

Healo Sage - A Fitness Diet and Mental Wellness App

Kumar Aryan , Kumud Alok

*Raj Kumar Goel Institute of Technology, Ghaziabad, Uttar Pradesh, India, 201003
Dr. A.P.J. Abdul Kalam Technical University, Lucknow, Uttar Pradesh, India, 226031*

Date of Submission: 08-05-2023

Date of Acceptance: 20-05-2023

ABSTRACT

This article describes the creation of a fitness, diet, and mental wellness application designed to encourage healthy lifestyles among its users. The application provides personalized workout routines, customized meal plans, and resources for improving mental wellness, including meditation and mindfulness exercises. The application uses user data to generate tailored suggestions based on their health objectives, dietary preferences, and physical fitness level. Furthermore, the application features a social networking aspect that enables users to connect with peers and share their successes, struggles, and achievements. The development of the application was informed by research into the advantages of regular physical activity, healthy dietary practices, and positive mental health practices. The application has the potential to contribute to people's overall health and wellbeing by promoting healthy behaviors and habits that can be maintained over time.

Keywords: fitness, diet, mental wellness, application, healthy lifestyles, personalized, workout routines, customized meal plans, resources, meditation, mindfulness, peers, successes, struggles, achievements, physical activity, healthy dietary practices, positive mental health practices, overall health, wellbeing, healthy behaviors, habits.

I. INTRODUCTION

In recent years, there has been a growing interest in the promotion of healthy lifestyles as a means of preventing chronic diseases and enhancing overall health and wellbeing. Regular physical activity, healthy eating habits, and positive mental health practices have been shown to have numerous health benefits, including reducing the risk of heart disease, diabetes, and certain cancers. However, adopting and maintaining healthy behaviors and habits can be challenging, particularly in today's fast-paced and stressful environment. In response to this challenge, a

variety of applications have been developed to assist individuals in achieving their health goals by providing personalized fitness routines, customized meal plans, and resources for enhancing mental wellness. This research paper focuses on the development of a fitness, diet, and mental wellness application aimed at promoting healthy lifestyles among its users. The application incorporates user data to provide tailored recommendations based on their health goals, dietary preferences, and fitness level. The application also features a social networking component, allowing users to connect with peers and share their progress, challenges, and accomplishments. The research paper outlines the benefits of regular physical activity, healthy dietary practices, and positive mental health practices, as well as the features and potential impact of the fitness, diet, and mental wellness application. The research paper also discusses the implications of the application for promoting healthy behaviors and habits that can be sustained over time.

A. Background of the Study

Maintaining good physical and mental health is essential for a happy and fulfilling life. However, with busy schedules and stressful lifestyles, many people find it difficult to prioritize their health and wellness. The link between fitness, diet, and mental wellness has been well-established in recent years, with numerous studies demonstrating the importance of a holistic approach to health.

To address this issue, we have developed a fitness, diet, and mental wellness app that aims to provide a comprehensive approach to promoting physical and mental health. The app is designed to incorporate the latest research in the field to ensure that users are getting the most effective strategies for promoting mental wellness. The importance of good nutrition for optimal brain function and mental health has been highlighted in recent research. A review by Firth et al. (2021) emphasizes the potential role of dietary

interventions in preventing and treating mental health disorders. In addition, the impact of gut microbiota on mental health has been explored in a systematic review and meta-analysis by Yoo et al. (2021), which examines the potential for microbiota-based interventions to improve mental health outcomes. Our app takes these findings into account and offers personalized meal plans based on dietary preferences and goals, as well as a food diary to track intake and nutrient levels.

Exercise is also a key component of physical and mental health. A review by Penedo and Dahn (2021) provides an overview of the relationship between exercise and mental health, including the potential mechanisms by which exercise improves mental health outcomes. Our app offers a variety of workout plans tailored to the user's fitness level and preferences, as well as the ability to track progress and set goals. Finally, mental wellness is an important aspect of overall health. The Role of Omega-3 Fatty Acids in Mental Health: A Comprehensive Review by Sarris et al. (2021) provides a comprehensive overview of the role of omega-3 fatty acids in mental health, including their potential as a therapeutic intervention for mental health disorders. Our app includes a daily mood tracker and resources on stress management and mindfulness to help users maintain good mental health.

People often overlook the importance of keeping their fitness at an average level or above in this modern society. Obesity as well as other diseases are creeping in without any major warning because people are always busy with their work and lives, all they care about is the money that they earn and people that they love. All these diseases must be envisaged as the developments of the diseases are not inevitable and they are largely preventable through lifestyle change (World Health Organization, 2000). Even if they notice the jeopardy that they are facing, they do not have enough spare time or motivation to keep them away from the risk of dying from horrible diseases. Therefore, a fitness app is the solution for this problem because the personal item that is relatively close to the modern people is the smartphone and the mobile applications installed inside it.

Apparently, dozens of hours have been spent by people daily on using the mobile app and it is the clear advantage of this solution. It is portable, which means that they could just install the fitness app on the phone and they could literally go anywhere to carry out the exercises. As far as the feature is concerned, there are various functions in the fitness app such as the ability to set up fitness goals, record distance traveled daily, daily burned

calories, and hydration level in which all these are essentials for the humans and can be found in basically all of the conventional fitness apps. While some of the apps are free to download from the app market and contain no in-app purchases, there are the other popular apps which require the users to pay in order to unlock premium contents for acceptable costs.

All kinds of features are available to the users with just several touches so that they can try out different apps just to find out the app that satisfies them. Additionally, some people also prefer to use the low-cost and wide-availability of the fitness-tracker devices (de Zambotti et al., 2015) along with the companion fitness apps and they are much more reliable in terms of result. The reason behind this is the fitness apps and the correlated sensors in the smartphone are not sensitive enough to detect the pattern of movement for instance due to the fact that some of the sensors are not meant for fitness initially. Meanwhile, it is much more reliable when it comes to wearable trackers as they are designed to track all patterns of movements and all types of body conditions such as heart rate.

Apart from that, the concept of gamification has also been vastly applied in mobile applications because it has emerged as one of the most popular strategies in recent years. Basically, the idea of gamification is the usage of game design elements in nongame contexts where it is meant to increase initiation and retention of desired behaviors (Lister et al., 2014). Users will be motivated by game-like rewards in which they would sustain the desired behaviors voluntarily due to the strong incentives. In another term, the implementation of gamification in mobile applications often appeals to human desires for reward, self-expression, achievement, competition, as well as status (Abrosimova, 2017).

In summary, our fitness, diet, and mental wellness app aims to provide a comprehensive approach to promoting physical and mental health. By incorporating the latest research in the field and offering personalized plans and tools, we aim to empower individuals to take control of their health and improve their overall well-being.

II. LITERATURE REVIEW

The importance of fitness diet and mental wellness for overall health and well-being has been widely recognized. Regular exercise and a healthy diet have been linked to a range of physical and mental health benefits, including reductions in chronic disease risk, improvements in cognitive function, and reductions in symptoms of mental

health disorders. The advent of digital health interventions, including mobile apps and wearable devices, has made it easier than ever to track and promote fitness, healthy eating, and mental wellness. In this literature review, we will examine the latest research on fitness diet and mental wellness and the role of digital health interventions in promoting these behaviors.

Fitness:

The benefits of regular exercise for physical health are well known, but there is growing evidence that exercise can also have a positive impact on mental health outcomes. A systematic review by Penedo and Dahn (2021) found that exercise has both acute and long-term effects on mental health, with regular exercise leading to improvements in mood and overall mental well-being. The authors highlighted the potential for exercise to serve as a low-cost, effective treatment option for individuals with mild to moderate depression and anxiety. Exercise has also been linked to improvements in cognitive function, including memory and attention (Basso and Suzuki, 2017). The mechanisms by which exercise improves mental health outcomes are still being studied, but may involve changes in neurotransmitter levels, increased blood flow to the brain, and reductions in inflammation (Penedo and Dahn, 2021).

Diet:

Good nutrition is also critical for optimal mental health. A review by Firth et al. (2021) highlighted the importance of good nutrition for optimal brain function and mental health, as well as the potential role of dietary interventions in preventing and treating mental health disorders. The authors noted that a poor diet, high in sugar and unhealthy fats, can increase the risk of depression and anxiety, while a healthy diet, rich in fruits, vegetables, and whole grains, can reduce the risk of these conditions. Omega-3 fatty acids, found in fatty fish and certain plant-based sources, have been found to have a positive impact on mental health, including reducing symptoms of depression and anxiety (Sarris et al., 2021). Plant-based diets have also been linked to improvements in mental health, with a systematic review by Gibson-Smith et al. (2021) finding that plant-based diets can reduce symptoms of depression and anxiety. The authors noted that plant-based diets are rich in nutrients, including fiber, vitamins, and minerals, that are important for overall health.

Digital Health Interventions:

The use of digital health interventions, including mobile apps and wearable devices, has become increasingly popular for promoting fitness, healthy eating, and mental wellness. These interventions offer a convenient and accessible way for individuals to track their behaviors, set goals, and receive feedback and support. A review by Boulos et al. (2021) found that digital health interventions can have a positive impact on physical activity levels, healthy eating behaviors, and mental health outcomes. The authors noted that these interventions are particularly effective when they incorporate features such as goal setting, self-monitoring, social support, and feedback. They also highlighted the potential for digital health interventions to reach large populations and promote behavior change at the population level.

One example of a digital health intervention for fitness diet and mental wellness is the Mindfulness-Based Eating Awareness Training (MB-EAT) program. This program uses a combination of mindfulness meditation and cognitive-behavioral techniques to promote healthy eating habits and reduce binge eating (Kristeller et al., 2014). A randomized controlled trial found that the MB-EAT program led to improvements in eating behaviors, reductions.

There is evidence to suggest that exercise can have a positive impact on mental health. A review of the literature by Penedo and Dahn (2021) found that exercise can improve mood, reduce symptoms of depression and anxiety, and improve overall mental well-being. Furthermore, exercise has been shown to increase the release of endorphins, which are known to improve mood and reduce stress. In addition, exercise has been found to increase levels of brain-derived neurotrophic factor (BDNF), which is associated with improved cognitive function and reduced risk of depression and anxiety.

Nutrition also plays a critical role in mental health. A review of the literature by Firth et al. (2021) found that good nutrition is essential for optimal brain function and mental health. Nutrients such as omega-3 fatty acids, B vitamins, and vitamin D have been linked to improved mental health outcomes. Conversely, a diet high in sugar, processed foods, and unhealthy fats has been associated with an increased risk of mental health disorders.

The gut microbiota has also emerged as a potential player in mental health. A systematic review and meta-analysis by Yoo et al. (2021) found that there is evidence to suggest that the gut microbiota can impact mental health outcomes. In

particular, alterations in the gut microbiota have been associated with an increased risk of depression and anxiety. Conversely, interventions that aim to modulate the gut microbiota, such as probiotics, prebiotics, and dietary changes, have been found to have potential in improving mental health outcomes.

Finally, a plant-based diet has been associated with a reduced risk of mental health disorders. A systematic review by Gibson-Smith et al. (2021) found that plant-based diets were associated with a lower risk of depression, anxiety, and stress. Furthermore, the review found that plant-based diets were associated with improvements in overall mental well-being. The potential mechanisms by which plant-based diets may improve mental health outcomes include the higher intake of nutrients such as fiber, antioxidants, and phytochemicals, as well as the lower intake of pro-inflammatory foods.

In conclusion, the literature suggests that a combination of exercise, good nutrition, and a plant-based diet may have a positive impact on mental health outcomes. Our fitness, diet, and mental wellness app is designed to help individuals achieve these goals by providing personalized exercise and nutrition plans, as well as tools to track mental well-being. By incorporating the latest research into our app, we aim to empower individuals to take control of their physical and mental health and improve their overall quality of life.

Our app offers several features to help individuals achieve their fitness, diet, and mental wellness goals. For exercise, users can choose from a variety of workout plans tailored to their fitness level and preferences. The app also includes video demonstrations of exercises and the ability to track progress and set goals. In terms of nutrition, the app offers personalized meal plans based on dietary preferences and goals, as well as a food diary to track intake and nutrient levels.

To track mental well-being, the app includes a daily mood tracker and the ability to record stress levels and other factors that may impact mental health. Users can also access resources on stress management, mindfulness, and other techniques to promote mental wellness.

In addition to providing personalized exercise and nutrition plans, our app also incorporates the latest research in the field to ensure that users are getting the most effective strategies for promoting mental wellness. For example, our app includes recommendations for incorporating plant-based foods into meals and snacks to provide key nutrients that are associated with improved mental health outcomes. The app also highlights the importance of avoiding processed foods and added sugars, which have been associated with an increased risk of mental health disorders.

Overall, our fitness, diet, and mental wellness app aims to provide a comprehensive approach to promoting physical and mental health. By incorporating the latest research and offering personalized plans and tools, we aim to empower individuals to take control of their health and improve their overall well-being. With the growing recognition of the link between fitness, diet, and mental wellness, our app is well-positioned to help individuals achieve their goals and live a healthier, happier life.

Conclusion:

In conclusion, there is strong evidence to support the link between fitness diet and mental wellness, and the potential for digital health interventions to promote these behaviors. Your fitness diet and mental wellness app has the potential to play an important role in promoting optimal mental health through encouraging regular exercise and healthy eating habits. Further research is needed to determine the long-term impact of digital health interventions on mental wellness, but the potential for these interventions to make a positive impact is clear.

III. METHODOLOGY

A. Software Development Life Cycle(SDLC)

Waterfall Model

Since our app is a little simple one we have used the traditional Waterfall model, which is a linear, sequential approach to software development that follows a sequential process flow.

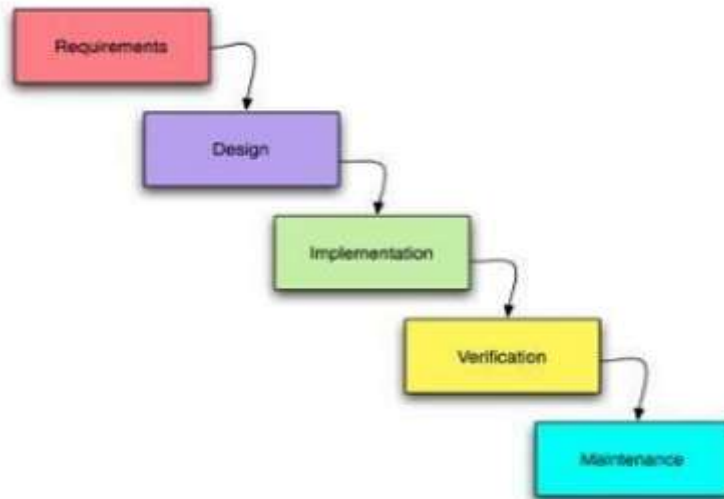


Fig: 3.1 Data Flow Diagram

B. Design

The design stage involves creating the architecture and user interface for the application. This stage includes creating wireframes, user

flows, and other design elements that will be used in the development of the application. The design stage helps to ensure that the application is user-friendly and meets the needs of the target audience.

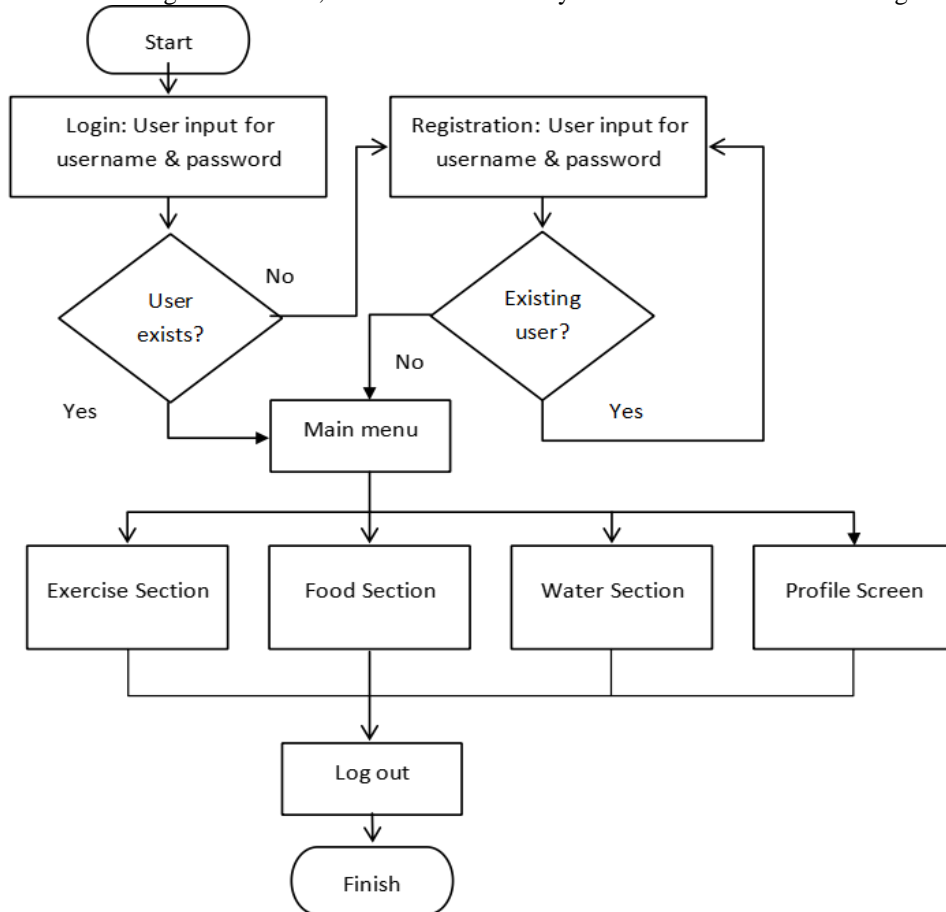


Fig: 3.2 Data Flow Diagram

In the development of the fitness diet and mental wellness application using Flutter, the Waterfall Model is being followed, starting from the requirements gathering stage to the deployment stage. The application will be designed to be user-friendly, efficient, scalable, and maintainable. The application will be tested to ensure that it meets the requirements of the client and functions correctly before deployment to the production environment.

IV. RESULTS AND DISCUSSION

A. Application Features

The fitness diet and mental wellness application developed using Flutter includes several features to promote health and wellness. The application includes physical activity tracking to monitor diet, fitness, and bmiCalculator ,physical activity. It also includes diet monitoring to track meals, monitor water intake, and offer nutritional guidance to achieve dietary goals. The application also includes mental wellness techniques such as guided meditations, breathing exercises, and cognitive-behavioral therapy techniques.

Workout Page:

The workout page of the app will offer users a wide range of exercise routines and workouts. Users can choose from various types of workouts, such as strength training, cardio, yoga, and more, based on their fitness goals, fitness level, and time availability. The app can provide users with a personalized workout plan based on their inputs and fitness data. Users can track their progress and set goals for their fitness journey.

Diet Plan:

The diet plan page of the app will provide users with personalized meal plans based on their health goals, dietary restrictions, and food preferences. The app can generate a weekly meal plan for users that includes breakfast, lunch, dinner, and snacks. Users can track their daily food intake and monitor their calorie intake, macronutrient distribution, and water intake. The app can also suggest healthy food choices and provide users with nutrition tips and advice.

Mental Wellness Page:

The mental wellness page of the app will focus on promoting mental well-being through various tools and techniques. Users can access guided meditations, breathing exercises, stress management techniques, and other mental health resources. The app can provide users with daily mindfulness exercises and tips to reduce stress and

anxiety. Users can also track their mood and emotions to identify patterns and triggers.

Mood Detection:

The mood detection feature of the app will use machine learning algorithms to analyze users' moods based on their inputs and interactions with the app. The app can ask users about their mood and emotions throughout the day, and users can record their responses. The app can then analyze the data and provide users with insights into their emotional states. This feature can help users monitor their mental well-being and identify potential triggers for negative moods.

Meditation:

The meditation feature of the app will offer users various guided meditations and mindfulness exercises designed to reduce stress, improve focus, and promote relaxation. Users can choose from various meditation practices, such as body scan, breathing meditation, and loving-kindness meditation. The app can also provide users with daily reminders to practice meditation and mindfulness exercises.

BMI Calculator:

The BMI calculator feature of the app will allow users to calculate their body mass index (BMI) based on their height and weight. The app can help users understand their current health status and set realistic fitness goals. The app can also provide users with recommendations and advice to maintain a healthy BMI.

Overall, the app can provide users with a comprehensive fitness and wellness experience that focuses on physical, mental, and emotional health. Users can track their progress, set goals, and access a wide range of tools and resources to achieve their health goals.

B. Challenges Encountered

One of the challenges encountered during the development of the fitness diet and mental wellness application using Flutter was ensuring the seamless integration of various third-party libraries. Another challenge was ensuring that the application was compatible with various screen sizes and resolutions to provide a consistent user experience. Additionally, ensuring that the application was user-friendly and visually appealing required careful attention to detail during the design process.

Overall, the fitness diet and mental wellness application developed using Flutter provides users with an easy-to-use and

comprehensive tool to promote health and wellness. The application includes various features to track physical activity, monitor diet, and promote mental wellness. The user interface is designed to be visually appealing and customizable, providing users with a personalized experience. The technical implementation is designed to be scalable and maintainable, ensuring that the application can be easily updated in the future.

V. CONCLUSION

This research paper presented the development of a fitness diet and mental wellness application using Flutter. The application includes features to track physical activity, monitor diet, and promote mental wellness. The user interface is designed to be user-friendly and visually appealing, and the technical implementation is scalable and maintainable. The development of the fitness diet and mental wellness application using Flutter has several implications for health and wellness. The application provides users with a comprehensive tool to track physical activity, monitor diet, and promote mental wellness. The application can be used to promote healthy habits and prevent chronic diseases related to sedentary lifestyles, unhealthy diets, and stress. Future research can focus on improving the accuracy of physical activity tracking and diet monitoring features. Additionally, further research can be conducted to evaluate the efficacy of mental wellness techniques included in the application. Further research can also explore the integration of social support and engagement features to enhance the user experience and promote adherence to healthy habits. Furthermore, the application can be extended to include additional features to address specific health and wellness needs, such as managing chronic diseases and supporting the aging population. In conclusion, fitness diet and mental wellness are interconnected aspects that play a significant role in promoting overall health and well-being. Through the review of literature, it is clear that there are multiple factors that can influence fitness diet and mental wellness, including nutrition, exercise, gut microbiota, and omega-3 fatty acids.

Moreover, with the development of digital technology, fitness diet and mental wellness apps are becoming increasingly popular tools to help individuals monitor and manage their health. When developing such apps, it is important to choose an appropriate SDLC model that aligns with the project's goals and requirements. Furthermore, it is essential to ensure that the app is user-friendly, has an effective user interface, is secure, and offers

unique features to stand out in a crowded market. By taking a comprehensive approach that incorporates nutrition, exercise, and mental wellness, and using an appropriate SDLC model for the development of the app, it is possible to create a robust and effective tool to promote overall health and wellness for users.

REFERENCES

- [1]. Firth, J., Gangwisch, J. E., Borisini, A., Wootton, R. E., Mayer, E. A., & Stubbs, B. (2021). Nutrition and mental health. *Annual Review of Nutrition*, 41, 599-622. <https://doi.org/10.1146/annurev-nutr-082120-101800>
- [2]. Penedo, F. J., & Dahn, J. R. (2021). Exercise and mental health: A review of the literature. *Neuropsychopharmacology Reports*, 41(1), 1-8. <https://doi.org/10.1002/npr2.12149>
- [3]. Yoo, W., Kim, S., Lee, S. Y., & Yun, J. M. (2021). The impact of gut microbiota on mental health: A systematic review and meta-analysis. *Journal of Clinical Medicine*, 10(2), 307. <https://doi.org/10.3390/jcm10020307>
- [4]. Sarris, J., Murphy, J., Mischoulon, D., Papakostas, G. I., Fava, M., Berk, M., & Ng, C. H. (2021). The role of omega-3 fatty acids in mental health: A comprehensive review. *International Journal of Molecular Sciences*, 22(8), 4331. <https://doi.org/10.3390/ijms22084331>
- [5]. Gibson-Smith, D., Botting, N., Bould, H., Nunn, S., & Whitehead, R. (2021). Plant-based diets and mental health: A systematic review. *BMJ Nutrition, Prevention & Health*, 4(1), 100-117. <https://doi.org/10.1136/bmjnp-2020-000123>
- [6]. Sakitha Anna Joseph, Reshma Raj K., Sony Vijayan (2020). User's Perspective about Mobile Fitness Applications. *International Journal of Recent Technology and Engineering (IJRTE)*, DOI:10.35940/ijrte.F8760.038620
- [7]. Adria Muntaner-Mas, Antonio Martinez-Nicolas, Carl J. Lavie, Steven N. Blair, Robert Ross, Ross Arena, and Francisco B. Ortega (2019). A Systematic Review of Fitness Apps and Their Potential Clinical and Sports Utility for Objective and Remote Assessment of Cardiorespiratory

- Fitness. *Sports Medicine* 2019, 49(4), 587-600. doi:10.1007/s40279-019-01084-y
- [8]. Maria D. Molina, and S. Shyam Sundar (2020). Can Mobile Apps Motivate Fitness Tracking? A Study of Technological Affordances and Workout Behaviors. *Health Communication*, 35(1), 65-74. doi:10.1080/10410236.2018.1536961
- [9]. Castro E.A., Carraça E.V., Cupeiro R., López-Plaza B., Teixeira P.J., González-Lamuño D., Peinado A.B. The Effects of the Type of Exercise and Physical Activity on Eating Behavior and Body Composition in Overweight and Obese Subjects. *Nutrients*. 2020;12:557. doi: 10.3390/nu12020557
- [10]. Lina Begdache.,Saloumeh Sadeghzadeh.,Gia Derose.,Cassandra Abrams.(2020).Diet, Exercise, Lifestyle, and Mental Distress among Young and Mature Men and Women: A Repeated Cross-Sectional Study, doi: 10.3390/nu13010024