile health and literacy
Healthcare Workers' Use of Mobile Health Applications and Acceptance of Mobile Applications	Reel (2023) MSc[6]	To determine usage and acceptance of mobile apps among healthcare workers	Descriptive, n=1580	50% personal, 25% professional use	Training and incentives needed
Development of a Mobile Application Based on Psychological Well-Being of University Students	Demirezen (2023) MSc[44]	To evaluate effectiveness and usability of a mobile health app for university students	Descriptive, n=32	Positive user satisfaction	Application open for improvement

Table 7. Mental Health and Psychosocial Adaptation

Thesis Title	Author (Year)	Objective	Method	Findings	Conclusion
The Effect of Cognitive Awareness-Based Nursing Support with Mobile Application on Psychosocial Status of Women Undergoing Infertility Treatment	İnam (2022) PhD[45]	To determine effect on psychosocial status during infertility treatment	RCT, n=34	Positive effect on cognitive awareness, treatment compliance, anxiety	Mobile app contributed positively to treatment process
The Effect of Mobile Health Application Based on Omaha System on Physical, Psychosocial, Cognitive Symptoms and Quality of Life in Covid-19 Patients	Torun (2023) MSc[35]	To determine effects on physical, psychosocial, cognitive symptoms and QoL	RCT, n=60	Effective on physical symptoms, depressive symptoms, and QoL	Recommended to test in different age groups and long-term monitoring
The Effect of Education Given with Mobile Application on Supportive Care Needs, Distress and Quality of Life in Hematopoietic Stem Cell Transplant Patients	Başcı (2023) MSc[41]	To determine impact on supportive care needs, distress, and QoL	RCT, n=36	No significant differences in distress and QoL	Mobile app had limited impact

DISCUSSION

This systematic review comprehensively analyzed postgraduate theses completed in Turkey between 2020 and 2024 on the use of mobile health applications in midwifery and nursing. The findings demonstrate that mobile health technologies are effectively utilized in clinical, educational, and counseling services in these disciplines, reflecting how digital health technologies are reshaping interactions between healthcare professionals and individuals.[46,47]

Thematic Grouping of Findings

The majority of theses concentrated on two main health domains: maternal and infant health and chronic disease management. Twelve theses focused on maternal and infant health, investigating topics such as breastfeeding support, postpartum adjustment, and care for premature infants. These studies primarily used randomized controlled trials (RCTs) and highlighted significant improvements in breastfeeding self-efficacy, maternal attachment, and postpartum physical symptoms through mobile health applications.[13,15,16,25] The positive effects reported align with international evidence suggesting that digital interventions can empower mothers and improve early child care outcomes.[48]

Fifteen theses examined chronic disease management, including diabetes, COPD, hypertension, and multiple sclerosis. Most utilized RCT designs to evaluate mobile apps aimed at enhancing self-care, treatment adherence, symptom management, and quality of life. For example, Şahin (2021) showed increased self-care behaviors among type 2 diabetes patients using a mobile application, while Özdemir (2023) demonstrated improvements in self-efficacy and disease management among COPD patients.[25,49] These findings confirm the global trend of leveraging mobile health tools to support chronic illness management, especially in resource-constrained settings.[50]

Other thematic areas included cancer care (7 theses), caregiver support (3 theses), e-health literacy (4 theses), and psychosocial outcomes (3 theses). Studies in oncology emphasized medication adherence, symptom control, and psychosocial support during chemotherapy, highlighting the potential of mobile applications to improve patient outcomes and awareness.[21,23,28,40] Caregiver-focused interventions showed that mobile and simulation-based training can effectively enhance knowledge and reduce burden and anxiety.[24,42] Research on e-health literacy stressed the importance of digital competence in adopting mobile health solutions, advocating for education and training to bridge existing gaps.[6,38] Lastly, theses addressing psychosocial outcomes reported mixed results, with some indicating anxiety reduction and cognitive benefits, while others found limited impact, underscoring the complexity of digital mental health interventions.[16,35,45]

Trends and Institutional Distribution

The chronological distribution of theses reveals a notable increase in academic interest, especially from 2022 onwards, coinciding with the COVID-19 pandemic, which accelerated the adoption of digital health solutions worldwide.[48,50] The

predominance of doctoral theses (34) over master's theses (11) reflects a robust academic commitment to advancing mobile health technologies in Turkey, highlighting their potential influence on health policies and practices.[46,47]

Geographically, research activities were concentrated in universities such as Istanbul University (7 theses), Ege University (5), and Akdeniz University (4), indicating that institutional infrastructure and expertise significantly influence mobile health research productivity.[6] The overwhelming majority of studies were conducted within nursing departments (41 theses) compared to midwifery (4 theses), suggesting that mobile health integration is more established in nursing education and practice. In midwifery, applications were mainly limited to prenatal care and breastfeeding support, signaling a need for broader research across the midwifery care continuum.[13,14]

Comparison with International Literature

Internationally, the use of mobile health applications in nursing and midwifery has been widely documented for enhancing patient education, chronic disease management, and psychosocial support.[48,50] The findings from Turkish theses parallel global evidence, reinforcing the effectiveness of mobile interventions in improving self-efficacy, treatment adherence, and quality of life.[16,25,49] However, challenges such as standardization of outcome measures and long-term sustainability remain shared concerns. The Turkish context adds value by highlighting the role of digital health in a middle-income country facing unique demographic and infrastructural challenges, underscoring the importance of culturally adapted and accessible Technologies.[6,34]

Implications for Policy, Practice, and Education

The review indicates substantial potential for mobile health technologies to enhance healthcare delivery in Turkey. Policymakers should consider facilitating digital infrastructure expansion and integrating mobile health tools into public health programs to reach wider populations, especially in underserved areas.[46,47] Healthcare providers require ongoing training to increase digital literacy and effectively implement these technologies in clinical practice.[6,24]

Educational institutions should embed mobile health competencies into nursing and midwifery curricula, preparing future professionals to leverage digital tools for improved patient outcomes.[26,38] Moreover, continuous professional development programs can support current practitioners in adapting to evolving digital landscapes.[51]

Limitations and Future Directions

This review is limited by its focus on theses from Turkish universities, which may not capture unpublished studies or international research. The variability in study designs, sample sizes, and measured outcomes also complicates direct comparisons. Future research should aim to include longitudinal studies and cost-effectiveness analyses to better understand the long-term impacts and scalability of mobile health interventions.[32,41]

Furthermore, expanding research in midwifery and mental health applications, along with greater standardization of evaluation tools, will strengthen evidence bases and guide best practices in digital health.[14,45]

CONCLUSION

This systematic review offers a comprehensive overview of postgraduate theses conducted in Turkey between 2020 and 2024, focusing on the use of mobile health applications in nursing and midwifery. The review highlights that mobile health technologies are increasingly integrated into healthcare research, with maternal and infant health as well as chronic disease management emerging as the most studied and impactful areas. These themes reflect the high relevance of mobile health applications in improving self-care, treatment adherence, symptom management, and psychosocial outcomes.[13,15,25,47]

Key gaps identified include the relatively limited research in midwifery compared to nursing, particularly beyond prenatal and breastfeeding support, and the need for more standardized outcome measures to facilitate cross-study comparisons. Additionally, while mobile health literacy and caregiver support have gained attention, these areas require further expansion to maximize the benefits of digital health interventions.[6,24,38,42]

Recommendations

For Future Research:

- Expand studies in midwifery, especially in domains such as labor, postpartum mental health, and reproductive health education.
- Conduct long-term and cost-effectiveness evaluations of mobile health applications.
- Standardize outcome measures to improve comparability and meta-analytic opportunities.

For Policy and Practice:

- Promote policies that facilitate the integration of mobile health technologies in clinical and community healthcare settings.
- Support digital infrastructure development and equitable access to mobile health tools across diverse populations.
- Encourage healthcare providers' training in digital competencies to enhance the effectiveness of mobile health interventions.

For Educational Programs:

- Incorporate digital health literacy and mobile health application training into nursing and midwifery curricula.
- Develop continuous professional development programs focusing on emerging digital health Technologies.

In summary, this review underscores the growing scientific and practical significance of mobile health applications in nursing and midwifery in Turkey, providing a foundation for advancing research, policy, and education to harness the full potential of digital health for improving healthcare outcomes.

ETHICAL DECLARATIONS

Ethics Committee Approval: Ethical approval was not required as this study is a literature review.

Informed Consent: Because the study was designed retrospectively, no written informed consent form was obtained from patients.

Referee Evaluation Process: Externally peer-reviewed.

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