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Mobile health as a primary mode of intervention for women at risk of, or diagnosed with, gestational diabetes mellitus

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	mHealth name, type and country	mHealth intervention features	Evaluation method(s)	Implementation setting	Behavior Change Theory and No. of BCTS
During pregnancy					
Self-management for BGC ^a	Pregnant + App (Norway)	<ul style="list-style-type: none"> - Auto upload of BG^b readings - Real-time visualization of BG levels - Information on healthy diet, PA^c and diabetes 	<ul style="list-style-type: none"> Development and usability³⁴ Evaluation (RCT^d)³⁰ Evaluation (qualitative)⁵⁵ 	Hospital setting (at diagnosis)	<ul style="list-style-type: none"> Health Belief Model 5
	GDMHealth App (UK)	<ul style="list-style-type: none"> - Auto upload of BG readings - Real-time feedback on BG levels - Two way communication with HCP^e 	<ul style="list-style-type: none"> Development and usability⁴⁶ Pilot study⁴³ Pilot study³⁸ Evaluation (RCT)⁴⁵ 	Hospital setting (at diagnosis)	3
	Glucose Buddy App (Israel)	<ul style="list-style-type: none"> - Manual BG level upload - BG reports emailed direct to HCP via app - Feedback on BG levels, diet, treatment and appointments emailed to women - Two way interaction with HCP 	<ul style="list-style-type: none"> Evaluation (RCT)⁴⁷ 	Hospital setting (at diagnosis)	3
	dNurse App (China)	<ul style="list-style-type: none"> - Manual BG level upload - Real-time feedback on BG levels - Two way connections with HCP - Information on diet, exercise and treatment 	<ul style="list-style-type: none"> Evaluation (RCT)³⁶ 	Hospital setting (at diagnosis)	4
	DiaMOnd App (Australia)	<ul style="list-style-type: none"> - Manual upload of BG readings - Real-time feedback from HCP on BG diet, 	<ul style="list-style-type: none"> Evaluation (cross over trial)⁵⁸ 	Private Hospital setting (at diagnosis)	3

		<p>exercise and insulin titration.</p> <ul style="list-style-type: none"> - Logs diet, PA and insulin use 			
GlucoseMamma App (USA)	<ul style="list-style-type: none"> - Manual upload of BG readings - Real-time feedback on BG levels - Positive text messaging - Information on healthy eating, recipes and meal plans 	Evaluation (prospective RCT) ³²	Hospital setting (at diagnosis)	2	
GEM App (Russia)	<ul style="list-style-type: none"> - Auto upload of BG readings - Logs dietary intake - Personalized advice on upcoming meals based on BG readings 	Pilot study (mixed methods) ⁵¹	N/A	2	
Mother App (Australia)	<ul style="list-style-type: none"> - Manual BG level upload - BG levels viewed by HCP via online portal 	Pilot study ⁵⁷	Hospital setting (at diagnosis)	2	
Net Health App (Australia)	<ul style="list-style-type: none"> - Auto upload of BG readings - Two way interaction with HCP - Auto alert to HCPs if BG levels are out of range 	Trial registration (pilot Non-RCT) ⁵⁰	Hospital setting (at diagnosis)	3	
App (Korea)	<ul style="list-style-type: none"> - Auto upload of BG readings - Two way communication with HCP - Records dietary intake - Tailored in-app messaging 	Pilot study (Pilot RCT) ⁵⁶	Hospital setting (at diagnosis)	3	

	App ecosystem (New Zealand)	<ul style="list-style-type: none"> - Food diaries, exercise tracking, glucose monitoring - Ability to export data to HCP 	Pilot study (qualitative) ⁴⁹	N/A	1
	App (Oman)	<ul style="list-style-type: none"> - Health education and videos on PA, BG monitoring and diet - Tracks PA, diet and BG - Provides feedback charts - Daily reminders to monitor BG 	Trial registration (feasibility RCT) (SESSPA) ³⁷	Hospital setting (at diagnosis)	7
	MobiGuide App (Spain)	<ul style="list-style-type: none"> - Auto upload of BG readings - Two way interaction with HCP via messaging - tracks PA via embedded accelerometer 	Pilot study (observational, prospective) ⁵³	Hospital setting (at diagnosis)	2
	App (South Korea)	<ul style="list-style-type: none"> - Generates generic and tailored recommendations on BG management, PA, bodyweight and diet based on patient data and clinical guidelines 	Development and usability (mixed methods) ³⁹	Online diabetes group (at home)	2
Education	Educational App (Iran)	<ul style="list-style-type: none"> - Reminders for tests and medication - Educational material in video photo and text format 	Evaluation (quasi-experimental with control) ³⁵	Hospital setting (at diagnosis)	4
Behavior change for healthy lifestyle	GDmHealth Plus app (UK)	<ul style="list-style-type: none"> - Weekly self-weighing - Carbohydrate counting - PA monitoring - Real-time feedback via HCP 	Pilot study (mixed methods) ³³	Hospital setting (at diagnosis)	3
	Habits-GDM app (Singapore)	<ul style="list-style-type: none"> - Tracks diet and PA - Interactive educational content 	Evaluation (RCT) ⁵⁹	Hospital setting (at diagnosis)	4

		-Lifestyle coaching via in-app messaging			
	mGDM app (Nepal)	- Health education - Identification and setting of health goals - Facilitates support from family members	Trial registration (RCT) ⁵²	Hospital setting (at diagnosis)	Social Cognitive Theory 3
	Stay Active App + (Mackillop) (UK)	- Two way interaction with HCP - Remote motivational interviewing - PA goals can be reviewed - feedback via messaging	Trial registration (feasibility) ⁴⁴	Hospital setting (at diagnosis)	4
Postpartum					
Education	Tu Puedes app (USA)	- 4 'lessons' about T2DM prevention - Culturally applicable information	Pilot study (quasi-experimental with control) ³¹	N/A	1
Behavior change for T2DM ^f prevention	nBuddy App (Singapore)	- Tracks diet and exercise with visual feedback - Personalized education - Two way communication with health and lifestyle coach	Evaluation (RCT) ⁴²	Hospital setting (at delivery)	5
	Triangle App (Germany)	N/A	Trial registration (RCT) ⁴¹	N/A (3-8 months postpartum)	N/A
	Health-e mums app + social media (Australia)	- Tracks weight, exercise and dietary intake - Feedback via push notifications - Virtual health coach guides through 7 educational modules	Pilot Study (qualitative) ⁴⁸	N/A	7
	VR ^g program (South Korea)	- 123 exercise options - Nutrition program	Evaluation (quasi-experimental with control) ⁴⁰	Hospital setting (at delivery)	5

		<ul style="list-style-type: none"> - Ability to track diet with visual feedback - Stress relief exercises - neonatal first aid program 			
	<p>Hola Bebe, Adios Diabetes App (USA)</p>	<ul style="list-style-type: none"> - Educational videos on PA and diet - Personalized action plans - Educational and motivational messages - Weight tracking - Recipes - Badge based reward system 	Pilot study ⁵⁴	Community Health Centre (up to 5 years postpartum)	<p>Social Cognitive Theory</p> <p>7</p>

Table 1. Characteristics of mHealth for use during and after pregnancy

^a BGC – blood glucose control

^b BG – blood glucose

^c PA- physical activity

^d RCT – randomized control trial

^e HCP – healthcare professional

^f T2DM – type 2 diabetes mellitus

^g VR – virtual reality