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Module: -Population Health and Digital Health Promotion

LCHS7007

Programme: -MSc Public Health and social care in practice

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Blog 1: The Impact of Mobile Health (mHealth) Apps on Diabetes Management

Addressing the Public Health Problem

Diabetes is a chronic condition affecting millions worldwide, with the UK experiencing a significant rise in cases. According to Diabetes UK (2023), more than 4.3 million people in the UK have been diagnosed with diabetes, with an estimated 850,000 living undiagnosed (Diabetes UK, 2025). The increase in the two types of prevalence, diabetes, which is largely driven by lifestyle factors such as poor diet and physical inactivity which create a substantial burden on the healthcare system. Effective management of diabetes is important to prevent a complication such as cardiovascular disease, kidney failure, and neuropathy.

Digital Technology in Health Promotion: mHealth Apps

Mobile health apps have found an innovative digital solution to support diabetes management. This type of application, including my sugar, glucose, body, and NHS approved my diabetes, my way, not the personalized tools for blood, glucose, tracking, diabetes, suggestion, medication, reminder, and physical activity monitor. This type of features empowers individuals to take a proactive control over their condition which improves the treatment and lifestyle modification (Diabetes Care, 2023). They found that by health apps, importance increases the patient engagement which led to better control and reduced hospital visits. The integration of this AI in some apps allows predictive analytics which allow a lead detection of potential glucose fluctuation, and prevent different complications.

Evidence of Health Promotion Impact

The different studies also highlight the effectiveness of mobile health apps in diabetes care. It indicates that users of diabetes management apps experienced a **0.5-1.0% reduction in HbA1c levels**, demonstrating improved blood sugar control. In a similar way, it is reported that individuals using mobile health interventions were twice as likely to adhere to their medication regimen compared to those receiving standard care. The UK government NHS digital diabetes prevention program has adopted the mHealth solution to provide a remote support and education, helping high risk,

individual delay or prevent the onset of two type diabetes. This initiative highlights the growing role of digital technology in public health intervention.

Critical Discussion: Advantages and Shortfalls

Advantages:

- **Enhanced Self-Management:** mHealth apps provide real-time feedback, increasing patient awareness and accountability.
- **Improved Accessibility:** Digital solutions enable remote monitoring, reducing the need for frequent hospital visits.
- **Personalization:** AI-driven recommendations offer tailored interventions based on individual health data (Maher *et al.*, 2024).
- **Cost-Effectiveness:** mHealth interventions lower healthcare costs by minimizing emergency admissions and complications.

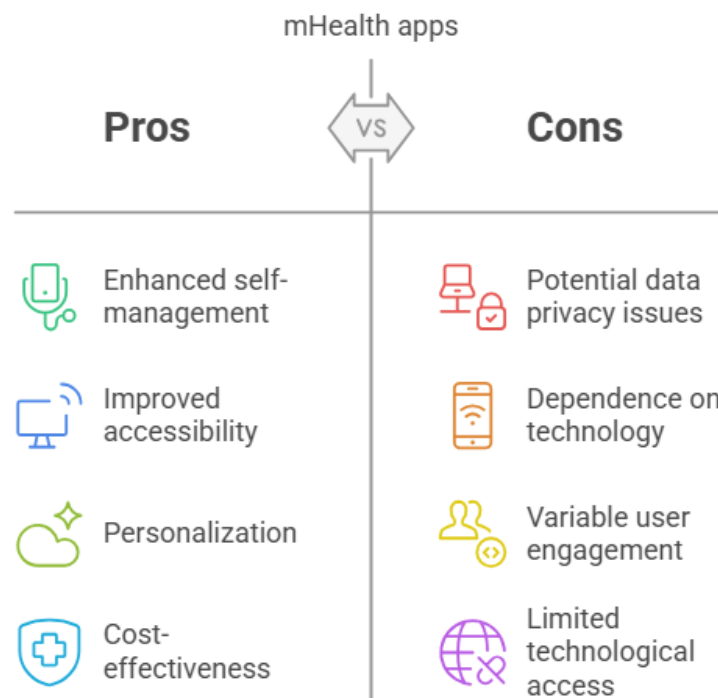


Figure 1: Advantages of Mhealth Apps

(Sources: Self Developed)

Shortfalls:

- **Digital Divide:** Not all individuals, especially the elderly and socioeconomically disadvantaged, have access to smartphones or digital literacy skills.
- **Data Privacy Concerns:** The collection and storage of sensitive health data raise ethical concerns regarding confidentiality and potential data breaches.
- **Limited Long-Term Engagement:** Studies suggest that user adherence tends to decline after initial engagement due to motivation loss or app complexity.



Figure 2: MHealth Apps

(Sources: Information Age, 2020)

Addressing the Shortfalls

To enhance the effectiveness of mHealth apps, several strategies can be implemented:

- **Bridging the Digital Divide:** Governments and healthcare providers should offer digital literacy training and subsidized access to smartphones for vulnerable populations.

- **Strengthening Data Security:** Developers must ensure compliance with strict data protection regulations (e.g., GDPR) and provide transparency in data handling policies.
- **Sustaining User Engagement:** Incorporating gamification, social support networks, and AI-driven adaptive interventions can help maintain long-term user motivation (David, 2024).

Conclusion

It has been concluded that mobile health apps highlighted transform to technique to diabetes management which offer personalized accessible and cost-effective solutions. The challenges such as digital exclusion and data security exist targeted intervention can optimize their impact. As digital technology which continues to evolve mobile health solution will play increasing important role in increased public health outcome, particular in chronic management.

Blog 2: The Impact of AI-Powered Virtual Assistants in Mental Health Support

Addressing the Public Health Problem

Mental health disorders, including anxiety and depression, are among the leading causes of disability worldwide. In the UK one in four young experiences, a mental health challenges each year (RMI, 2024). The demand of mental health services has enhanced significantly with the NHS facing challenges in provide a timely access to therapy and psychiatric support. Long time and the stigma associated with increased mental healthcare further exhibit the challenge, leading individual to go without necessary treatment.

Digital Technology in Health Promotion: AI-Powered Virtual Assistants

To solve these challenges, AI powered virtual mental health assistant have emerged as digital innovation. This type of chat including woebot, wisa, and Tess, Yoga AI to provide a cognitive behavior therapy. Best support, mood, tracking and stress management tools. The mobile apps are available 4×7 which offer immediate stigma free access to mental health guidance. The user of AI Myntra health assistant report, 30% reduction in anxiety symptoms over six weeks, which explode their potential supplementary mental health resources (PMC, 2020). This digital solution helped the bridge between demand and available professional support.

Evidence of Health Promotion Impact

Several studies have validated the effectiveness of AI-powered mental health interventions:

- **AI chatbots improve emotional well-being:** It is found that individuals engaging with AI-powered mental health apps experienced a 25% improvement in mood stability and reduced depressive symptoms.
- **High user engagement and accessibility:** Unlike traditional therapy, which requires scheduled appointments, AI-driven chatbots offer on-demand, personalized support at any time, improving adherence to mental health interventions (Nature, 2024).
- **Integration with healthcare services:** Some AI assistants now integrate with teletherapy platforms, providing real-time crisis intervention and connecting users to professional help when necessary.

Critical Discussion: Advantages and Shortfalls

Advantages:

- **Immediate Support** – Available 24/7, removing barriers related to wait times and scheduling.
- **Cost-Effective** – More affordable than traditional therapy, reducing financial constraints for users.
- **Reduces Stigma** – Users can engage anonymously, addressing fears of judgment.
- **Personalized AI Responses** – Machine learning enables chatbots to adapt to users' mental health needs over time (Khawaja & Christophe, 2023).

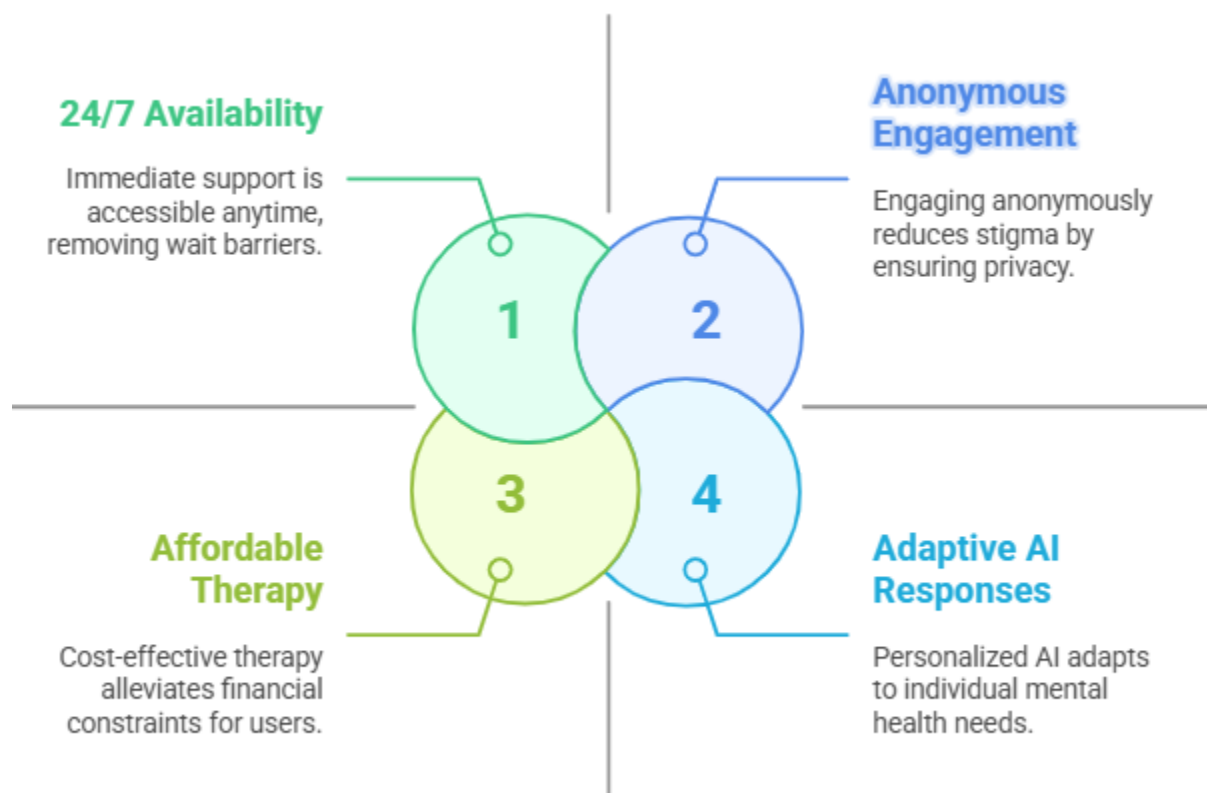


Figure 3: Advantages
(Sources: Self Developed)

Shortfalls:

- **Limited Human Interaction** – AI cannot replace human empathy, which is crucial in mental health care.
- **Algorithmic Bias & Accuracy Issues** – AI-generated responses may lack nuance and could misinterpret complex emotions.
- **Privacy & Data Security Concerns** – Mental health conversations involve sensitive data that must be securely protected.

Addressing the Shortfalls

- **Human-AI Hybrid Models:** Combining AI assistants with human therapists could enhance mental health interventions.
- **Enhanced Data Protection:** Implementing end-to-end encryption and adherence to GDPR regulations to ensure user privacy (Ojo *et al.*, 2025).
- **Advanced Sentiment Analysis:** Improving AI's ability to recognize emotional distress and escalate serious cases to human professionals.

Conclusion

It has been concluded that AI power virtual assistant represents promoting step over accessible and scalable mental health support. We cannot replace the traditional therapy serve as a valuable complimentary tool for early intervention and self-management. With advancement in AI technology and ethical safeguard the solution could increase the mental health result.

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Task 2 – Poster

