

Supplementary Materials

AI in Consumer Type-2 Diabetes Management Apps: A Scoping Review of Deployed and Translatable AI Capabilities

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S1 Search strategy

S1.1 Information sources

Seven bibliographic databases were searched, spanning biomedical, nursing, behavioural science, and engineering literature. No grey-literature sources were systematically searched. All searches were run through Simon Fraser University Library subscriptions between 11 and 23 January 2026. No date limits were applied. Language was restricted to English. All records were exported to Covidence for deduplication and screening.

Table S1: Information sources searched, with date of search and records retrieved.

Source	Date searched	Records retrieved	Access
MEDLINE / PubMed	23 Jan 2026	575	SFU Library
Scopus	23 Jan 2026	447	SFU Library
Cochrane Library	11 Jan 2026	45	SFU Library
CINAHL	11 Jan 2026	155	SFU Library (EBSCOhost)
Web of Science	11 Jan 2026	129	SFU Library
PsycINFO	11 Jan 2026	42	SFU Library (EBSCOhost)
IEEE Xplore	11 Jan 2026	26	SFU Library
Total records identified		1,419	

Reconciliation with Figure 1. The seven database searches returned 1,419 records, which is the identification count reported in Figure 1 of the manuscript. After removal of 626 duplicates by Covidence, 793 unique records proceeded to title and abstract screening.

Note. The screening and exclusion counts in Figure 1 (793 screened; 627 excluded at title and abstract) follow from the 1,419 identification total recorded in this log. An earlier export of the review's Covidence project reported 1,569 identified, 943 screened, and 539 excluded; those figures did not reconcile with the search log or with each other and have been superseded. Counts from the full-text stage onward (166 sought for retrieval, 0 not retrieved, 166 assessed for eligibility, 149 excluded with reasons, 17 included) are unchanged.

S1.2 Concept blocks

The strategy combined four concept blocks with the Boolean operator **AND**; terms within each block were combined with **OR**. Database-specific controlled vocabulary was applied alongside free-text terms: MeSH descriptors in PubMed and the Cochrane Library, CINAHL Subject Headings (MH) in CINAHL, and APA Thesaurus descriptors (DE) in PsycINFO, each searched alongside title (TI), abstract (AB), and keyword fields.

Table S2: Search concept blocks and constituent free-text terms.

Block	Terms
1. AI method	“artificial intelligence” OR “machine learning” OR “deep learning” OR “neural network*” OR “natural language processing” OR NLP OR “large language model*” OR LLM OR “chatbot*” OR “conversational agent*” OR “computer vision” OR “predictive model*” OR “predictive analytics” OR “algorithm*” OR “decision support” OR “federated learning” OR “reinforcement learning” OR “wearable*” OR “continuous glucose monitor*” OR CGM OR “smart sensor*”
2. Condition	“type 2 diabetes” OR “type II diabetes” OR T2D OR T2DM OR “non-insulin dependent diabetes” OR NIDDM OR “adult onset diabetes” OR “prediabet*” OR hyperglycemia OR “glycemic control” OR “glycaemic control” OR HbA1c OR “glucose management”
3. Digital health	“self-management” OR “self-care” OR “self-monitor*” OR “mobile health” OR mHealth OR eHealth OR “digital health” OR “mobile app*” OR “smartphone app*” OR “mobile application*” OR telemedicine OR telehealth OR “remote monitoring” OR “digital intervention*” OR “digital therapist*” OR “health app*” OR “diabetes app*” OR “patient engagement”
4. Behaviour change	“behavior change” OR “behaviour change” OR “behavio(u)ral theory” OR “behavio(u)ral intervention*” OR “self-determination theory” OR SDT OR COM-B OR “capability opportunity motivation” OR “social cognitive theory” OR “health belief model” OR “transtheoretical model” OR “stages of change” OR “motivational interviewing” OR “behavio(u)r change technique*” OR BCT OR gamification OR “nudge*” OR “just-in-time adaptive intervention*” OR JITAI OR autonomy OR competence OR relatedness OR “self-efficacy” OR “intrinsic motivation” OR “user engagement”

Combined as: (Block 1) AND (Block 2) AND (Block 3) AND (Block 4), with limits **English language, no date restriction**.

Note. The table lists the fullest term set applied, which was used in MEDLINE/PubMed, Scopus, CINAHL, and PsycINFO. Cochrane Library and Web of Science were run with a reduced term

set, and IEEE Xplore with a variant substituting engineering vocabulary (for example IoT, “health informatics”, “persuasive technology”). Each database’s exact string is given in Section S1.3. Controlled-vocabulary descriptors were added per platform: MeSH in PubMed and the Cochrane Library, CINAHL Subject Headings (MH), and APA Thesaurus descriptors (DE) in PsycINFO.

S1.3 Full search strings, as executed

The complete string run against each source is reproduced below, split by concept block for legibility; the blocks were combined with AND as a single query. For CINAHL and PsycINFO the notation TI/AB denotes terms that were searched separately in the title and abstract fields and combined with OR; the executed strings repeat each term under both tags. Cochrane Library and Web of Science were run with an identical, reduced term set, reflecting the simpler query syntax those platforms accept.

MEDLINE / PubMed

#1 AI method

("Artificial Intelligence"[MeSH] OR "Machine Learning"[MeSH] OR "Deep Learning"[MeSH] OR "Neural Networks, Computer"[MeSH] OR "Natural Language Processing"[MeSH] OR "Decision Support Systems, Clinical"[MeSH] OR "Wearable Electronic Devices"[MeSH] OR "artificial intelligence"[tiab] OR "machine learning"[tiab] OR "deep learning"[tiab] OR "neural network*"[tiab] OR "natural language processing"[tiab] OR "NLP"[tiab] OR "large language model*"[tiab] OR "LLM"[tiab] OR "chatbot*"[tiab] OR "conversational agent*"[tiab] OR "computer vision"[tiab] OR "predictive model*"[tiab] OR "predictive analytics"[tiab] OR "algorithm*"[tiab] OR "decision support"[tiab] OR "federated learning"[tiab] OR "reinforcement learning"[tiab] OR "wearable*"[tiab] OR "continuous glucose monitor*"[tiab] OR "CGM"[tiab] OR "smart sensor*"[tiab])

AND #2 Condition

("Diabetes Mellitus, Type 2"[MeSH] OR "Prediabetic State"[MeSH] OR "Blood Glucose"[MeSH] OR "Glycated Hemoglobin A"[MeSH] OR "type 2 diabetes"[tiab] OR "type II diabetes"[tiab] OR "T2D"[tiab] OR "T2DM"[tiab] OR "non-insulin dependent diabetes"[tiab] OR "NIDDM"[tiab] OR "adult onset diabetes"[tiab] OR "prediabet*"[tiab] OR "hyperglycemia"[tiab] OR "glycemic control"[tiab] OR "glycaemic control"[tiab] OR "HbA1c"[tiab] OR "glucose management"[tiab])

AND #3 Digital health

("Self-Management"[MeSH] OR "Self Care"[MeSH] OR "Telemedicine"[MeSH] OR "Mobile Applications"[MeSH] OR "Smartphone"[MeSH] OR "Patient Education as Topic"[MeSH] OR "self-management"[tiab] OR "self-care"[tiab] OR "self-monitor*"[tiab] OR "mobile health"[tiab] OR "mHealth"[tiab] OR "eHealth"[tiab] OR "digital health"[tiab] OR "mobile app*"[tiab] OR "smartphone app*"[tiab] OR "mobile application*"[tiab] OR "telemedicine"[tiab] OR "telehealth"[tiab] OR "remote monitoring"[tiab] OR "digital intervention*"[tiab] OR "digital therapeut*"[tiab] OR "health app*"[tiab] OR "diabetes app*"[tiab] OR "patient engagement"[tiab])

AND #4 Behaviour change

("Health Behavior"[MeSH] OR "Behavior Therapy"[MeSH] OR "Motivation"[MeSH] OR "Self Efficacy"[MeSH] OR "Patient Compliance"[MeSH] OR "Psychological Theory"[MeSH] OR "behavior change"[tiab] OR "behaviour change"[tiab] OR "behavioral theory"[tiab] OR "behavioural theory"[tiab] OR "behavioral intervention*"[tiab] OR "behavioural intervention*"[tiab] OR "self-determination theory"[tiab] OR "SDT"[tiab] OR "COM-B"[tiab] OR "capability opportunity motivation"[tiab] OR "social cognitive theory"[tiab] OR "health belief model"[tiab] OR "transtheoretical model"[tiab] OR "stages of change"[tiab] OR "motivational interviewing"[tiab] OR "behavior change technique*"[tiab] OR "behaviour change technique*"[tiab] OR "BCT"[tiab] OR "gamification"[tiab] OR "nudge*"[tiab] OR "just-in-time adaptive intervention*"[tiab] OR "JITAI"[tiab] OR "autonomy"[tiab] OR "competence"[tiab] OR "relatedness"[tiab] OR "self-efficacy"[tiab] OR "intrinsic

motivation"[tiab] OR "user engagement"[tiab])

Scopus

#1 AI method

TITLE-ABS-KEY("artificial intelligence" OR "machine learning" OR "deep learning" OR "neural network*" OR "natural language processing" OR "NLP" OR "large language model*" OR "LLM" OR "chatbot*" OR "conversational agent*" OR "computer vision" OR "predictive model*" OR "predictive analytics" OR "algorithm*" OR "decision support" OR "federated learning" OR "reinforcement learning" OR "wearable*" OR "continuous glucose monitor*" OR "CGM" OR "smart sensor*")

AND #2 Condition

TITLE-ABS-KEY("type 2 diabetes" OR "type II diabetes" OR "T2D" OR "T2DM" OR "non-insulin dependent diabetes" OR "NIDDM" OR "adult onset diabetes" OR "prediabet*" OR "hyperglycemia" OR "hyperglycaemia" OR "glycemic control" OR "glycaemic control" OR "HbA1c" OR "glucose management")

AND #3 Digital health

TITLE-ABS-KEY("self-management" OR "self-care" OR "self-monitor*" OR "mobile health" OR "mHealth" OR "eHealth" OR "digital health" OR "mobile app*" OR "smartphone app*" OR "mobile application*" OR "telemedicine" OR "telehealth" OR "remote monitoring" OR "digital intervention*" OR "digital therapeut*" OR "health app*" OR "diabetes app*" OR "patient engagement")

AND #4 Behaviour change

TITLE-ABS-KEY("behavio*r change" OR "behaviour change" OR "behavior change" OR "behavio*ral theory" OR "behavio*ral intervention*" OR "self-determination theory" OR "SDT" OR "COM-B" OR "capability opportunity motivation" OR "social cognitive theory" OR "health belief model" OR "transtheoretical model" OR "stages of change" OR "motivational interviewing" OR "behavior change technique*" OR "behaviour change technique*" OR "BCT" OR "gamification" OR "nudge*" OR "just-in-time adaptive intervention*" OR "JITAI" OR "autonomy" OR "competence" OR "relatedness" OR "self-efficacy" OR "intrinsic motivation" OR "patient engagement" OR "user engagement")

Cochrane Library

#1 AI method

("artificial intelligence" OR "machine learning" OR "deep learning" OR "neural network*" OR "chatbot*" OR "predictive model*" OR "wearable*" OR "CGM")

AND #2 Condition

("type 2 diabetes" OR "T2D" OR "T2DM" OR "prediabetes" OR "glycemic control" OR "HbA1c")

AND #3 Digital health

("self-management" OR "mobile health" OR "mHealth" OR "digital health" OR "mobile app*" OR "telemedicine" OR "telehealth")

AND #4 Behaviour change

("behavior change" OR "behaviour change" OR "self-determination theory" OR "COM-B" OR "health belief model" OR "transtheoretical model" OR "motivational interviewing" OR "gamification" OR "self-efficacy")

CINAHL

#1 AI method

(MH "Artificial Intelligence+" OR MH "Machine Learning" OR MH "Neural Networks (Computer)" OR MH "Natural Language Processing" OR MH "Decision Support Systems, Clinical" OR MH

"Wearable Sensors" OR TI/AB "artificial intelligence" OR "machine learning" OR "deep learning" OR "neural network*" OR "natural language processing" OR "NLP" OR "large language model*" OR "LLM" OR "chatbot*" OR "conversational agent*" OR "computer vision" OR "predictive model*" OR "algorithm*" OR "decision support" OR "federated learning" OR "reinforcement learning" OR "wearable*" OR "continuous glucose monitor*" OR "CGM")

AND #2 Condition

(MH "Diabetes Mellitus, Type 2" OR MH "Prediabetic State" OR MH "Blood Glucose" OR MH "Hemoglobin A, Glycosylated" OR TI/AB "type 2 diabetes" OR "type II diabetes" OR "T2D" OR "T2DM" OR "non-insulin dependent diabetes" OR "NIDDM" OR "prediabet*" OR "hyperglycemia" OR "hyperglycaemia" OR "glycemic control" OR "glycaemic control" OR "HbA1c" OR "glucose management")

AND #3 Digital health

(MH "Self Care+" OR MH "Self-Management" OR MH "Telemedicine+" OR MH "Mobile Applications" OR MH "Smartphone" OR MH "Patient Education+" OR MH "Remote Monitoring" OR TI/AB "self-management" OR "self-care" OR "self-monitor*" OR "mobile health" OR "mHealth" OR "eHealth" OR "digital health" OR "mobile app*" OR "smartphone app*" OR "telemedicine" OR "telehealth" OR "remote monitoring" OR "digital intervention*" OR "digital therapeutic*" OR "health app*" OR "diabetes app*" OR "patient engagement")

AND #4 Behaviour change

(MH "Health Behavior+" OR MH "Behavior Therapy+" OR MH "Motivation" OR MH "Self-Efficacy" OR MH "Patient Compliance+" OR MH "Health Belief Model" OR MH "Motivational Interviewing" OR TI/AB "behavior change" OR "behaviour change" OR "behavioral theory" OR "behavioural theory" OR "behavioral intervention*" OR "behavioural intervention*" OR "self-determination theory" OR "SDT" OR "COM-B" OR "capability opportunity motivation" OR "social cognitive theory" OR "health belief model" OR "transtheoretical model" OR "stages of change" OR "motivational interviewing" OR "behavior change technique*" OR "behaviour change technique*" OR "BCT" OR "gamification" OR "nudge*" OR "just-in-time adaptive intervention*" OR "JITAI" OR "autonomy" OR "competence" OR "relatedness" OR "self-efficacy" OR "intrinsic motivation")

Web of Science

#1 AI method

("artificial intelligence" OR "machine learning" OR "deep learning" OR "neural network*" OR "chatbot*" OR "predictive model*" OR "wearable*" OR "CGM")

AND #2 Condition

("type 2 diabetes" OR "T2D" OR "T2DM" OR "prediabetes" OR "glycemic control" OR "HbA1c")

AND #3 Digital health

("self-management" OR "mobile health" OR "mHealth" OR "digital health" OR "mobile app*" OR "telemedicine" OR "telehealth")

AND #4 Behaviour change

("behavior change" OR "behaviour change" OR "self-determination theory" OR "COM-B" OR "health belief model" OR "transtheoretical model" OR "motivational interviewing" OR "gamification" OR "self-efficacy")

PsycINFO

#1 AI method

(DE "Artificial Intelligence" OR DE "Machine Learning" OR DE "Neural Networks" OR DE "Natural Language Processing" OR DE "Algorithms" OR DE "Decision Support Systems" OR DE "Wearable Devices" OR TI/AB "artificial intelligence" OR "machine learning" OR "deep learning" OR "neural network*" OR "natural language processing" OR "NLP" OR "large language model*" OR "LLM" OR "chatbot*" OR "conversational agent*" OR "computer vision")

OR "predictive model*" OR "algorithm*" OR "decision support" OR "federated learning" OR "reinforcement learning" OR "wearable*" OR "continuous glucose monitor*" OR "CGM")

AND #2 Condition

(DE "Diabetes Mellitus" OR TI/AB "type 2 diabetes" OR "type II diabetes" OR "T2D" OR "T2DM" OR "non-insulin dependent diabetes" OR "NIDDM" OR "prediabet*" OR "hyperglycemia" OR "hyperglycaemia" OR "glycemic control" OR "glycaemic control" OR "HbA1c" OR "glucose management")

AND #3 Digital health

(DE "Self-Management" OR DE "Self-Care Skills" OR DE "Telemedicine" OR DE "Mobile Devices" OR DE "Mobile Applications" OR DE "Health Education" OR TI/AB "self-management" OR "self-care" OR "self-monitor*" OR "mobile health" OR "mHealth" OR "eHealth" OR "digital health" OR "mobile app*" OR "smartphone app*" OR "telemedicine" OR "telehealth" OR "remote monitoring" OR "digital intervention*" OR "digital therapeutic*" OR "health app*" OR "diabetes app*" OR "patient engagement")

AND #4 Behaviour change

(DE "Behavior Change" OR DE "Self-Determination Theory" OR DE "Health Behavior" OR DE "Motivation" OR DE "Self-Efficacy" OR DE "Treatment Compliance" OR DE "Cognitive Behavior Therapy" OR DE "Social Cognitive Theory" OR DE "Intrinsic Motivation" OR DE "Psychological Theories" OR TI/AB "behavior change" OR "behaviour change" OR "behavioral theory" OR "behavioural theory" OR "behavioral intervention*" OR "behavioural intervention*" OR "self-determination theory" OR "SDT" OR "COM-B" OR "capability opportunity motivation" OR "social cognitive theory" OR "health belief model" OR "transtheoretical model" OR "stages of change" OR "motivational interviewing" OR "behavior change technique*" OR "behaviour change technique*" OR "BCT" OR "gamification" OR "nudge*" OR "just-in-time adaptive intervention*" OR "JITAI" OR "autonomy" OR "competence" OR "relatedness" OR "self-efficacy" OR "intrinsic motivation")

IEEE Xplore

#1 AI method

("artificial intelligence" OR "machine learning" OR "deep learning" OR "neural network" OR "neural networks" OR "natural language processing" OR "NLP" OR "large language model" OR "LLM" OR "chatbot" OR "chatbots" OR "conversational agent" OR "computer vision" OR "predictive model" OR "predictive analytics" OR "algorithm" OR "decision support" OR "federated learning" OR "reinforcement learning" OR "wearable" OR "wearables" OR "continuous glucose monitor" OR "CGM" OR "smart sensor" OR "IoT")

AND #2 Condition

("type 2 diabetes" OR "type II diabetes" OR "T2D" OR "T2DM" OR "diabetes mellitus" OR "prediabetes" OR "hyperglycemia" OR "glycemic control" OR "HbA1c" OR "blood glucose" OR "glucose monitoring")

AND #3 Digital health

("self-management" OR "self-care" OR "self-monitoring" OR "mobile health" OR "mHealth" OR "eHealth" OR "digital health" OR "mobile app" OR "mobile application" OR "smartphone" OR "telemedicine" OR "telehealth" OR "remote monitoring" OR "digital intervention" OR "health informatics")

AND #4 Behaviour change

("behavior change" OR "behaviour change" OR "behavioral intervention" OR "behavioural intervention" OR "self-determination theory" OR "COM-B" OR "social cognitive theory" OR "health belief model" OR "transtheoretical model" OR "motivational interviewing" OR "behavior change technique" OR "gamification" OR "nudge" OR "persuasive technology" OR "user engagement" OR "self-efficacy")

S2 Eligibility criteria

The criteria below are reproduced from the review's eligibility protocol and were applied at both title/abstract screening and full-text assessment.

Table S3: Inclusion criteria.

Criterion	Description
Population	Adults (≥ 18 years) with type 2 diabetes or prediabetes
Intervention	AI-enabled digital health interventions for self-management (mobile apps, wearables, chatbots, decision support systems, CGM with AI features)
Comparator	Any or none (not required for inclusion)
Outcome	At least one of: (1) description of AI technological capabilities; (2) behavioural theory integration; (3) clinical outcomes (HbA1c, glucose control); (4) engagement/adherence outcomes; (5) user experience
Study design	Empirical studies: RCTs, quasi-experimental, cohort, cross-sectional, qualitative, mixed methods, pilot/feasibility studies, systematic reviews
Publication type	Peer-reviewed journal articles, conference papers
Language	English
Date range	January 2015 – January 2026 ^a
AI requirement	Must include at least one AI/ML component (machine learning, deep learning, NLP, chatbots, predictive algorithms, personalisation algorithms, computer vision for food or glucose, etc.)
Behavioural component	Must address or reference behavioural mechanisms, engagement, or behaviour change (explicit theory OR implicit behavioural features such as gamification, nudges, coaching)

^a *Date range.* The protocol specified January 2015 to January 2026. No date limit was applied in the executed searches (Section S1.3), and two included studies predate 2015 (Chatterjee et al. 2012; Nilsen and Pavel 2013). The reported search is therefore unrestricted by date, and the protocol date range was not enforced.

Table S4: Exclusion criteria.

Criterion	Reason for exclusion
Population	Type 1 diabetes only (excluded unless T2D also included)
Population	Gestational diabetes only
Population	Children/adolescents (< 18 years) only
Intervention	Non-AI digital tools (simple trackers, basic reminders without personalisation)
Intervention	Clinician-facing tools only (no patient self-management component)
Intervention	Insulin pumps / closed-loop systems for T1D only
Study design	Protocols without results

continued

Criterion	Reason for exclusion
Study design	Editorials, commentaries, letters, opinion pieces
Study design	Narrative reviews (non-systematic)
Study design	Conference abstracts only (no full text available)
Publication	Non-English language
Publication	Grey literature without peer review (except theses/dissertations)
Content	No AI component described or implied
Content	No behavioural/engagement component addressed
Content	Purely technical/engineering papers with no health application
Duplicates	Duplicate publications of the same study

S3 PRISMA-ScR checklist

Reported in accordance with the PRISMA extension for Scoping Reviews (PRISMA-ScR; Tricco et al., 2018). Items 12 and 16 (critical appraisal) are optional for scoping reviews and were not undertaken, consistent with JBI guidance; the justification is stated in the manuscript. Locations are given as manuscript sections rather than page numbers, so that the mapping remains valid across typeset versions.

Table S5: PRISMA-ScR checklist with location of each item in the manuscript.

#	Item	Location / note
<i>Title</i>		
1	Title	Title page. Identified as a scoping review in both the title and the running head.
<i>Abstract</i>		
2	Structured summary	Abstract. Reports objectives, eligibility, sources, charting method, results, and conclusions. Presented as continuous prose rather than under explicit subheadings.
<i>Introduction</i>		
3	Rationale	Introduction.
4	Objectives	Introduction, research questions RQ1–RQ3.
<i>Methods</i>		
5	Protocol and registration	Methods, <i>Ethical considerations</i> . Not registered with PROSPERO, which does not accept scoping reviews; protocol decisions documented internally per JBI guidance.
6	Eligibility criteria	Methods, <i>Selection criteria</i> (tiered inclusion by research question; exclusion criteria i–vi); full criteria in Tables S3 and S4 of this supplement.
7	Information sources	Methods, <i>Search strategy</i> ; Table S1 of this supplement.
8	Search	Methods, <i>Search strategy</i> ; Tables S2 and Section S1.3 of this supplement.
9	Selection of sources of evidence	Methods, <i>Study selection</i> . Two independent reviewers (DA, DB); third-reviewer arbitration (PP).

continued

#	Item	Location / note
10	Data charting process	Methods, <i>Data extraction</i> . Form piloted on five papers before full extraction.
11	Data items	Methods, <i>Data extraction</i> ; Table S6 of this supplement.
12	Critical appraisal (optional)	Not undertaken. Justified in Methods, <i>Ethical considerations</i> , consistent with scoping review methodology.
13	Synthesis of results	Methods, <i>Synthesis</i> . Thematic narrative synthesis; statistical pooling not feasible given heterogeneity.
<i>Results</i>		
14	Selection of sources of evidence	Results, <i>Search results and study selection</i> ; Figure 1 (PRISMA-ScR flow diagram); Table S7 of this supplement.
15	Characteristics of sources of evidence	Results, <i>Study characteristics</i> ; Table 1 of the manuscript.
16	Critical appraisal within sources (optional)	Not applicable; see item 12.
17	Results of individual sources of evidence	Table 2 of the manuscript.
18	Synthesis of results	Results, <i>AI capabilities (RQ1)</i> , <i>Health outcomes (RQ2)</i> , <i>Patient and family perspectives (RQ3)</i> .
<i>Discussion</i>		
19	Summary of evidence	Discussion.
20	Limitations	Discussion, limitations paragraph.
21	Conclusions	Discussion, closing subsection.
<i>Funding</i>		
22	Funding	Acknowledgments. Supported by Mitacs; the funder had no role in study design, data collection, analysis, interpretation, or the decision to submit.

S4 Data charting (extraction) template

A standardised charting form was developed and piloted on a subset of five papers before full extraction. Data were charted by two reviewers (DA, DB), with a third reviewer (PP) resolving ambiguities. The form covered four descriptive domains, plus three review-specific fields used to assign each record to an AI capability domain and a deployment status.

Table S6: Data charting form: domains and fields.

Domain	Fields charted
1. Study descriptive data	First author; year of publication; country; study design; study duration; sample size.
2. Sample characteristics	Population (T2DM, prediabetes, or family caregivers); age; baseline HbA1c; comorbidities.
3. Intervention details	AI type; specific algorithms or models; platform or application name; comparator.
4. Outcomes and endpoints	Primary outcomes; secondary outcomes; follow-up time points; effect sizes with confidence intervals where reported.

continued

Domain	Fields charted
5. AI capability domain	One of six domains: clinical decision support systems; AI-driven dietary management; conversational AI and predictive analytics; nudge-inspired behavioural interventions; CGM with AI-enabled coaching; wearable sensor analytics.
6. Deployment status	<i>Deployed</i> (shipping in a commercial consumer application) or <i>translatable</i> (demonstrated in a research prototype, not yet integrated into a consumer product).
7. Research question tier	Which of RQ1 (capability mapping), RQ2 (health outcomes), RQ3 (patient and family perspectives) the record was eligible to inform. Records contributing to RQ1 only were charted for capability but excluded from the outcome synthesis.

S5 Full-text records excluded, with reasons

Of 793 unique records screened at title and abstract, 627 were excluded. Of the 166 full texts retrieved and assessed for eligibility, 149 were excluded. Reasons are tabulated below and correspond to Figure 1 of the main manuscript.

Table S7: Full-text records excluded at eligibility assessment, by reason ($n = 149$).

Reason for exclusion	n	Definition applied
Wrong intervention	60	AI applied to non-patient-facing tasks (e.g. laboratory biomarker classification, retinopathy grading without application integration), or non-AI digital tools (e.g. simple SMS reminders, static education portals).
Wrong study design	43	Editorials, commentary, study protocols without results, and narrative reviews without a primary dataset.
Wrong setting	25	Inpatient, perioperative, or other non-consumer contexts.
Wrong indication	10	Type 1 diabetes only, or gestational diabetes only.
Wrong patient population	7	Paediatric-only cohorts.
Wrong outcomes	4	Insufficient outcome data to chart.
Total	149	

Record-level listing. A record-level export of all 149 excluded full texts, each with its assigned exclusion reason and both reviewers' screening decisions, is retained in the review's Covidence project and is available from the corresponding author on request.

S6 Included studies ($N = 17$)

Full citations for all records included in the synthesis, ordered by capability domain as presented in the manuscript.

1. Zhang X, Svec M, Tracy R, Ozanich G. Clinical decision support systems with team-based care on type 2 diabetes improvement for Medicaid patients. *Int J Med Inform.* 2022;158:104626. doi:10.1016/j.ijmedinf.2021.104626
2. Lee Y-B, Kim G, Jun JE, et al. An integrated digital health care platform for diabetes management with AI-based dietary management: 48-week results from a randomized controlled trial. *Diabetes Care.* 2023;46(5):959–966. doi:10.2337/dc22-1929
3. Zakaria H, Said Y, Aleabova S, et al. Measuring the effectiveness of hybrid diabetes care over 90 days through continuous data monitoring in type 2 diabetic patients. *Front Endocrinol.* 2024;15:1355792. doi:10.3389/fendo.2024.1355792
4. Wu Y, Ni Y, Min H, et al. Effectiveness of AI-HEALS for type 2 diabetes self-management: a cluster randomized clinical trial. *SSRN [Preprint]*. 2024. doi:10.2139/ssrn.5220655
5. Buragadda S, et al. A comprehensive system for diabetes management and prediction using AI-driven chatbot and machine learning models. In: *Proceedings of ICICT*; 2025.
6. Sy B, Wassil M, Connelly H, Hassan A. Behavioral predictive analytics towards personalization for self-management: linking health-related social needs. *SN Comput Sci.* 2022;3:237. doi:10.1007/s42979-022-01092-4
7. Chatterjee S, Xie Q, Dutta K. A predictive modeling engine using neural networks: diabetes management from sensor and activity data. In: *Proceedings of IEEE Healthcom*; 2012.
8. Joachim S, Forkan ARM, Jayaraman PP, Morshed A, Wickramasinghe N. A nudge-inspired AI-driven health platform for self-management of diabetes. *Sensors.* 2022;22(12):4620. doi:10.3390/s22124620
9. Yoon S, Tang H, Tan CM, et al. Acceptability of mobile app-based motivational interviewing and preferences for app features in patients with type 2 diabetes. *JMIR Diabetes.* 2024;9:e48310. doi:10.2196/48310
10. Yoon S, Kwan YH, Phang JK, Tan WB, Low LL. Personal goals, barriers to self-management and desired mHealth application features in multi-ethnic Asian patients with type 2 diabetes. *Int J Environ Res Public Health.* 2022;19(22):15415. doi:10.3390/ijerph192215415
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