



Comparison of different Health and Nutrition Management Apps: A Comprehensive Analysis

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Abstract

The usage of smartphones has increased at an exponential rate. With the increase in workload pressure and changing lifestyles, the importance of health has increased in today's world. Elderly and Senior Citizen wants to track nutrients and exercises per prevailing health issues in the body. Youngsters wish for fitness and body shaping. Teenagers are busy preparing for exams and other things, similarly, nutrients are required to get energy. Considering this increased awareness of health and nutrients, this review paper compares existing health and nutrition management apps. The paper will help the users to gain insight into various existing technologies and apps.

Keywords

Mobile apps, health and nutrition, fitness app growth.



1. Introduction

The use of health apps is growing exponentially, as it has many advantages. As per survey there are approximately 38,000 apps in the play store which are related to nutrition, health management. The substantial increase in the usage of apps has motivated app providers to include more and more extensive features for the betterment and efficient health and dietary management of the user. Even with the occurrence of pandemic COVID 19, there was a rapid increase rate in the mobile users. Health apps are generally categorized in three categories which are mentioned below:

- i. Health monitoring application: These apps monitor health in terms of various features such as tracking sleep, stress monitoring, calorie count etc.
- ii. Telemedicine app: These apps provide various facilities in which a user can interact with licensed doctors and can get to know about the disease he/she is suffering from.
- iii. Health management Applications: These apps help the user to track the health, medicine intake properly and timely, remote monitoring and consultation with doctor [6]. Nowadays clinics are also suggesting apps for educating patient information, communication and other illness management. These nutrition and health related apps can become part of one's life. These applications may eliminate existing barriers in traditional approaches. Gaps of Time constraint, waiting time, convenience and other factors can be reduced with the usage of these apps. A user can find application related to his/her specific needs. However prevailing applications address the needs of adults rather than teenagers.

ii.

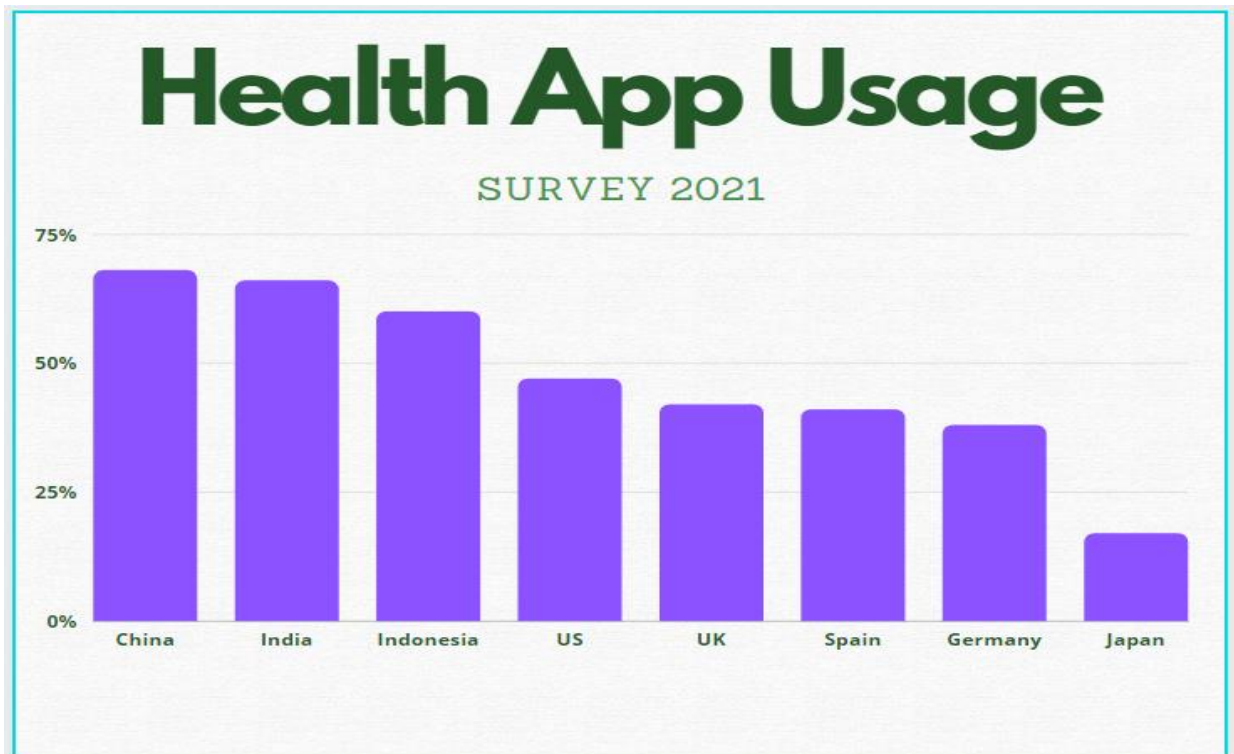


Figure 1. Health App Usage Survey 2021 [20]

The Statistic Global Consumer has predicted eight countries i.e., China, India Indonesia, US, UK, Spain, Germany, Japan that has maximum usage of mobile phones apps. Fig 1 highlights the countries and usage of apps as per survey done in 2021. The above data suggest that China, India, Indonesia are the countries that are amongst the highest app usage in the world.

2. Literature Review

Table 1. Comparison analysis using various research papers.

Paper	Objective	Algorithm	Conclusion
Controlling your “appetite”: how diet and nutrition-related mobile apps lead to behavior change. [19]	To manage obesity by tracking behavioral changes	Cross Sectional Survey was done with 217 participants	Major of the participants in the survey strongly agreed that using apps led to motivation in behavior change and enhanced the wish to be fit and healthy
Popular mobile apps related to nutrition, a feature assessment. [7]	To compare existing applications on Android play store and I Tunes	Comparison of existing technologies and approaches used in existing apps	In total thirteen apps were analyzed and out of these nine applications were able to collect physical activity and diet monitoring
Mobile fitness apps for self-control of rheumatic and musculoskeletal diseases: systematic literature review. [16]	To summarize an overview of existing apps and provide self-monitoring of skeletal muscular diseases	Using 5 databases search was performed and more features were suggested in existing apps to provide an efficient application	Around 562 applications were analyzed and out of which three were available at the commercial level.
A systematic evaluation of the effectiveness of Android apps for tracking and control of intellectual fitness signs and symptoms or disorders. [18]	To apprise about various apps that are related to various disorders such as stress disorder, sleep disorder, multiple disorder	A comprehensive study was done using Scholar, WoS, Scopus	1501 papers were considered for the study, out of out of which 16 papers were related to stress, attempt to suicide, behavior change, sleeping patterns
Individual Fitness App Use: The Role is Goal Orientations and Motivation. [17]	To induce the motivation for physical activity by providing different motivating features to attract towards fitness	Uses 417 health app customers’ exhibits awesome styles among person desires and the usage of health apps for self-monitoring, exercising guidance, rewards, and social comparison.	The use of individualized fitness app literature, theoretically extends the concept of motivation for the affordances with individual goals and aids practice in tailoring the features of fitness app.
Personalizing of mobile Fitness Apps and using Reinforcement Learning. [20]	An application to tracks fitness activity and set goals	Using the help of 13 University students to examine and evaluate the efficacy of the app. The control group has decrease in everyday step count in between baseline and 10-weeks, as compared to the growth in	They have a singular fitness app referred to as CalFit to track and deliver physical activity interventions. The app implements a reinforcement getting to know algorithm adapted to the context of producing personalized and adaptive daily step goals for

		the intervention of group.	every user in order that the goals are difficult however attainable.
Nutrient limitation identifies a fitness advantage for polyploids. [5]	This paper indicates that polyploidy is concentrated and pure.	States that polyploids are of three different kinds:1. tetraploids, 2. diploids and 3. haploids and it also confirms that polyploidy accumulates for various n number of genotypes.	The paper significantly summarizes polyploids in the plants and how these involved and how these are important.
Barriers to and Facilitators for the Usage of Nutrition Apps: Systematic Review and Conceptual Framework. [14]	This paper clearly identifies the usage and gaps in nutrition apps, and how these are motivating the users for its usage.	The paper analyzes six databases from the literature wherein each database is examined for its advantage and disadvantage. Based upon extensive analysis from database the best app was predicted Preregistration process was used in the process wherein inclusion and the exclusion along with searching criteria were used.	The paper concluded that out of all the research papers only twenty-eight papers were eligible. In the research three leveled hierarchy was made that was further grouped into three hundred twenty-eight barriers and further into twenty three subdivisions and twelve divisions, and four features that truly focused on individual users.
Assessment of the accuracy of nutrient calculations of 5 popular nutrition tracking apps. [13]	To determine the accuracy of nutrient consumption calculations from main nutrition monitoring applications.	Uses accrued the usage of Nutrition Data System for Research and have been in comparison with consumption calculations from those recalls entered through the researcher into 5 free vitamins monitoring apps.	Research paper summarizes the relation between nutrient taken and micronutrient which is in the range of of 0•73 to 0•96. Similarly, correlations are also examined such as potassium, sugar, roughage, cholesterol, unsaturated fat present in the fat is examined. For every application intake of nutrients in the body is sufficiently less than the value of NDSR. This indicates that it is significant to find the value of nutrients so that properties of food taken are known to the user, so as to balance the diet.

2.1. Comparison Analysis of Existing Apps

To get an insight of various existing apps, a comparison analysis is done in the section to indicate special features and disadvantages of the existing apps, Rating of the app is done for indicating how popular it is amongst the users. Table II highlights the same.

Table 3. Comparison of different fitness applications with their features, cons, and rating in terms of usefulness.

Apps or web apps	Special features	Cons	Ratings out of 5
Apple Fitness Plus	It consists wide range of classes, you will regular updates on it, great connectivity with apple watch	Only work in IOS based devices no dietary plan and expensive also as compared to other	3.2
Peloton	As a customer you have access of long-range classes plus you can easily too stack and save you classes,	It does not consist any home workout activity without equipment and its only good for runner	4.1
Sweat	It consist number of different trainers and training plans and also very easy to follow with Nutrition plans are also available, also compatible with IOS supported devices.	YOU need to manually tap the screen during your workout sessions and it also not enough to put us off using the app regularly. Its only based for women.	4.3
Centr	Training programs, Home and gym workouts, Meal plans with sports activity	No option to play your own music, plus you can't download your workout series	4.3
Strava	ONE of the beat features is tracking for multiple sports also Community vibe,	A lot of in-depth analysis features are behind pay wall	4.5
Fitelo	It consists of Dody Analysis Based program, customized diet plan, Self-Learning program	Generally main goal is about to weight loss and also target only a particular audience	4.7
Cure.fit	Consist of access to exercise videos and sessions according to your workout plan with a tasty diet plan also consisting of Mind-Body workouts.	Home workout routines aren't monitored so customers generally tend to skip workout that they're now no longer comfortable with. Posture correction and person queries can't be solved withinside the absence of a teacher it reasons injuries.	4.6
Fittr	Provide customers with individualized guidance, custom designed plans, and weekly with small fee.	There is small problem there is no program for sports person for their training to achieve their goals	4.2
HealthifyMe	Food and Activity Tracker, AI Nutritionist, AI Nutritionist, Healthy Recipes Live Workouts	Monthly and weekly plans are to be had Training with high-depth periods is likewise to be had Motivational tune on many playlists Motivational tune is likewise featured on many playlists.	4.5

Aaptiv	Monthly and weekly plans are to be had Training with high-depth durations is likewise to be had Motivational song on many playlists Motivational song is likewise featured on many playlists.	Switching among video demonstration and audio application reasons masses of inconvenient and interrupt the go with the drift of your exercise Volume of background music result its overpower running shoes voice Minimal attention on nutrition.	4
Strong Lifts 5X5	They consist of Plan, track, and time with the help of interactive planner and additionally Expert and amateur weightlifting plans A graph, a tracker, and a planner also are provided.	mainly target audience is weightlifter and for weight training.	4.1
SIN SKY	customized diet plans, amazing, workout session, step tracking, calorie tracking, transparency between client and coach	one main problem is time management you have to follow their time management	4.8
VASHU MITAL ONLINE	customized diet plans, amazing,workout session , step tracking , calorie tracking , transparency majorly focus on client wishes	One main problem is time management you have to follow their time management	4.8
GENESIS	customized diet plans, amazing,workout session , step tracking , calorie tracking , transparency majorly focus on client wishes with every types of program consist	One main problem is time management you have to follow their time management.	4.9

3. Benefits of Health and Fitness Applications

The application for health & fitness are the exceptional to offer the nudge with inside the right direction. These keep you inspired and targeted to attain the preferred level of health. This app can track fat loss, daily activity, calories count and also tracks nutrition, diet plan to provide essential body fluid, nutrition, and fulfill deficiency in nutrition. This application provides you with information related to gym and also track water intake and counts steps. This app pushes the user to do fun activities like sports so the user will not get bored and stay consistent and achieve their goal to get fit, and also will provide extra tracking like nutrition intake, fluids intake etc. These apps provide you diet plan provide you how to prepare meal without destroying the important nutrition and also provide you alternatives recipe with same amount of nutrition but with different taste. These app focus on fat loss, muscle gain, filling important nutrients. That causes overall development of the body like personality development and other things for example a person who is an introvert cannot speak properly we help him to develop skills to make him confident. These app make user's diet budget friendly, at the time of login we make user fill a form to provide necessary information about user like is the user vegetarian or non-vegetarian or vegan and also ask user about their diet budget and on the basis of that budget they make the diet plan.

Fig 2 indicates how the daily activities indicates how much exercise is need and how much calories need to be burnt. Fitness apps are excellent for monitoring your progress, in particular if you are curious about how properly your training efforts are paying off. Whether your purpose is to lose weight, gain muscle, or tone up, health apps will offer you with a progress record to reveal your ways to help accomplishing your purpose. Some people stay very busy lives that save you them from going to the gym. Most of them work out at home, however without the assist of an expert instructor, arising with an exercise recurring that works is tough.

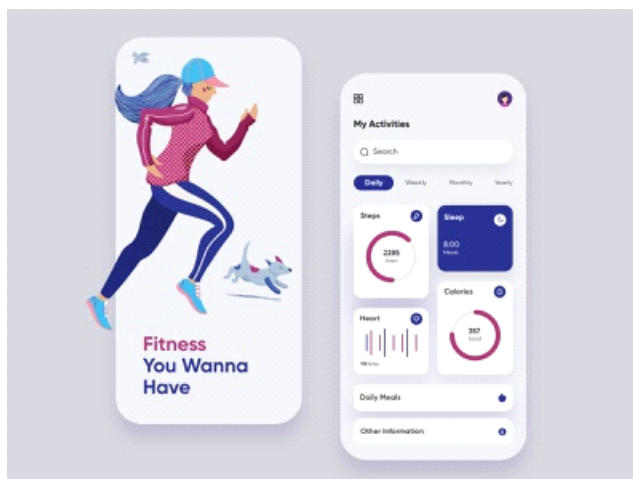


Figure 2. Tracking activities in fitness app

Fortunately, there are health apps that could offer you with powerful exercise thoughts designed to in shape your modern degree of health. These apps will offer you with alternatives in phrases of exercise depth and frequency to make sure you gain your health goals.



Figure 3. Advantages of Fitness App

The important factor to keep in mind when beginning a workout or exercise routine is to set desires you may meet. Seasoned veterans may not have any trouble meeting new exercising desires due to the fact they've evolved the purpose to do so. But it is any other story if you are making the transfer from a sedentary to an extra energetic and healthful lifestyle. This is wherein a health app can assist. Instead of creating you undergo an unrealistic plan; health apps will manual you via the transition in the direction of turning into energetic slowly however efficiently. By putting practicable desires, health apps can assist you live prompted and tremendous at the same time as you figure in the direction of a healthier lifestyle. Diet performs a critical function in health. It would not count number how a great deal you figure out or exercising. If you are now no longer presenting your frame with the vitamins it needs, your complete exercising recurring will now no longer paintings as efficiently as you need it to.

Diet apps assist you intend out your food to make sure you are getting the maximum vitamins to supplement your exercising recurring. The changing class in the apps determines the crucial factors in the app [1-4, 9, 10, 12].

3.1. Web App

The benefit of WEB is they provide great menu of eating healthy are legion for better skin, more energy, better concentration and focus, a better memory, and many more. As serious trouble lies withinside the GPS connectivity. Apps that permit customers to track their going for walks routes and evaluate them with others from time to time make errors and calculate special paths than the only a consumer finished in reality. Cloud helps the users for easy, free and fast access [15].

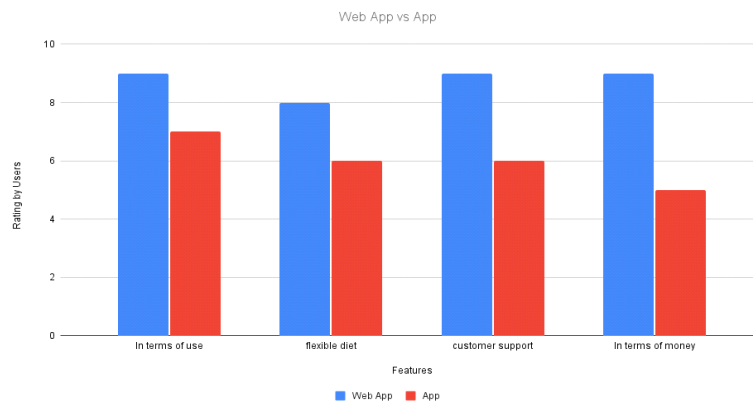


Figure 4. Comparison of Web App and App

3.2. Fitness App Growth

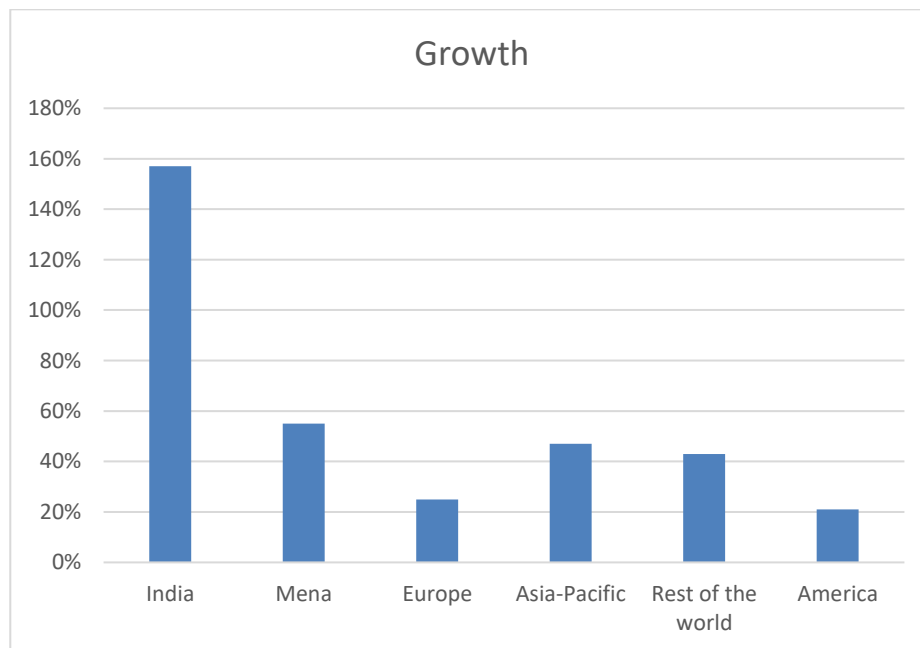


Figure 5. Fitness app Growth

Home health apps have a speedy boom after COVID-19, the recognition has definitely surged within side the previous couple of years (since 2020). Above graph (fig 5) spotlight the growth in health apps throughout 5 different regions, representing 1. five billion cell app users. The document facts make use of from Google’s Play Store and Apple’s App Store, so China turned into now no longer included. It’s very stunning and sudden India noticed the best boom in downloads, growing through 156%. Almost fifty-eight million new energetic users—nearly the whole populace of Italy. In India had the most important lockdown withinside the world—from March 25 to May 2020, 1. three billion humans had been advised to stay inside. That’s a variety of folks that were given encourage and recognized the importance approximately health because of COVID-19, pretty suddenly, determined themselves the house paintings out Importance. The Middle East and North Africa (MENA) location noticed the second maximum boom in downloads, at a 55% boom, observed through Asia-Pacific with a 47% growth.

3.3. Growth, By Daily Active Users

The health apps additionally rise in Daily lively users (DAUs). This is considerable as it suggests people are now no longer simply downloading this application and forgetting about them—they were absolutely using them.

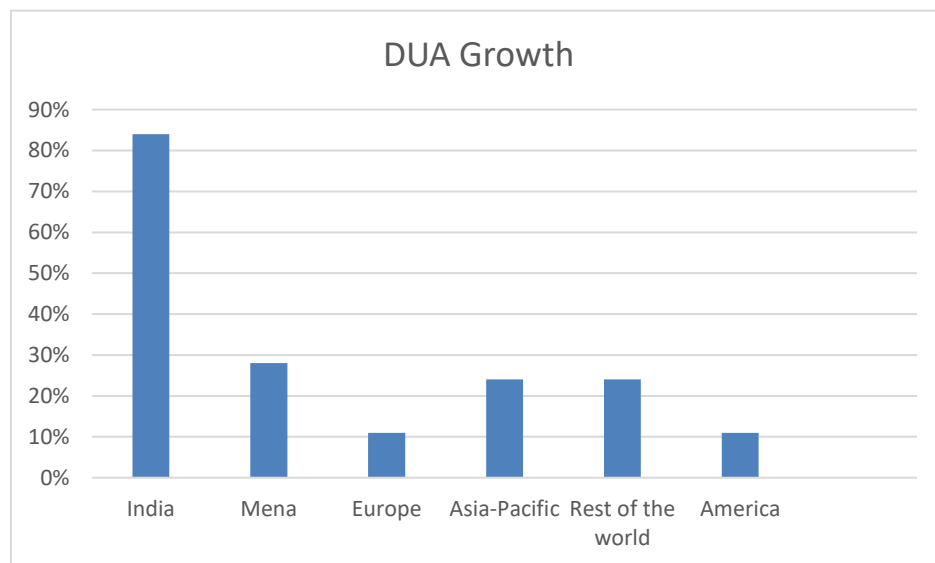


Figure 6. Growth, by Daily Active Users

As with downloads, Again India noticed the biggest growth in DAUs (Daily lively user) with an 84% growth, or 12 million new customers. MENA noticed the second-maximum increase (which additionally aligns with downloads) at 28%. the America (each continent) noticed the smallest growth at simply reason of the feature of getting greater customers to begin with. Despite the decrease growth price than different regions, individuals who did undertake health apps withinside the America regarded to experience them, especially withinside the United States.

4. Conclusion

Apps have made the sector smaller. The techies have become extra and extra engrossed with those new improvements withinside the area of technological know-how and generation. And thereby, neglecting their fitness widely. This has created havoc at the fitness-giving upward thrust to the subsequent disorders. Obesity is certainly considered one of the worst consequences.

Also, abnormalities in blood strain and stage of blood sugar, depression, aerobic vascular disorders, anxiety, exclusive varieties of most cancers, and plenty of extras. The development of generation has honestly made your existence clean, or has it made your existence extra complicated Well, the solution is absolutely a huge NO. No, that the generation hasn't made our existence complicated. Yes, there are a few bad effects on fitness. But it has furnished a number of options to outnumber the bad ones. Thanks to the technological improvement at your table proper on your workplace. Also, it's because of technological development, numerous health cell apps are additionally developed, which now no longer assist in enhancing the health stage, however, additionally assist in retaining a healthful existence. That's the motive why we see a steep upward thrust inside the fashion construct app for fitness & health.

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