

Component 1

2 BLOGS

BISMA AMIN | 2435002@student.uwtsd.ac.uk



Blog 1: The Impact of Mobile Health Applications on Physical Activity Promotion

Introduction: A Growing Public Health Concern

Physical inactivity is a major global public health matter linked to obesity, cardiovascular disease, and type 2 diabetes. According to the World Health Organization (WHO, 2023), over **1.8 billion adults worldwide do not meet recommended physical activity levels**. This contributes notably to morbidity, mortality, and healthcare burden, particularly in urbanised populations.

Digital Technology in Focus: Mobile Health Apps

Mobile health (mHealth) applications such as fitness tracking apps (e.g., step counters and workout apps) are widely used digital tools for promoting physical activity. These apps utilise features such as **goal setting, real-time tracking, reminders, and feedback**, aligning with behaviour change techniques.

Grounded in the **Social Cognitive Theory (Bandura, 1986)**, these apps enhance self-efficacy by allowing users to monitor progress and receive reinforcement through achievements and notifications.

Evidence of Effectiveness

Research indicates that mHealth apps can positively influence physical activity levels. A systematic review by Direito et al. (2017) found that users of fitness apps showed **moderate increases in daily step counts and exercise frequency**. Similarly, WHO (2022) highlights that digital interventions can improve health behaviours when combined with personalised feedback.

Critical Discussion: Strengths and Limitations

Advantages

Accessibility: Smartphones are widely available, making interventions scalable.

Personalisation: Tailored goals and feedback improve user engagement.

Cost-effective: Lower cost compared to traditional health promotion programs

Limitations

Digital Divide: Older adults and low-income populations may lack access or digital literacy.

Sustained Engagement Issues: Many users abandon apps after initial use.

Data Privacy Concerns: Users may be hesitant to share personal health data.

Addressing to Shortfalls

To improve effectiveness, developers should:

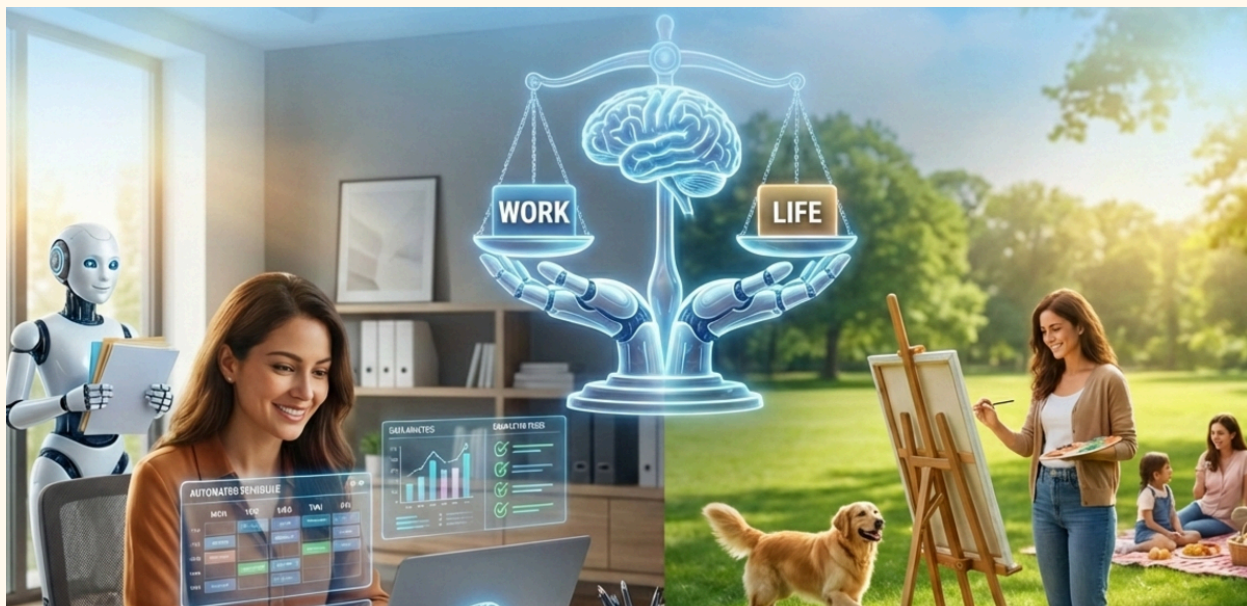
- Incorporate gamification and social features to sustain engagement.
- Ensure inclusive design for diverse populations (e.g., simple interfaces).
- Strengthen data protection policies to build trust.

Conclusion

While mHealth apps show promise in promoting physical activity, their impact is limited by engagement and accessibility issues. Future interventions should integrate behavioural theory more deeply and address inequalities to maximise public health outcomes.

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Blog 2: Designing “ActiveLife AI” – A Smart Digital Intervention for Physical Activity

Introduction: Reframing Physical Inactivity

Physical inactivity continues to rise globally, with significant health and economic consequences. Despite the availability of fitness apps, long-term engagement remains a critical challenge, limiting sustained behavioural change.

Proposed Digital Solution: ActiveLife AI

“ActiveLife AI” is a **personalised, AI-driven mobile application** designed to improve physical activity adherence. Unlike traditional apps, it integrates:

- **Artificial Intelligence (AI)** for adaptive goal setting
- **Wearable device integration** (e.g., smartwatches)
- **Behavioural nudges based on real-time data**
- **Social accountability groups**

The app is grounded in the **COM-B Model (Capability, Opportunity, Motivation – Behaviour)** (Michie et al., 2011), ensuring that behaviour change is addressed holistically.

How It Promotes Health

ActiveLife AI promotes physical activity by:

- Enhancing **capability** through tailored exercise plans
- Creating **opportunity** via reminders and environmental prompts
- Boosting **motivation** using rewards, AI coaching, and peer support

For example, if a user misses activity goals, the AI adjusts targets and sends motivational prompts, reducing dropout rates.

Critical Discussion: Potential Impact

Advantages

- **Highly Personalised:** AI adapts to individual behaviour patterns.
- **Improved Engagement:** Gamification and social features increase retention.
- **Preventive Focus:** Encourages long-term healthy habits, reducing disease risk.

Limitations

- **High Development Cost:** AI integration requires significant investment.
- **Data Privacy Risks:** Increased data collection may raise ethical concerns.
- **Over-reliance on Technology:** Users may become dependent on digital prompts.

Addressing Limitations

- Implement **robust encryption and transparent privacy policies**.
- Provide **offline and low-tech options** for accessibility.
- Encourage **self-regulation skills** alongside app usage to reduce dependency.

Conclusion

ActiveLife AI represents an advancement in digital health promotion by combining AI and behavioural science. While it has strong potential to improve physical activity levels, addressing ethical, financial, and accessibility challenges will be crucial for its success.

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