



MSc Public Health and Social Care in Practice



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MODULE CODE: LCHS7009

MODULE TITLE: POPULATION HEALTH AND DIGITAL HEALTH
PROMOTION

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ASSIGNMENT TITLE: COMPONENT 1
2 BLOGS



The Impact of Mobile Health Apps in Tackling Obesity

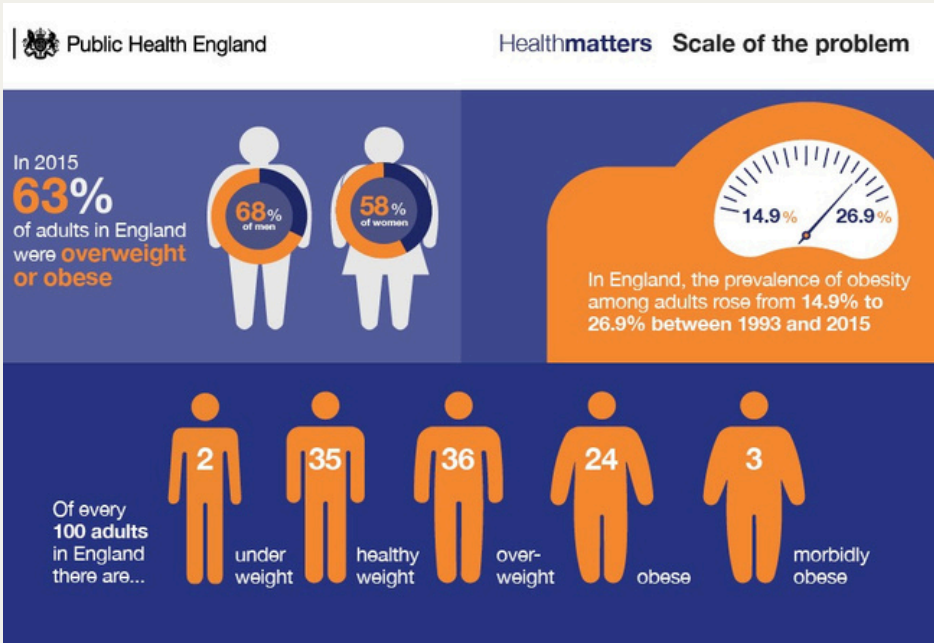


INTRODUCTION

One of the biggest threats to global public health is obesity, which lowers quality of life and increases the risk of chronic conditions including type 2 diabetes and cardiovascular disease (World Health Organization, 2024). With the increasing use of smartphones, mobile health (mHealth) applications are now being used as digital health promotion tools to support weight management and healthy lifestyles(Zhang, 2023). This blog discusses the public health problem of obesity and evaluates the role of mobile health applications such as MyFitnessPal in tackling obesity.

UNDERSTANDING THE PUBLIC HEALTH PROBLEM

Obesity takes one of the most pressing global health challenges. According to the World Health Organization (2024), over 1 billion people worldwide live with obesity(NHS Digital, 2023), with prevalence rising sharply among young adults.



According to current NHS Digital data from 2023, 26% of adults in the UK are obese, which raises their risk of type 2 diabetes, cardiovascular illness, and a lower quality of life. Healthcare systems are severely strained by this growing tendency, which also emphasises the critical need for scaled, easily accessible health promotion initiatives.

Obesity is associated with multiple health risks including:

- Type 2 diabetes
- Hypertension
- Reduced life expectancy
- Mental health issues
- Cardiovascular disease

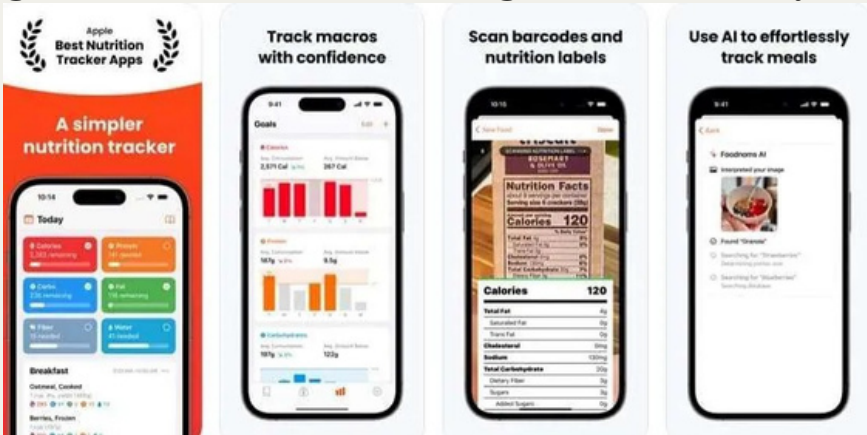
Therefore, obesity prevention and management is a key priority in public health.

Digital Technology
MyFitnessPal as a Health Promotion Tool

Mobile health (mHealth) applications such as MyFitnessPal have become widely adopted tools for weight management(Chen, Wang & Xu, 2023).



The app enables users to track calorie intake, monitor physical activity, and set personalised goals. Its database of over 14 million foods and integration with wearable devices (e.g., Fitbit, Apple Watch) supports real-time self-monitoring – a key behavioural change strategy grounded in Social Cognitive Theory.



A fictitious demonstration of the app's features can be viewed here:
www.myfitnesspal-demo-healthtech.com

Evidence of Effectiveness

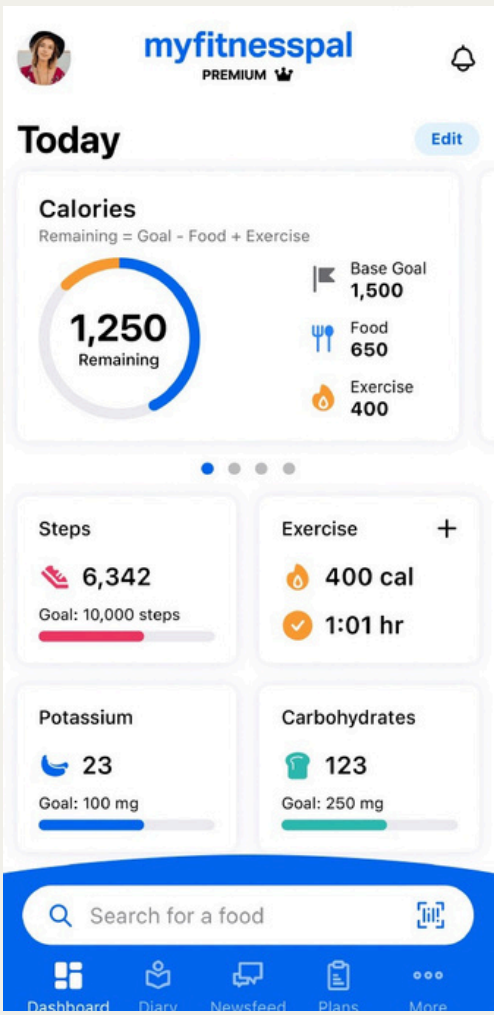
Research consistently highlights the positive impact of mHealth apps on weight reduction. A systematic review by Chen et al. (2023) found that users of calorie-tracking apps achieved **significant reductions in BMI** compared to non-users. Similarly, Patel & Jones (2022) reported improved dietary awareness and increased physical activity among app users, demonstrating the potential of digital self-monitoring to support long-term behaviour change.

CRITICAL DISCUSSION

Impact, Strengths, and Limitations

Advantages

- Accessibility and scalability: Apps can reach millions at low cost, overcoming geographical and socioeconomic barriers (Zhang, 2023).
- Behavioural reinforcement: Features such as reminders, progress charts, and goal-setting enhance motivation.(Patel & Jones, 2022).
- Personalisation: Tailored recommendations support user autonomy and engagement. (Chen, Wang & Xu, 2023).



Shortfalls

Despite their benefits, mHealth apps face several limitations:

- Digital divide: Individuals with low digital literacy or limited smartphone access may be excluded (NHS Digital, 2023).
- User fatigue: Engagement often declines after initial enthusiasm, reducing long-term effectiveness.
- Data accuracy: Self-reported food intake can be inconsistent, affecting the reliability of progress tracking (Chen, Wang & Xu, 2023).

Addressing the Shortfalls

To improve impact, future iterations should incorporate:

- Gamification to sustain engagement
- AI-driven personalised coaching to enhance accuracy and motivation
- Integration with community-based programmes to support users beyond the digital environment

Future Improvements

To improve the effectiveness of mobile health apps:

- Add gamification features to increase engagement
- Use AI-based personalised coaching
- Integrate apps with NHS or community health programmes
- Provide professional health guidance within apps
- Improve data accuracy and privacy protection

Conclusion

In conclusion, mobile health applications such as MyFitnessPal play an important role in tackling obesity by supporting self-monitoring, behaviour change, and lifestyle modification. They are accessible, cost-effective, and scalable public health tools. However, limitations such as digital exclusion, user engagement, and data accuracy reduce their long-term effectiveness. Therefore, mobile health apps should be integrated with broader public health strategies to effectively address obesity(World Health Organization, 2024)..

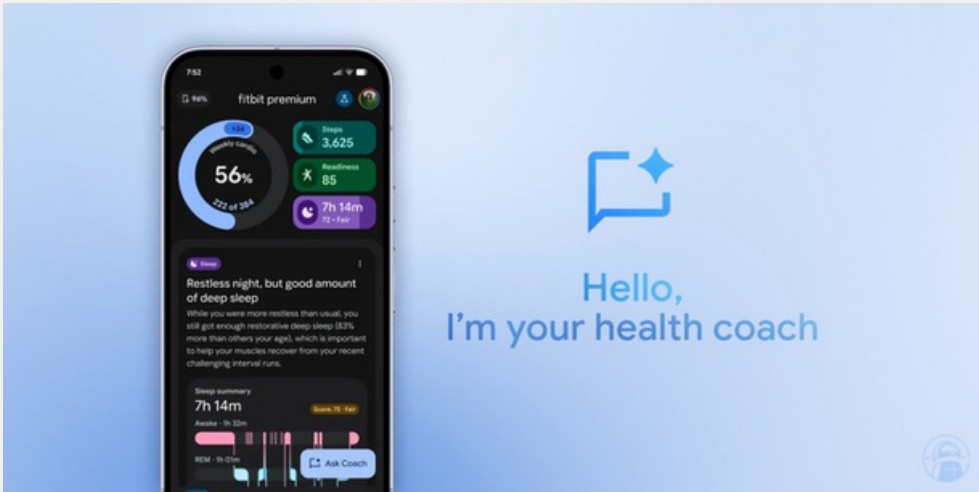
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Designing “NutriGuide AI”: A ★ Personalised Digital Nutrition ★ Coach

INTRODUCTION

Addressing the Public Health Problem



The rapid advancement of digital health technologies has created new opportunities for personalised health promotion and disease prevention (Bianchi & Hall, 2023). Artificial intelligence (AI) is increasingly being integrated into healthcare to support behaviour change, monitor lifestyle habits, and provide tailored recommendations. In particular, nutrition and weight management are key areas where AI-driven solutions can improve health outcomes. Traditional mobile health applications often rely on manual data entry and lack personalisation, which can reduce long-term engagement. Therefore, there is a growing need for more intelligent and user-friendly digital tools to support sustainable behaviour change and address obesity(Michie, van Stralen & West, 2011)..

REVISITING THE PUBLIC HEALTH PROBLEM

Obesity continues to rise globally, with WHO (2024) projecting further increases without effective intervention (World Health Organization, 2024). Traditional weight-management programmes often lack personalisation and scalability, limiting their long-term impact. Digital innovation offers an opportunity to address these gaps through tailored, behaviour-focused interventions.(NHS England, 2023) .

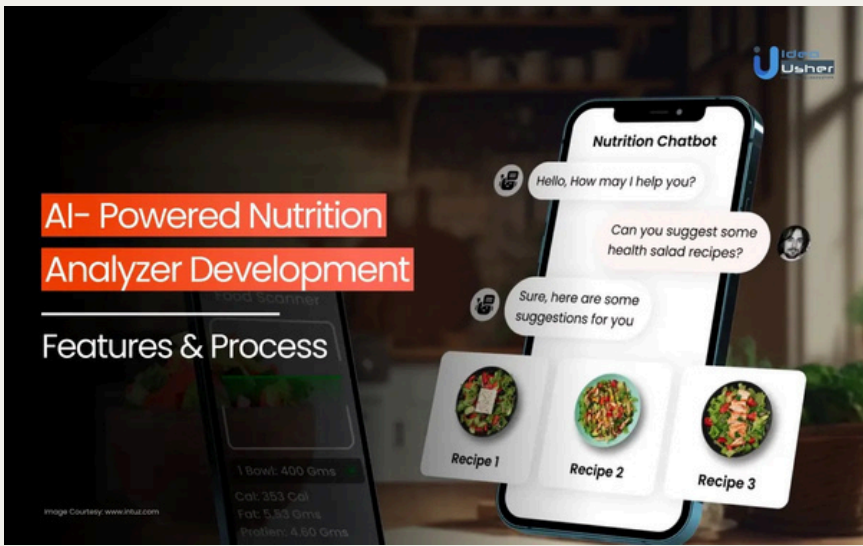
INTRODUCING NUTRIGUIDE AI

NutriGuide AI is a digital health technology I designed to provide real-time, personalised nutrition coaching using artificial intelligence. Unlike traditional calorie-tracking apps, NutriGuide AI uses image-based food recognition, machine-learning-driven meal suggestions, and behavioural nudges grounded in the COM-B model (Capability, Opportunity, Motivation – Behaviour) (Michie, van Stralen & West, 2011).



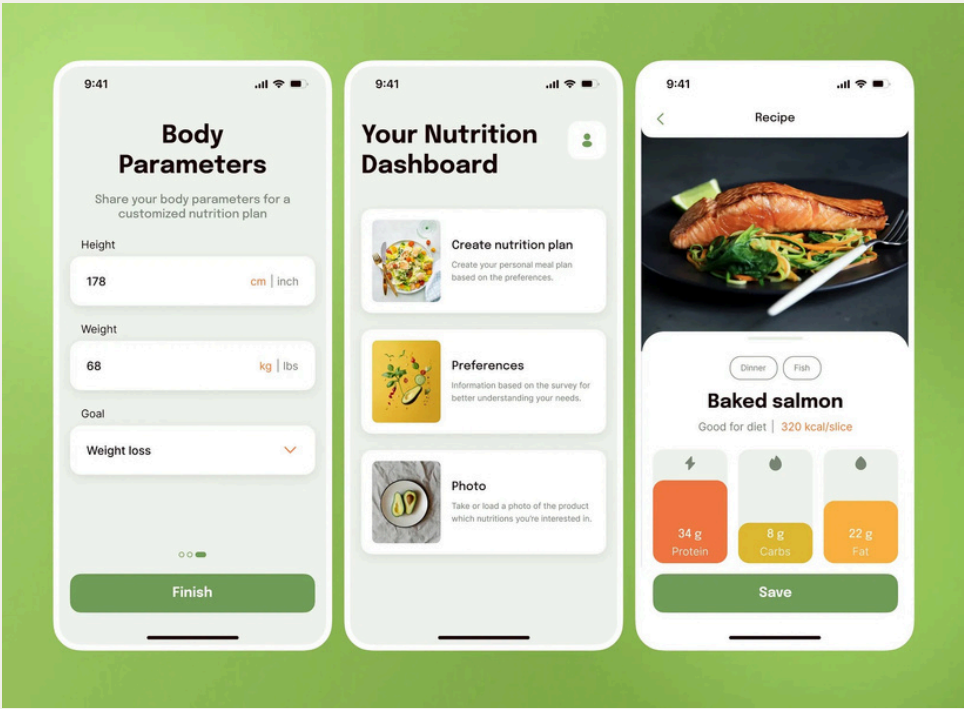
Key Features

- AI food scanner: Users photograph meals; the app identifies ingredients and estimates nutritional content(Yuan & Li, 2022).
- Adaptive coaching: The AI learns user habits and provides tailored suggestions(Bianchi & Hall, 2023).
- Gamified challenges: Weekly goals and rewards to sustain motivation.
- Community support: Peer groups for shared progress and accountability.



HOW NUTRIGUIDE AI ADDRESSES OBESITY

NutriGuide AI promotes healthier eating by reducing the cognitive burden of calorie counting and offering personalised, actionable guidance. By integrating behavioural science, the app enhances motivation and supports habit formation — essential for long-term weight management(Michie, van Stralen & West, 2011).



CRITICAL DISCUSSION: EXPECTED IMPACT

Advantages

- High personalisation: AI-driven insights adapt to user behaviour, improving relevance and engagement.
- Reduced user effort: Image-based tracking minimises manual input, addressing a major limitation of existing apps.
- Behaviour-centred design: COM-B-aligned nudges support sustainable lifestyle change (Michie, van Stralen & West, 2011).

Shortfalls

- Algorithmic bias: AI may misidentify foods for users from diverse cultural backgrounds (Yuan & Li, 2022).
- Privacy concerns: Image-based tracking requires robust data protection (Bianchi & Hall, 2023).
- Over-reliance on technology: Users may struggle without digital support (Michie, van Stralen & West, 2011) .

Addressing the Shortfalls

To mitigate these issues:

- Diverse training datasets should be used to reduce bias.
- End-to-end encryption and transparent data policies must be implemented.
- Hybrid models combining digital and human coaching can enhance sustainability (Michie, van Stralen & West, 2011)..

Conclusion

In conclusion, NutriGuide AI is an advanced digital health service that uses individualised dietary advice and behaviour modification techniques to combat obesity. The software has the potential to enhance eating habits and promote long-term weight management by fusing artificial intelligence with behavioural research. However, to guarantee fair and efficient implementation, issues including data privacy, algorithm bias, and digital exclusion must be resolved. All things considered, NutriGuide AI is a potential method for combating obesity in contemporary public health initiatives (World Health Organization, 2024).

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