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Exploring Patient and Provider Experiences with Mobile Applications for Diabetes Self-Management: A Systematic Review

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Abstract: **Background:** Mobile health (mHealth) applications are increasingly used to support diabetes self-management. While clinical outcomes have been widely studied, less is known about the experiential dimensions that shape patient and provider engagement with these tools. **Objective:** To systematically review empirical studies reporting patient and healthcare provider experiences with mHealth applications for diabetes self-management, focusing on usability, acceptability, barriers, facilitators, and integration into care. **Methods:** Following PRISMA 2020 guidelines, a comprehensive search was conducted across PubMed, Scopus, Web of Science, Embase, CINAHL, and Google Scholar for studies published between January 2015 and November 2025. Inclusion criteria targeted primary empirical studies involving adult patients or healthcare providers, reporting experiential data on mHealth use. A thematic synthesis approach was applied to analyse qualitative and mixed-methods findings, with quantitative data narratively integrated. Reference management and deduplication were performed using Zotero. **Results:** Patients generally reported high acceptability, particularly when apps offered personalization, real-time feedback, and cultural tailoring. Usability challenges, including data entry burden, navigation complexity, and technical glitches, were common, with older adults and those with limited digital literacy disproportionately affected. Barriers in low-resource settings included cost, connectivity, and limited awareness of available support. Facilitators of engagement included gamification, peer support, offline functionality, and integration with clinical care teams. Providers valued apps for remote monitoring and communication, but highlighted barriers such as workflow disruption, message fatigue, and lack of training. Clinical integration and interoperability with electronic medical records were identified as prerequisites for adoption. **Conclusions:** mHealth applications hold promise for empowering patients and enhancing diabetes care, but their success depends on bridging the gap between technological innovation and real-world usability, trust, and integration. Inclusive design, culturally tailored features, offline functionality, and institutional support are critical for equitable adoption. Future research should examine longitudinal impacts, equity in digital health access, and strategies for sustainable provider integration.

Keywords: mHealth, diabetes self-management, user experience, healthcare providers, mobile applications, thematic synthesis, PRISMA.

INTRODUCTION

Diabetes mellitus remains one of the most pressing global public health challenges, affecting an estimated 537 million adults as of 2023, with numbers expected to exceed 640 million by 2030 (International Diabetes Federation, 2023) The chronic and self-regulatory nature of diabetes demands sustained engagement in self-care behaviors such as medication adherence, dietary control, physical activity, and regular glucose monitoring. Yet, despite advances in clinical care, many patients continue to experience barriers to optimal self-management, particularly in resource-limited settings and among individuals with limited health literacy. (Birhanu *et al*., 2024). Consequently, there is an urgent need for scalable, accessible interventions that enhance patient autonomy, facilitate provider communication, and improve glycemic outcomes.

In recent years, mobile health (mHealth) applications have emerged as transformative tools in managing chronic diseases. These applications utilize smartphones and digital technologies to facilitate real-time tracking, education, and behavioral feedback, providing a promising pathway toward personalized and continuous diabetes care. (Rovithis *et al*., 2023). Beyond their clinical potential, mHealth solutions align with global health priorities, emphasizing digital transformation, patient-centered care, and universal health coverage. (World Health Statistics, 2022). The global uptake of diabetes-related mobile applications has accelerated rapidly, yet disparities persist in usage, engagement, and outcomes across diverse populations and healthcare systems. (Bults *et al*., 2023; Rathbone & Prescott, 2017).

While prior systematic reviews have largely focused on the clinical effectiveness of mHealth interventions, highlighting improvements in HbA1c levels, medication adherence, and self-efficacy (Birhanu *et al*., 2024; Trawley *et al*., 2017). The experiential dimension of these tools remains underexplored. Understanding how patients and providers perceive, adopt, and interact with mHealth applications is essential for optimizing both design and implementation.

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Studies have shown that user satisfaction and sustained engagement are influenced by usability, personalization, and integration with existing care models (Husted *et al*., 2018; Jia, 2022). Moreover, healthcare providers' attitudes toward mHealth play a crucial role in facilitating adoption, as provider endorsement enhances patient trust and adherence.

Despite the promising advances and growing adoption of mobile health applications for diabetes management, numerous challenges continue to hinder their widespread effectiveness and integration into both patient self-care routines and clinical workflows. Users often encounter barriers such as technical complexity, data privacy concerns, cost, limited interoperability with clinical systems, and a lack of culturally relevant content (Faruque *et al*., 2021). On the provider side, time constraints, inadequate training, and uncertainties around data accuracy hinder consistent use in clinical workflows. (Rovithis *et al*., 2023). These contextual factors underscore the need for a holistic understanding of user experiences that transcend purely clinical outcomes.

This systematic review, therefore, aims to synthesize empirical evidence on patient and provider experiences with mobile health applications for diabetes self-management. By integrating findings from qualitative, quantitative, and mixed-methods studies, this review seeks to identify key themes related to usability, engagement, facilitators, and barriers. Through this synthesis, the review contributes to the evidence base required for guiding future mHealth app design, policy development, and implementation strategies aimed at enhancing diabetes self-management outcomes worldwide.

METHODS

Design

This systematic review was conducted in accordance with the PRISMA 2020 (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines (Page *et al*., 2021). The aim was to synthesize empirical evidence on patients' and healthcare providers' experiences with mobile health (mHealth) applications for diabetes self-management. The review protocol was not registered.

Search Strategy

A comprehensive search was performed across six databases: PubMed, Scopus, Web of Science, Embase, CINAHL, and Google Scholar. The search covered literature published between January 2015 and November 2025, ensuring inclusion of the most recent evidence. Both Medical Subject Headings (MeSH) and free-text terms were used, combined with Boolean operators to capture relevant variations of keywords related to mobile health and diabetes management.

The Search Strategy Included Combinations of the Following Terms:

"Mobile health," "mHealth," "digital health," "telemedicine," "mobile apps," "mobile application," "smartphone," "diabetes mellitus," "type 1 diabetes," "type 2 diabetes," "glycemic control," "self-care," "self-management," "perceptions," "attitudes," "satisfaction," "qualitative research," "user experience," "patients," "health personnel," and "healthcare providers."

Grey literature sources such as conference proceedings and institutional reports were also considered to ensure comprehensive coverage.

Screening and Study Selection

All records retrieved from the database searches were imported into Zotero (latest version) for reference management and deduplication. The screening process followed PRISMA 2020 guidelines. After removal of duplicates, titles and abstracts were screened independently against the predefined eligibility criteria. The following inclusion and exclusion criteria were considered;

Inclusion and Exclusion Criteria

The inclusion criteria for this review encompassed primary empirical studies—whether qualitative, quantitative, or mixed-methods—that reported experiential data from adult patients with diabetes or healthcare providers. Studies were required to focus specifically on patient or healthcare provider experiences with mobile health (mHealth) applications for diabetes self-management and involve adult populations aged 18 years or older. Only studies published in English between January 2015 and November 2025 were considered, and eligible publications included those appearing in peer-reviewed journals or credible grey literature.

Studies were excluded if they were systematic reviews, meta-analyses, scoping reviews, editorials, or opinion pieces. Additionally, research focused solely on app design, development, or technical testing without any user experience data was excluded. Studies involving pediatric-only populations or animal subjects were not considered, nor were non-English publications. Conference abstracts that lacked sufficient methodological detail or results were also excluded. Finally, studies that did not include experiential data relevant to patient or provider perspectives on the use of mHealth applications in diabetes self-management were omitted.

Discrepancies in screening decisions were resolved through discussion until consensus was reached.

Data Extraction

A standardized data extraction form was used to collect the following information from each study: author(s), year, population, methodology, and key findings related to patient or provider experiences. Data were extracted manually and cross-verified for accuracy.

Data Synthesis

A thematic synthesis approach was employed to analyse qualitative and mixed-methods findings. Codes were generated inductively and grouped into higher-order themes. Quantitative findings were narratively integrated to support or contrast qualitative insights. Five major themes emerged: Usability and design, Engagement and motivation, Barriers and facilitators, Provider perspectives, Clinical integration and outcomes.

RESULTS

Study Selection

The initial search yielded 3,904 records from electronic databases, with no additional records identified from trial registers. Before screening, 27 duplicates were removed, alongside 1,117 records marked ineligible by automation tools and 2,760 records removed for other reasons. This left 115 records for title and abstract screening, of which 27 were excluded.

A total of 88 reports were sought for full-text retrieval; 2 reports could not be retrieved. The remaining 86 reports were assessed for eligibility. Of these, 14 were excluded as review articles, 14 as technical/design-only studies, 9 as paediatric or animal studies, 7 as editorials or opinion pieces, 12 for lacking experiential data, 4 non-English publications, and 4 incomplete conference abstracts.

Ultimately, 19 studies met the inclusion criteria and were incorporated into the synthesis. **Figure 1** presents the PRISMA flow diagram summarizing the study selection process.

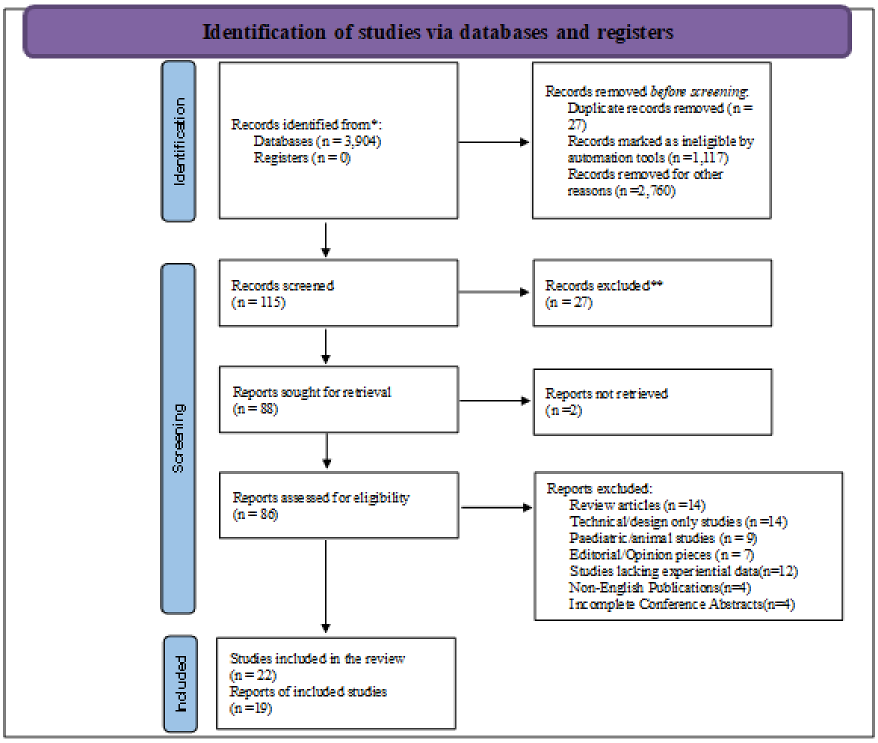

Figure 1. Prisma 2020 flow diagram

Study Characteristics

Nineteen studies published between 2015 and 2025 examined patient and provider experiences with mHealth apps for diabetes self-management across varied contexts and populations. Designs included qualitative studies (e.g., Anderson *et al.*, 2016; Baptista *et al.*, 2020; Lithgow *et al.*, 2017; Yoon *et al.*, 2022; Torbjørnsen *et al.*, 2019; Abd-alrazaq *et al*., 2021; Yasmin *et al*., 2020; Sze & Kow, 2023; Bults *et al*., 2023; Aovare *et al*., 2025; Jefferey *et al*., 2019), mixed-methods studies (Supramaniam *et al*., 2024; Zhang *et al*., 2018), quantitative surveys (Conway *et al*., 2016; Georgsson & Staggers, 2016; Walle *et al*., 2023), and usability testing among older adults (Isaković *et al*., 2016). Studies covered high-income settings (e.g., Australia, Norway) and LMICs (Low or Middle-Income Countries) (e.g., Ghana, Bangladesh, Malaysia, Qatar), with both patients and providers represented (e.g., Yoon *et al*., 2022; Abd-alrazaq *et al*., 2021; Bradway *et al*., 2020).

Table 1: Summary of Included Studies Reporting Patient and Provider Experiences with mHealth Apps for Diabetes Self-Management (2015–2025)

Study Title	Authors	Year	Population	Methodology	Key Findings on Experience
Exploring mHealth app utilization for diabetes self-management	Supramaniam *et al*.	2024	Patients	Mixed-methods	Improved engagement; concerns about privacy and inconsistent usability.
User experiences with a mobile health app for self-management of diabetes and hypertension in Ghana	Aovare *et al*.	2025	Patients	Qualitative	High acceptability; barriers included digital literacy and cost.
Mobile Health Apps to Facilitate Self-Care: A Qualitative Study of User Experiences	Anderson *et al*.	2016	Patients	Qualitative	Apps supported motivation and self-monitoring; barriers included data entry burden and privacy concerns.
mHealth applications for diabetes: User preference and implications for app development	Conway *et al*.	2016	Patients	Quantitative	Usability and personalization were facilitators; lack of integration was a barrier.
Mobile Health Apps for the Control and Self-management of Type 2 Diabetes Mellitus: Qualitative Study on Users' Acceptability and Acceptance	Bults *et al*.	2023	Patients	Qualitative	Valued real-time feedback; concerns about data security and complexity.
Healthcare professionals' views of factors influencing diabetes self-management and the utility of a mHealth application	Yoon *et al*.	2022	Providers	Qualitative	Remote monitoring appreciated; workflow disruption and lack of training noted.
Perspectives and Needs of Malaysian Patients with Diabetes for a Mobile Health App Support on Self-Management of Diabetes: Qualitative Study	Sze & Kow	2023	Patients	Qualitative	lack of awareness about the availability of mHealth support, insufficient support in using mHealth apps, the perception that current mHealth apps do not align with users' specific needs, and limited digital literacy among users.
Perspectives of people with diabetes on AI-	Alzghaibi	2025	Patients	Qualitative	High acceptability; barriers included digital literacy and

integrated wearable devices: perceived benefits, barriers, and opportunities for self-management					cost.
Exploration of Users' Perspectives and Needs and Design of a Type 1 Diabetes Management Mobile App	Zhang *et al*	2018	Patients	Mixed-methods	Users desired personalized feedback, data visualization, and integration with clinical care; barriers included complexity and a lack of emotional support features.
User Experiences with a Type 2 Diabetes Coaching App: Qualitative Study	Baptista *et al*	2020	Patients	Qualitative	Users appreciated personalized coaching and goal setting; barriers included technical issues and a lack of emotional support.
Usability Pitfalls of Diabetes mHealth Apps for the Elderly	Isaković *et al*.	2016	Patients (Older Adults)	Usability Experimental	Navigation and font size issues; training improved usability.
Smartphone App Use for Diabetes Management: Evaluating Patient Perspectives	Lithgow *et al*.	2017	Patients	Qualitative	Despite dissatisfaction with currently available apps, there is high acceptability.
Quantifying usability: an evaluation of a diabetes mHealth system on effectiveness, efficiency, and satisfaction metrics with associated user characteristics	Georgsson & Staggers	2016	Patients	Quantitative	usable and satisfactory
How mHealth can facilitate collaboration in diabetes care: qualitative analysis of co-design workshops	Bradway *et al*.	2020	Patients Providers	Qualitative	Tailorability and Flexibility, Validation and Healthcare Integration, Collaborative Engagement
Understanding patients' experience living with type 2 diabetes and effective disease management: a qualitative study following a mobile health intervention in Bangladesh	Yasmin *et al*.	2020	Patients	Qualitative	Good acceptability; barriers included cost.
Willingness of diabetes mellitus patients to use mHealth applications and their associated factors	Walle *et al*.	2023	Patients	Quantitative	High acceptability; barriers included age, residence, and internet access

for self-care management in a low-income country: an input for digital health implementation					
Users' acceptability of a mobile application for persons with type 2 diabetes: a qualitative study	Torbjørnsen *et al.*	2019	Patients	Qualitative study	Mixed acceptability; barriers included the demanding nature of mobile apps
Mobile phone applications and their use in the self-management of Type 2 Diabetes Mellitus: a qualitative study among app users and non-app users	Jefferey *et al.*	2019	Patients	Qualitative	Improved self-management; health professional support increased satisfaction; barriers included lack of awareness, tech literacy, and connectivity.
Patients and healthcare workers' experience with a mobile application for self-management of diabetes in Qatar: A qualitative study	Abd-alrazaq *et al.*	2021	Providers Patients	Qualitative	Improved communication; concerns about message overload.

THEMATIC SYNTHESIS OF PATIENT EXPERIENCES

Usability and interface design

Usability was pivotal for sustained engagement. Patients valued intuitive navigation, clear displays, personalization, and real-time feedback (Bults *et al.*, 2023; Conway *et al.*, 2016). Persistent usability barriers included data entry burden, app complexity, and responsiveness issues, which particularly affected older adults and those with limited digital literacy (Anderson *et al.*, 2016; Isaković *et al.*, 2016; Zhang *et al.*, 2018). Usability training improved performance among older adults, emphasizing the importance of onboarding and accessible interface design (Isaković *et al.*, 2016).

Acceptability and satisfaction

Overall acceptability was high, even where dissatisfaction with current app options was noted, reflecting perceived usefulness and alignment with daily routines. (Lithgow *et al.*, 2017; Torbjørnsen *et al.*, 2019). Patients appreciated features such as personalized coaching, goal-setting, reminders, and tracking, which supported autonomy and motivation. (Baptista *et al.*, 2020; Bults *et al.*, 2023). Cultural and contextual tailoring, including language and local needs, was associated with higher acceptability and satisfaction. (Aovare *et al.*, 2025; Supramaniam *et al.*, 2024; Yasmin *et al.*, 2020).

Barriers to Use

Technical glitches, unstable performance, and inconsistent usability were frequent barriers to continued use. (Baptista *et al.*, 2020; Supramaniam *et al.*, 2024). Data privacy and security concerns were recurrent and undermined trust in apps. (Anderson *et al.*, 2016; Bults *et al.*, 2023; Supramaniam *et al.*, 2024). In LMIC contexts, cost, connectivity, and limited smartphone ownership constrained uptake and sustained engagement; willingness to use mHealth was moderated by age, residence, and internet access. (Aovare *et al.*, 2025; Walle *et al.*, 2023; Yasmin *et al.*, 2020). Limited awareness of available mHealth support and insufficient help using apps further hindered adoption. (Sze & Kow, 2023).

Facilitators of Engagement

Facilitators included personalization, real-time feedback, gamification, peer support, and integration with wearables. (Baptista *et al.*, 2020; Bults *et al.*, 2023; Conway *et al.*, 2016). Offline functionality and support from community health workers were particularly important in underserved settings, helping mitigate connectivity barriers and sustain engagement. (Aovare *et al*., 2025; Yasmin *et al*., 2020). Integration with clinical care teams and clear data visualization strengthened perceived relevance and utility. (Jeffrey *et al*., 2019; Zhang *et al*., 2018).

THEMATIC SYNTHESIS OF PROVIDER EXPERIENCES

Perceived utility and clinical integration

Providers generally perceived mHealth apps as useful for enhancing engagement, remote monitoring, and patient–provider communication. (Abd-alrazaq *et al*., 2021; Yoon *et al*., 2022). Co-design findings emphasized the importance of customization, data validation, and seamless integration with healthcare systems as essential prerequisites for adoption (Bradway *et al*., 2020). Providers sought interoperability with EMRs and workflow alignment to avoid duplication and friction. (Bradway *et al*., 2020; Yoon *et al*., 2022).

Barriers to adoption

Barriers included a lack of institutional support, insufficient training, and concerns about data overload, which led to skepticism about the clinical validity and decision utility of app-generated data (Abd-alrazaq *et al*., 2021; Yoon *et al*., 2022). Message fatigue and workflow disruption were notable in implementations relying on frequent patient messaging and alerts (Abd-alrazaq *et al*., 2021).

Communication and workflow impacts

Apps improved communication channels between patients and providers, offering timely feedback and reinforcing self-management; however, unmanaged messaging volume increased workload and reduced perceived value (Abd-alrazaq *et al*., 2021; Yoon *et al*., 2022). Collaborative features and clear escalation pathways were viewed as necessary to translate communication benefits into sustainable practice. (Bradway *et al*., 2020).

DISCUSSION

Principal Findings

This systematic review synthesized evidence from 19 empirical studies published between 2015 and 2025, examining patient and provider experiences with mobile health (mHealth) applications for diabetes self-management. Across diverse contexts, patients generally reported high acceptability and motivation when apps offered personalization, real-time feedback, and integration into daily routines. (Baptista *et al*., 2020; Bults *et al*., 2023; Conway *et al*., 2016). Providers similarly recognized the potential of mHealth tools for enhancing engagement and remote monitoring. (Abd-alrazaq *et al*., 2021; Yoon *et al*., 2022). However, persistent barriers including usability challenges, privacy concerns, digital literacy gaps, and workflow disruption limited sustained adoption.

Patient Experiences

Patients valued apps that were intuitive, customizable, and culturally tailored, with features such as medication reminders, coaching, and goal tracking, enhancing self-efficacy. (Supramaniam *et al*., 2024; Yasmin *et al*., 2020). Yet usability issues such as data entry burden, navigation complexity, and technical glitches were recurrent. (Anderson *et al*., 2016; Isaković *et al*., 2016; Zhang *et al*., 2018). Older adults and individuals with limited digital literacy were disproportionately affected, underscoring the need for accessible design and onboarding support.

Barriers were particularly pronounced in low- and middle-income countries (LMICs), where cost, connectivity, and limited smartphone ownership constrained uptake. (Aovare *et al*., 2025; Walle *et al*., 2023). Patients also reported insufficient awareness of available mHealth support and inadequate guidance in app use. (Jeffrey *et al*., 2019; Sze & Kow, 2023). These findings highlight the importance of offline functionality, community health worker involvement, and context-specific tailoring to ensure equitable access.

Provider Experiences

Providers viewed mHealth apps as valuable for patient engagement and communication, but adoption was hindered by concerns about workflow disruption, message fatigue, and data overload (Abd-alrazaq *et al*., 2021; Yoon *et al*., 2022). Integration with electronic medical records (EMRs) and validation of app-generated data were repeatedly emphasized as prerequisites for clinical utility (Bradway *et al*., 2020). Younger clinicians appeared more receptive to digital health innovations, suggesting generational differences in adoption (Alzghaibi, 2025). Institutional support and structured training were identified as critical enablers for sustainable integration.

Cross-Cutting Themes

Several themes cut across patient and provider perspectives. First, trust and privacy remain foundational: concerns about data security and clinical relevance undermine confidence in mHealth tools (Anderson *et al*., 2016; Bults *et al*., 2023). Second, usability and personalization are central to engagement, with gamification, peer support, and wearable integration acting as facilitators. (Baptista *et al*., 2020; Conway *et al*., 2016). Third, equity in access is a pressing issue, as LMIC contexts reveal structural barriers that require low-cost, low-data, and culturally tailored solutions. (Aovare *et al*., 2025; Yasmin *et al*., 2020). Finally, clinical integration is essential for provider adoption, necessitating interoperability, workflow alignment, and institutional investment.

Comparison with Previous Reviews

These findings align with earlier systematic reviews that highlighted usability, personalization, and integration as key determinants of mHealth success in diabetes care. However, this review adds depth by foregrounding patient and provider experiential data across diverse contexts, including LMICs. It underscores that while clinical outcomes are important, experiential factors of trust, literacy, cost, and workflow ultimately determine sustained adoption.

Limitations

This review was limited to English-language publications, potentially excluding relevant studies in other languages. Grey literature was underrepresented, and some studies provided limited methodological detail. The synthesis focused on experiential data rather than clinical effectiveness outcomes, which may restrict generalizability. Nonetheless, the inclusion of diverse contexts and populations strengthens the relevance of findings.

Implications for Practice and Research

For practice, developers should prioritize inclusive design, offline functionality, and culturally tailored content. Healthcare systems must invest in provider training, workflow integration, and data governance to support adoption. Policymakers should consider reimbursement models and regulatory frameworks that incentivize the use of mHealth while safeguarding user privacy.

For future research, studies should explore the longitudinal impacts of mHealth use on clinical outcomes, equity in digital health access, and strategies for workflow optimization. Mixed-methods and participatory designs may yield deeper insights into contextual barriers and facilitators. Greater inclusion of grey literature and non-English studies would enhance global relevance.

CONCLUSION

Summary of Findings

The findings reveal that while mHealth apps are generally well-received by both patients and providers, their effectiveness and adoption are shaped by usability, cultural relevance, digital literacy, and integration into clinical workflows.

Patients valued features that supported autonomy, such as real-time feedback, medication reminders, and goal tracking. Usability and personalization were key facilitators of engagement, whereas technical issues, privacy concerns, and digital fatigue posed significant barriers. In underserved settings, offline functionality and community support were critical to sustained use.

Healthcare providers recognized the potential of mHealth tools to enhance patient monitoring and communication. However, concerns about data overload, lack of training, and poor integration with electronic medical records limited their adoption. Younger clinicians were more receptive to digital health innovations, suggesting a generational shift in attitudes.

Implications for Practice

To maximize the impact of mHealth interventions, developers should prioritize inclusive design, cultural tailoring, and offline capabilities. Healthcare systems must invest in provider training, workflow integration, and data governance to support sustainable adoption. Policymakers should consider reimbursement models and regulatory frameworks that incentivize mHealth use and ensure data security.

Limitations

This review was limited by uneven geographic representation, with few studies from Latin America and Southeast Asia. Grey literature was underrepresented due to indexing constraints, and some studies lacked full metadata, which may affect reproducibility. The review did not assess clinical effectiveness outcomes, focusing instead on experiential data.

Recommendations for Future Research

Future studies should explore longitudinal impacts of mHealth use on clinical outcomes, equity in digital health access, and provider workflow optimization. Mixed-methods and participatory designs may yield deeper insights into contextual barriers and facilitators. Greater inclusion of grey literature and non-English studies could enhance global relevance.

REFERENCES

1. Abd-alrazaq, A. A., Suleiman, N., Baagar, K., Jandali, N., Alhuwail, D., Abdalhakam, I., ... & Househ, M. "Patients and healthcare workers experience with a mobile application for self-management of diabetes in Qatar: A qualitative study." *Computer Methods and Programs in Biomedicine Update* 1 (2021): 100002.
2. Alzghaibi, H. "Perspectives of people with diabetes on AI-integrated wearable devices: perceived benefits, barriers, and opportunities for self-management." *Frontiers in Medicine* 12 (2025): 1563003.
3. Anderson, K., Burford, O., & Emmerton, L. "Mobile health apps to facilitate self-care: a qualitative study of user experiences." *PloS one* 11.5 (2016): e0156164.
4. Aovare, P., Beune, E., Laar, A., Moens, N., Moll van Charante, E. P., & Agyemang, C. "User experiences with a mobile health app for self-management of diabetes and hypertension in Ghana: a qualitative study." *Annals of Medicine* 57.1 (2025): 2517395.
5. Baptista, S., Wadley, G., Bird, D., Oldenburg, B., Speight, J., & My Diabetes Coach Research Group. "User experiences with a type 2 diabetes coaching app: qualitative study." *JMIR diabetes* 5.3 (2020): e16692.
6. Birhanu, T. E., Guracho, Y. D., Asmare, S. W., & Olana, D. D. "A mobile health application use among diabetes mellitus patients: a systematic review and meta-analysis." *Frontiers in Endocrinology* 15 (2024): 1481410.
7. Bradway, M., Morris, R. L., Giordanengo, A., & Årsand, E. "How mHealth can facilitate collaboration in diabetes care: qualitative analysis of co-design workshops." *BMC health services research* 20.1 (2020): 1104.
8. Bults, M., van Leersum, C. M., Olthuis, T. J. J., Bekhuis, R. E. M., & den Ouden, M. E. M. "Mobile health apps for the control and self-management of type 2 diabetes mellitus: qualitative study on users' acceptability and acceptance." *JMIR diabetes* 8 (2023): e41076.
9. Conway, N., Campbell, I., Forbes, P., Cunningham, S., & Wake, D. "mHealth applications for diabetes: user preference and implications for app development." *Health informatics journal* 22.4 (2016): 1111-1120.
10. Faruque, M., Barua, L., Banik, P. C., Sultana, S., Biswas, A., Alim, A., ... & Ali, L. "Prevalence of non-communicable disease risk factors among nurses and para-health professionals working at primary healthcare level of Bangladesh: a cross-sectional study." *BMJ open* 11.3 (2021): e043298.
11. Husted, G. R., Weis, J., Teilmann, G., & Castensøe-Seidenfaden, P. "Exploring the influence of a smartphone app (young with diabetes) on young people's self-management: qualitative study." *JMIR mHealth and uHealth* 6.2 (2018): e8876.
12. Magliano, D. J., & Boyko, E. J. "IDF diabetes atlas." (2021).
13. Isaković, M., Sedlar, U., Volk, M., & Bešter, J. "Usability pitfalls of diabetes mHealth apps for the elderly." *Journal of diabetes research* 2016.1 (2016): 1604609.
14. Jeffrey, B., Bagala, M., Creighton, A., Leavey, T., Nicholls, S., Wood, C., ... & Pit, S. "Mobile phone applications and their use in the self-management of type 2 diabetes mellitus: a qualitative study among app users and non-app users." *Diabetology & metabolic syndrome* 11.1 (2019): 84.
15. Jia, W. "Diabetes care in China: Innovations and implications." *Journal of diabetes investigation* 13.11 (2022): 1795.
16. Lithgow, K., Edwards, A., & Rabi, D. "Smartphone app use for diabetes management: evaluating patient perspectives." *JMIR diabetes* 2.1 (2017): e6643.
17. Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., ... & Moher, D. "The PRISMA 2020 statement: an updated guideline for reporting systematic reviews." *bmj* 372 (2021).
18. Rathbone, A. L., & Prescott, J. "The use of mobile apps and SMS messaging as physical and mental health interventions: systematic review." *Journal of medical Internet research* 19.8 (2017): e295.
19. Rovithis, M., Stavropoulou, A., Rikos, N., Dimitropoulos, A., & Vasilopoulos, G. "The Impact of mHealth Apps in the Self-Management of Diabetes Mellitus type 2: A Systematic Review." *International Journal of Caring Sciences* 16.2 (2023): 1037-1047.
20. Supramaniam, P., Beh, Y. S., Junus, S., & Devesahayam, P. R. "Exploring mHealth app utilization for diabetes self-management: survey insights from a northern district in Malaysia." *BMC Public Health* 24.1 (2024): 3542.
21. Sze, W. T., & Kow, S. G. "Perspectives and needs of Malaysian patients with diabetes for a

mobile health app support on self-management of diabetes: qualitative study." *JMIR diabetes* 8 (2023): e40968.

22. Torbjørnsen, A., Ribu, L., Rønnevig, M., Grøttland, A., & Helseth, S. "Users' acceptability of a mobile application for persons with type 2 diabetes: a qualitative study." *BMC health services research* 19.1 (2019): 641.
23. Trawley, S., Baptista, S., Browne, J. L., Pouwer, F., & Speight, J. "The use of mobile applications among adults with type 1 and type 2 diabetes: results from the second MILES—Australia (MILES-2) study." *Diabetes technology & therapeutics* 19.12 (2017): 730-738.
24. Walle, A. D., Ferede, T. A., Shibabaw, A. A., Wubante, S. M., Guadie, H. A., Yehula, C. M., & Demsash, A. W. "Willingness of diabetes mellitus patients to use mHealth applications and its associated factors for self-care management in a low-income country: an input for digital health implementation." *BMJ Health & Care Informatics* 30.1 (2023): e100761.
25. *World Health Statistics*. (2022). https://www.who.int/news/item/20-05-2022-world-health-statistics-2022
26. Yasmin, F., Nahar, N., Banu, B., Ali, L., Sauerborn, R., & Souares, A. "The influence of mobile phone-based health reminders on patient adherence to medications and healthy lifestyle recommendations for effective management of diabetes type 2: a randomized control trial in Dhaka, Bangladesh." *BMC Health Services Research* 20.1 (2020): 520.
27. Yoon, S., Ng, J. H., Kwan, Y. H., & Low, L. L. "Healthcare professionals' views of factors influencing diabetes self-management and the utility of a mHealth application and its features to support self-care." *Frontiers in Endocrinology* 13 (2022): 793473.
28. Zhang, Y., Li, X., Luo, S., Liu, C., Liu, F., & Zhou, Z. "Exploration of users' perspectives and needs and design of a type 1 diabetes management Mobile app: mixed-methods study." *JMIR mHealth and uHealth* 6.9 (2018): e11400.

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