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**PROGRAMME: MSC PUBLIC HEALTH AND SOCIAL
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MODULE: PRACTICE-BASED RESEARCH

ASSIGNMENT TITLE: COMPONENT 1 POSTER

PRESENTATION

Student name
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✓ I confirm that I have not used any AI tools in the research and creation of this assignment. I confirm that I have not presented any AI generated materials as my own work. I confirm I have copies of my drafts, notes, and other resources I used, which I may be asked to provide in evidence

THE EFFECTIVENESS OF DIGITAL HEALTH INTERVENTIONS USING WEARABLE CONTINUOUS GLUCOSE MONITORS (CGMS) IN MANAGING TYPE 2 DIABETES MELLITUS AMONG OLDER ADULTS AGED ABOVE 65: A SECONDARY SYSTEMATIC REVIEW OF UK PRIMARY CARE OUTCOMES

Introduction

- Type 2 diabetes mellitus is a chronic insulin-resistance condition (Butt, 2022)
- CGM-based digital interventions are reshaping UK primary care management (Avoke et al., 2024)

Background

- Glycemic control relies on HbA1c testing, reflecting 3-month averages (Tseng, 2023)
- CGM data enables continuous behavioural feedback for self-management (Avoke et al., 2024)
- Additionally, around 90% of the patients who have a diabetes diagnosis have type 2 diabetes mellitus in the UK (Diabetes UK, 2026)
- NHS primary care is undergoing a digital transformation in diabetes care



Figure 1: Factors of Optimising Continuous Glucose Monitoring Adoption
(Source: Kesavadev *et al.* 2026)

Literature Review

- According to Tseng (2023), glycemic control in primary care depends on three-month HbA1c testing averages
- Avoke et al., (2024) describe CGM as a disruptive technology that helps to enable real-time behavioral feedback for self-management

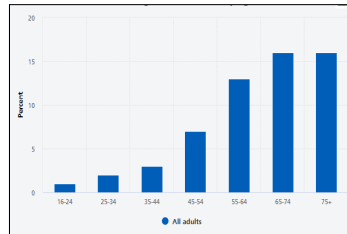


Figure 2: Prevalence of diabetes by age in the UK
(Source: Digital NHS.UK, 2026)

Prevalence

- Nearly 50% of global diabetes cases occur in older adults (Yu et al., 2025)
- Global diabetes cases rose from 200 million to 830 million (WHO, 2026)
- Around 6 million people in the UK live with diabetes (Diabetes UK, 2026)
- The prevalence of diagnoses has increased with age by 15% within the age group 65-74 and 16% in the age group above age 75 (Digital NHS.UK, 2026).
- The population has a disproportionate amount of diabetes-related burden on the NHS, estimated at around £10.7 billion per year (NHS England, 2025).

A1C and Estimated Average Glucose Levels

	A1C Percentage	Estimated Average Glucose (EAG)	
In-range	< 5.7%	< 117 mg/dL	6.5 mmol/L
Prediabetes	5.7-6.4%	117-137 mg/dL	6.5-7.6 mmol/L
Diabetes	> 6.4%	> 137 mg/dL	> 7.6 mmol/L
	6.5%	140 mg/dL	7.8 mmol/L
	7.0%	154 mg/dL	8.6 mmol/L
	7.5%	169 mg/dL	9.4 mmol/L
	8.0%	183 mg/dL	10.1 mmol/L
	8.5%	197 mg/dL	10.9 mmol/L
	9.0%	212 mg/dL	11.8 mmol/L
	9.5%	226 mg/dL	12.6 mmol/L
	10%	240 mg/dL	13.4 mmol/L

Figure 3: A1C and estimated average glucose levels
(Source: Cleveland Clinic, 2022)

Rationale

- It is found that 21.7% older patients with type 2 diabetes have experienced hypoglycemic events in the UK (Al-Azayzih *et al.*, 2024).
- The implication of CGM in the primary care regimen is introduced by NICE guidance NG28 in the UK (Anon, 2022)
- For people with chronic kidney disease and anemia due to age, traditional testing of HbA1C testing fails to reflect accurate blood glucose levels (Diabetes UK, 2026).
- Patients with arthritis, loss of dexterity and cognitive impairment have a difficult time performing finger-prick monitoring (Parsons *et al.*, 2025).

Question

What specific improvement in glycemic outcomes, including HbA1c reductions and time-in-range, is demonstrated in secondary data for older adults aged over 65 utilising CGMs in the UK?

Research Question and Aim

❑ Aim

The research aims to evaluate the clinical effectiveness of CGM-based digital health interventions in managing type 2 diabetes mellitus among UK primary care patients aged above 65 through a secondary systematic review

❑ Objectives

- To analyse secondary data on glycemic outcomes, including HbA1c reductions and time-in-range achieved using CGM interventions among older adults aged over 65
- To analyse the integration and delivery models of wearable CGM technologies within UK primary care clinical workflows
- To identify systemic and patient-level challenges, including digital literacy, age-related dexterity issues, and resource constraints within NHS primary care
- To formulate evidence-based, scalable strategic recommendations for NHS stakeholders to optimise CGM adoption and equity for older diabetic populations aged above 65.

Research Impact

- This study will explain the benefits of using CGM in older diabetic adults aged more than 65 years.
- The results will help NHS primary care teams to improve how they integrate clinical workflows.
- NHS primary care providers further optimise the integration of workflow in implementing CGM diabetes type 2 care (NHS England, 2025).

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