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MOBILE APPLICATIONS FOR A HEALTHY AND BALANCED DIET: A REVIEW AND COMPARISON

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Abstract: In today's digital society, mobile applications are increasingly becoming valuable tools for supporting a healthy lifestyle. A special segment consists of applications designed to promote healthy eating habits, meal planning, diet tracking, and calorie intake control. This paper analyzes and compares the most popular applications for healthy nutrition. The conclusion of this study is that, with sufficient motivation and education, digital tools can positively influence changes in eating habits but cannot fully replace professional nutritional support.

Key words: digital nutrition, mobile applications for nutrition, nutrition science

INTRODUCTION

The presence of obesity has increased dramatically in modern society and is an independent factor that induces the numerous cardiovascular diseases – the main causes of death worldwide [1,2]. In 2022, 43% of adults were classified as overweight [3]. A fast-paced lifestyle, stress, and the widespread availability of high-calorie foods have significantly contributed to the development of unhealthy eating habits, resulting in a growing number of individuals affected by obesity, which is a risk factor for type 2 diabetes, and other metabolic and cardiovascular disorders [4].

As a response to previous challenges, a significant number of people turn to digital solutions to monitor, analyze and improve their dietary behavior. Mobile nutrition applications present important and popular tools for achieving, analyzing and maintaining a healthy and balanced diet [5]. These apps enable users to monitor progress in real time, track their calories and nutrient intake, receive personalized recommendations and plan meals. Designed to be user-friendly and accessible via smartphones, they often include additional features such as physical activity tracking, weight monitoring, and hydration reminders, offering a comprehensive approach to health management.

There is a wide spectrum of nutrition applications that vary in terms of interface design, functionality, target demographics and pricing models. Over the past decade, the popularity and relevance of such applications have grown continuously, accordingly with increased public awareness of disease prevention through proper nutrition. On the other hand, their widespread availability opens new questions about their effectiveness, suitability for different types of users, accuracy and improvement.

This paper will review and provide a comparative analysis of several mobile applications designed to support healthy and balanced eating. The focus in our consideration will be on key features and the measure to which mobile apps help users achieve their dietary goals.

METABOLIC SYNDROME

Metabolic syndrome, also known as syndrome X, is associated with an increased risk of several chronic diseases, including type 2 diabetes, atherosclerotic cardiovascular disease,

chronic kidney disease and cancers, and presents basic role in early prevention [4]. The International Diabetes Federation (IDF) made the following metabolic syndrome definition [9]:

1. Central obesity (defined as increased waist circumference based on ethnicity-specific values; measurement of waist circumference is not required if the body mass index is equal to or greater than 30 kg/m²),
2. and any two of the following four parameters:
 - a) Increased blood pressure (systolic pressure is equal to or greater than 130 mmHg, or diastolic pressure is equal to or greater than 85 mmHg),
 - b) Decreased high-density lipoprotein (HDL) cholesterol (less than 1.29 mmol/L in females and less than 1.03 mmol/L in males),
 - c) Increased triglycerides (equal to or greater than 1.7 mmol/L),
 - d) Increased fasting plasma glucose (equal to or greater than 5.6 mmol/L).

HEALTHY AND BALANCED DIET

According to leading health organizations such as the World Health Organization (WHO) [6], the European Food Safety Authority (EFSA) [7], and the United States Department of Agriculture (USDA) together with the United States Department of Health and Human Services (HHS) [7], a healthy and balanced diet should include a variety of foods that provide essential nutrients in appropriate proportions. Based on this, key recommendations include:

- Adequate intake of proteins, carbohydrates, and fats in appropriate ratios,
- Sufficient consumption of vegetables and fruits (as sources of vitamins, minerals, and dietary fiber),
- Limited intake of saturated fats and free sugars,
- Moderate salt consumption,
- Proper hydration, primarily through water.

A healthy and balanced diet, based on these principles, improves physical and mental performance, promotes overall health, and reduces the risk of numerous chronic diseases.

OVERVIEW OF MOBILE APPS

MyFitnessPal

MyFitnessPal, launched in 2005 by Mike Lee, has become a widely used nutrition and fitness tracking app, serving as a daily companion for millions of users worldwide. This app allows users to log food intake through barcode scanning, search, or by creating their own custom recipes, monitor carbohydrates, proteins and fats, track calories, as well as physical activity and weight changes [10]. MyFitnessPal has a big food database with millions of food entries. The layout of the MyFitnessPal app is shown in Fig. 1.

YAZIO

Mobile app YAZIO has been created in 2014 and quickly gained popularity among users seeking a more structured approach to healthy eating and weight management. As MyFitnessPal app, YAZIO provides users to log their food intake through barcode scanning, manual entry, or by adding custom meals and recipes. Providing detailed nutritional information, YAZIO enables users to monitor calorie intake and distribution of proteins, carbohydrates and fats, tracking physical activity and weight changes [10]. However, the key features of YAZIO include personalized meal plans and intermittent fasting options, which are particularly appealing to users aiming for specific health or fitness goals. While MyFitnessPal boasts a significantly large food database, YAZIO offers carefully selected nutritional content and recipes adapted to dietary preferences such as vegetarian, vegan or low-carb. In addition,

YAZIO provides a modern and intuitive interface, with user-friendly navigation and clean design.

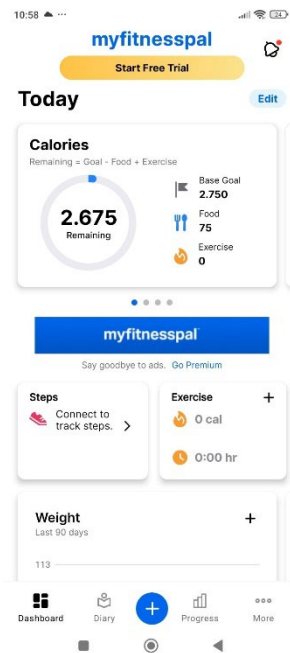


Fig. 1. MyFitnessPal

Lifesum

Launched in 2013, Lifesum helps users develop healthier eating habits through personalized diet plans and habit tracking. Similar to MyFitnessPal and YAZIO, it allows users to log meals via barcode scanning, manual search, or custom entry while tracking macronutrients, calories and weight progress [10]. Beyond standard nutrition tracking, Lifesum emphasizes an integrated approach to health by including more details, such as daily health advice, water intake and mood logging. The app offers a variety of meal plans directed to different dietary goals, including high-protein, ketogenic, Mediterranean, and intermittent fasting, providing structured guidance for users aiming to lose weight or improve overall well-being.

Lose It!

Lose It! nutrition app appeared in 2008, uses similar data input methods to MyFitnessPal, YAZIO and Lifesum. In addition, Lose It! has features such as simplicity, goal-oriented interface, group challenges and social motivation. The app provides progress graphs and goal forecasts, based on macronutrients, calorie intake, physical activity and weight changes [10].

Carb Manager

Carb Manager is made in 2010 and directed to specialized nutrition, i.e. low-carb, ketogenic, or other carb-restricted diets. Unlike the previously described applications MyFitnessPal, YAZIO, Lifesum or Lose It!, Carb Manager is focused on keto or diabetic-friendly diets [11].

CONCLUSION

This paper presented the overview and analysis of popular nutrition apps — MyFitnessPal, YAZIO, Lifesum, Lose It! and Carb Manager, concluding that each offers unique features catering to different user needs and preferences. Despite their growing popularity and potential

to support healthier eating habits, these digital tools are most effective when combined nutritional education. While nutrition apps can significantly assist users in managing their diets, they cannot fully substitute professional nutritional guidance and expert knowledge in personalized care.

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