

Connecting to Fitness: Exploring The Impact of Social Fitness Apps on User Behavior and Outcomes

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Abstract: *This study explores how users' attitudes, behaviour's, levels of physical activity, and usage patterns are affected by Social Fitness Applications (SFAs). The impact of SFAs on fitness reveals a strong positive relationship between app usage and increased participation. Individuals exhibit increased drive and faithfulness to exercise regimens thanks to these apps. Assessment of users' attitudes and actions after using SFA highlights a favourable change toward commitment to and awareness of fitness. SFAs encourage users to set goals, feel accountable, and receive social support, all of which increase the likelihood that users will continue to engage in physical activity over time. An analysis of usage patterns indicates diverse engagement strategies employed by users. While some prioritize tracking and goal setting features, others gravitate towards community engagement and virtual challenges. This variability highlights the versatility of SFAs in catering to individual preferences and needs. Recommendations include promoting SFAs through targeted marketing campaigns to amplify awareness and adoption, enhancing app features to cater to diverse user preferences, investing in user education to maximize utility, and continuously monitoring and analyzing usage data to refine app functionalities and user experiences.*

Keywords: Social Fitness Applications (SFPs), Motivation and Engagement in physical activity, Personalized Fitness Plans and goals, Digital Fitness Ecosystems and gamification elements

I. INTRODUCTION

The extensive evidence highlighting the health benefits of physical activity has spurred considerable interest in understanding the motivations driving individuals to engage in exercise. However, the ongoing digitalization of society has introduced new dimensions to this inquiry. Among these developments are social fitness platforms (SFPs), such as Strava, Fitbit, NoiseFit, Google Fit, and Apple Fitness+, which leverage wearable fitness apps and activity-tracking devices integrated into smartphones and GPS watches to convert collected data into physiological metrics like heart rate, performance distance, and speed/pace. Arguably, SFPs represent a fundamental shift in the way people experience sports and exercise. They transform a routine training session into a quantifiable digital achievement that not only persists over time but can also be shared with a wide audience, including friends and even strangers. This paradigm shifts underscores the transformative potential of SFPs, as they facilitate the gamification and socialization of physical activity, thereby reshaping individuals' motivations and experiences in the realm of fitness and sport. Research into the motivational consequences of utilizing SFPs during exercise has been relatively sparse. Notably, two pivotal factors in elucidating motivation within the broader scope of sport and exercise—namely, motives and achievement goals—have been significantly neglected within this particular research domain. Investigating the interplay between these factors is considered crucial for advancing our comprehension of motivation in the context of sport and exercise facilitated by SFPs. By exploring these relationships, we can gain deeper insights into how individuals' motives and goals influence their engagement with SFPs and, subsequently, their participation in physical activity. Motives serve as the driving forces behind engagement in specific areas of behavior. In the framework of self-determination theory, motives are categorized into four main types: intrinsic, extrinsic, competence, and social motives. Intrinsic motives stem from the innate desire for enjoyment, pursuit of personal interests, and stimulation. Extrinsic motives, on the other hand, are grounded in the aspiration to acquire outcomes external to the behavior, such as rewards or social validation. Competence motives revolve around the longing for challenge and the opportunity to enhance one's skills. Lastly, social motives are rooted in the yearning for connection and a sense of belonging within social networks. This categorization offers a comprehensive understanding of the diverse psychological factors that drive individuals' engagement in various

behaviors, including participation in sport and exercise activities facilitated by SFPs. In exploring motives for utilizing SFPs, research indicates that runners' drive for achievement, encompassing elements like competition and personal goal attainment, positively correlates with the adoption of SFP self-regulation features, notably progress evaluation tools. Furthermore, intrinsic enjoyment and competence-based exercise motives are linked to the utilization of SFP data-management functionalities, allowing users to track and analyze their exercise progress effectively. Additionally, findings suggest that social exercise motives play a significant role in determining engagement with SFP features, particularly exercise control functionalities such as rewards and reminders. Moreover, social motives are associated with increased utilization of social interaction features within SFPs, including activities like data sharing, encouragement, competition, and coaching. This underscores the importance of communal experiences and social connectivity in motivating individuals to engage with SFPs and adhere to their fitness routines. Furthermore, it highlights the role of interpersonal comparisons in evaluating competence, wherein individuals derive a sense of achievement from outperforming others and establishing superiority within the digital fitness community. Although extensive research has explored the revolutionary effects of social fitness platforms (SFPs) on quantifying and disseminating individual digital accomplishments within the domain of sport and exercise, a significant void persists in comprehending the motivational ramifications linked to their adoption. This paper endeavors to bridge this gap by directing attention towards two fundamental precursors: motives and achievement goals. These elements have traditionally elucidated the motivational landscape within broader sporting contexts, yet their application within the realm of SFPs remains largely unexplored. By investigating these antecedents, this study seeks to shed light on the motivational dynamics underpinning engagement with SFPs, thereby advancing our understanding of motivation in the digital fitness era. When viewed through the framework of self-determination theory, motives provide important insight into the underlying assumptions that underlie people's actions. These motivations fall into four different categories: social, competence, extrinsic, and intrinsic motivations. The desire for enjoyment, curiosity, and stimulation that are inherent to the activity itself drives intrinsic motives. On the other hand, extrinsic motivations are unrelated to the intrinsic value of the behavior and are driven by outside benefits or social recognition. While social motives stem from people's basic need for social interaction and a sense of belonging, competence motives are driven by the desire for challenges and the development of skills. This categorization offers a thorough framework for understanding the range of motivational elements driving people to engage in different behaviors. Recent research has illuminated the connection between runners' drive for achievement and the self-regulation functionalities provided by SFPs. Notably, there is a positive correlation between motives such as competition and personal goal attainment, and the utilization of self-regulation features like progress evaluation within these platforms. This underscores the intricate motivational mechanisms shaping engagement within the digital fitness realm. Moreover, studies have revealed that intrinsic enjoyment and competence-related exercise motives play a pivotal role in determining the adoption of SFP data-management features. These features empower users to effectively gather and scrutinize their exercise progress, thereby enhancing their overall experience with the platform. The study has contributed significantly to the understanding of motivational factors in SFP adoption. Their findings not only highlight the association between achievement motives and self-regulation features but also emphasize the relevance of intrinsic enjoyment and competence motives in driving engagement with data-management features. This suggests that individuals are not only seeking quantifiable achievements but are also motivated by the inherent enjoyment of the activity and the desire for skill development. Moreover, the study extends its focus to social exercise motives, revealing their predictive power in determining the use of exercise control features and social interaction features within SFPs. These features encompass rewards, reminders, data sharing, encouragement, competition, and coaching. The significance of social motives in shaping user engagement with these aspects of SFPs underscores the communal aspect of contemporary fitness experiences. The multifaceted nature of motives and achievement goals in the context of SFPs adds depth to our understanding of the evolving landscape of sport and exercise motivation. By incorporating these psychological dimensions into the discourse surrounding digital fitness platforms, we can better comprehend the intricate interplay between individual motivations and the functionalities offered by SFPs. As technology continues to permeate the realm of physical activity, ongoing research in this area will be crucial for informing the design of future SFPs and tailoring interventions to enhance the motivational aspects of sport and exercise in the digital age.

1.1. Introduction to the Industry

The fitness application market has transformed how people approach their health and fitness goals by leveraging technology and the widespread availability of smartphones. Fitness applications, which are these revolutionary tools, have evolved into essential resources for a wide range of users who are looking for specialized, practical, and effective ways to improve their physical health. A rise of advanced technology and the widespread use of smartphones have combined to create a world in which fitness applications act as virtual assistants, changing the way that people talk about their journeys toward health and fitness. These apps, which frequently have complex features and user-friendly interfaces, have gone beyond the traditional bounds of fitness management and are providing users with an extensive toolkit to manage and enhance their own wellness. Fitness applications customized features, which address each user's particular requirements and objectives, mark an evolutionary shift. With the help of artificial intelligence algorithms, users can create individualized workout schedules and measure many health variables in real-time. These apps enable users to personalize their fitness routines and take control of their health. The widespread availability of smartphones has bestowed upon fitness applications an unprecedented degree of usability. Whether at home or in the gym, users may easily incorporate their workouts into their everyday lives. This accessibility at any time and place fits in with the modern lifestyle by removing the limitations of conventional exercise routines and enabling a more regular and long-lasting approach to fitness. fitness applications have developed into broad platforms that assist users in reaching their health objectives, going beyond simple tracking tools. Beyond workout schedules, the features include sleep tracking, nutrition tracking, and even mental health components. In order to make well-informed decisions about their general health, users can access a variety of information, track their progress, and get actionable insights. These applications act as motivational trainers as well as databases of information when it comes to achieving health goals. Many fitness apps use community features, motivational components, and real-time feedback to encourage accountability, inspiration, and solidarity among users. The solitary character of traditional exercise regimes is transformed into a socially enriched experience for users with the ability to participate in virtual challenges, share achievements, and interact with a global community of like-minded individuals.

Key Dynamics of the Fitness Application Industry:

- **Digital Workouts and Training Programs:** Fitness apps have transcended traditional workout routines by offering a diverse array of digital exercises. From home-based workouts to guided gym sessions, these apps utilize high-quality video demonstrations, step-by-step instructions, and real-time feedback, creating an immersive and educational fitness experience.
- **Personalized Fitness Plans:** Leveraging the power of artificial intelligence and machine learning, fitness applications craft tailored workout plans based on individual fitness levels, goals, and preferences. This personalized approach not only enhances user engagement but also fosters a sense of ownership, significantly increasing the likelihood of sustained commitment to fitness regimens.
- **Nutrition Tracking and Meal Planning:** Beyond the gym, fitness apps have expanded their scope to include comprehensive nutrition tracking and meal planning features. Users can effortlessly monitor their dietary habits, receive nutritional insights, and access meal plans, fostering a holistic approach to health and fitness.
- **Wearable Device Integration:** Activity apps are now known for their seamless integration with wearable technology, like smartwatches and activity trackers. Users may obtain real-time data on their heart rate, sleep habits, and physical activity thanks to this synergy, which gives them a thorough picture of their overall progress and well-being.
- **Community and Social Features:** Several fitness apps provide social elements that let users interact with a worldwide network of people who share their interests because they understand the value of community. Because of the accountability, inspiration, and encouraging atmosphere this sense of community creates, fitness becomes a shared and inspiring endeavor.
- **Gamification Elements:** Fitness apps frequently use gamification aspects to add excitement and incentive. The fitness experience is enhanced with challenges, prizes, and virtual competitions, which turn boring workouts into exciting and competitive activities.

- **Mindfulness and Mental Well-Being:** Aware of the close relationship between mental and physical well-being, certain fitness applications now include stress reduction, mindfulness, and meditation tools. The goal of this holistic approach is to promote general well-being by treating the mind and body together.
- **Subscription Models and Premium Content:** In the fitness app market, a freemium business model is frequently used in monetization techniques. While the most basic services are available for free, subscription plans are required to access premium material, which includes advanced workouts, individualized coaching, and special features. This business plan gives consumers more value while guaranteeing a steady stream of income.

1.2. Objectives:

- Analyze how Social Fitness Applications affect users' levels of physical activity.
- Assessing how users feel and behave in relation to fitness following their use of social fitness applications.
- To assess how Social Fitness Applications are used.

II. LITERATURE REVIEW

The number of sports-related technologies and apps on the market has increased due to ongoing technological advancements and the ongoing digital revolution, especially during the COVID-19 pandemic. This study aims to update a thorough assessment of the literature on the desire to use and embrace applications connected to physical activity and fitness that has been published since 2020 (A. Salvador, 2023). Physical activity and sports have long been linked to health benefits. It is therefore crucial to comprehend why individuals engage in sports and exercise over an extended period of time. The considerable increase in exercise with the use of digital fitness tracking programs and social fitness platforms (SFP; an online fitness community where individuals may communicate their recorded activities to a network of other users) has, however, steadily put this goal in jeopardy during the past ten years. Despite this trend, there is a dearth of research on the motivational implications of using an SFP for exercise. Specifically, motives and achievement goals, two well-established antecedents for explaining sport and exercise motivation in the "broad domain of sport," have been largely ignored in this line of inquiry (V. PEPIJN, 2023). Artificial intelligence (AI) has also recently been introduced as a new tool for analyzing and forecasting consumer behavior in the sport industry. Based on the technology adoption model (D. Chanwook & K. Minjung, 2022), the purpose of this study was to examine the relationships between the behavioral intention to use AI services, the perceived usefulness, perceived ease of use, the importance of exercise, attitudes toward use, and the perceived usefulness. Subjective wellbeing among mobile application users has drawn attention from researchers recently because of its widespread role in improving daily life, especially during the recent coronavirus pandemic (COVID-19). A systematic review of the literature on consumers' intentions to use mobile applications (Apps) related to fitness and physical activity is the goal of this study. While previous research has mostly concentrated on users' intention to adopt mobile apps for wellness and fitness (MAWF) purposes, less attention has been paid to the post-adoption impact of these apps on users' subjective wellbeing (M. Aboelmaged & A. Imran, 2021). The evidence from quantitative studies in the area of assessing consumer behavior toward sport applications is critically evaluated in this systematic review. The current research attempts to understand the intention behind gym users' and non-gym users' use of sports and fitness wearable devices. A total of 13 studies are analyzed that propose models for evaluating the intentions to use fitness applications by sport consumers (A. Salvador & V. Irena, The Intention to Use Fitness and Physical Activity Apps: A Systematic Review, 2021). The research's findings will assist marketers in coordinating their marketing campaign around the new "gym-user/non-gym user" segmentation variable. The study also emphasizes how crucial TR is to India's usage of wearable fitness and sports equipment (R. Prashant & K. Aashish, 2021). The use of wearable technology and mobile applications, or "apps," in sports and physical exercise has significantly altered how sports are conducted. Experts still don't know much about the causes behind travelers' usage of sports applications, though. This study, which used the theory of reasoned action as a framework, looked at norm-based and attitude-based variables that affect users' intention to stick with sport apps as indicators of their use throughout travels. A survey was created using the body of current research to gather pertinent information from sports facilities and centers. The model was tested using the replies of 362 sport practitioners and sport app users that made up the final sample. The findings show that norm-based elements, such as social influences,

and attitude-based factors, such as performance expectancy, effort expectancy, perceived satisfaction, perceived enjoyment, and perceived gamification, all influence users' intention to stick with Smart Internet of Things sport apps. The respondents' intention to keep using these applications also influences the sports apps they use when traveling. There is discussion of the theoretical and managerial ramifications for the tourism sector (J. Perez, Robles, & PA. Urbistondo, 2021). This study explores the possibilities of digital sports solutions while taking preferences for team sports over individual sports and gender into account. Younger academics and professionals are the main target audience. The results show that sports participation was greatly decreased by the COVID-19 pandemic, especially for those who favor team sports (Ruth.J, Willwacher.S, &Korn.O, 2022).

III. METHODOLOGY

- **Primary Research:** Primary research, also known as original research or empirical research, is a type of research conducted directly by the researcher to gather new and first hand data from original sources. It involves the collection of data that does not already exist in any published form. The advantages of primary research include the ability to collect specific and relevant data tailored to the research objectives, the control over the data collection process, and the opportunity to address unique research questions. However, primary research can be time consuming and may require more resources compared to secondary research, which utilizes existing data and published sources.
- **Secondary Research:** Secondary research, also known as desk research, is a type of research that involves the use of existing data, information, and sources that have been previously collected and published by others. In secondary research, researchers do not directly collect new data; instead, they analyze and interpret data that has already been made available by other researchers, organizations, government agencies, or public sources.
- **Research done for this report:** Both primary and secondary research methods were employed in the preparation of this report. Primary research involved gathering data directly from users of social fitness platforms through the distribution of Google Forms and conducting focus group discussions. This allowed for the collection of firsthand insights and experiences from individuals actively engaging with these platforms. In addition to primary research, secondary research was conducted to enhance the depth and breadth of the report. A variety of public databases and reputable websites, including MyLoft and Google Scholar, were utilized to access a wealth of published works, scholarly articles, and reports. This secondary research provided valuable context, background information, and additional perspectives on the topic, enriching the overall analysis and findings presented in the report..
- **Population and Sample:** 240 Fitness Applications Users/Non-Users
- **Data Collection Method:** Questionnaire development

3.1. Scope and Limitations

As a final year student specializing in Business Analytics, I want to express my gratitude for the whole-hearted cooperation extended to me by users of fitness applications during my research project. However, I encountered several challenges that can be classified as limitations of the study:

- **Time Constraints:** Time emerged as a significant obstacle during the research process. The limited timeframe imposed constraints on the scope and depth of the report, resulting in the report being condensed and some aspects potentially not receiving adequate attention.
- **Data Insufficiency:** Collecting comprehensive data proved challenging due to privacy concerns among users of fitness applications. This limitation led to some assumptions being made, and certain observations may not accurately represent the true scenario.
- **Lack of Records:** The lack of available records, facts, and figures within the fitness application industry further restricted the scope of data collection and interview opportunities. This limitation constrained the thoroughness of the study.

- **Data Redundancy:** This survey may contain redundant or duplicated information due to several factors, such as similar responses from multiple users or the inclusion of overlapping data points across different variables. Redundancy can arise from various sources and may impact the accuracy and efficiency of data analysis.

IV. ANALYSIS & FINDINGS/ OBSERVATIONS

Social Fitness Application:

A social fitness app is a mobile application crafted to assist users in monitoring, tracking, and enhancing their fitness levels. It seamlessly integrates social features to boost motivation and accountability. These apps typically offer tools for tracking workouts, setting goals, monitoring nutrition, participating in challenges, engaging in community forums, and connecting with friends or other users for support and encouragement. Popular examples of social fitness apps include Strava, Fitbit, Noise Fit, Google Fit, Cure fit, Healthify Me, Apple Fitness+. Users can share their progress, achievements, and workout routines with friends, join various groups or challenges, and even engage in friendly competition to maintain motivation and dedication to their fitness journey. The communal aspect of these apps fosters a sense of belonging and support, which can greatly benefit individuals striving to maintain consistency in their fitness endeavors.

Types of Physical Health Applications

- **Workout Tracking Apps:** These applications focus on monitoring physical activities, enabling users to record exercises like running, cycling, weightlifting, yoga, and a variety of others. They commonly offer functionalities for establishing fitness objectives, tracking advancement, and evaluating performance metrics. Additionally, they may include features for analyzing workout intensity, duration, calorie expenditure, and even provide personalized recommendations for enhancing workout effectiveness and achieving fitness goals. These apps serve as comprehensive tools for individuals seeking to maintain a structured and informed approach to their fitness routines, regardless of their preferred activities.
- **Nutrition and Diet Apps:** These applications assist users in managing their dietary habits by enabling them to monitor their food consumption, track calorie intake, and keep an eye on nutritional values. They often come equipped with features for planning meals, recommending recipes, and simplifying the process of logging food items by incorporating barcode scanning capabilities. Additionally, they may offer insights into macronutrient intake, micronutrient balance, and dietary trends over time. Some advanced apps may even provide personalized meal plans based on individual dietary preferences, health goals, and nutritional requirements. Overall, these tools empower users to make informed decisions about their eating habits and maintain a balanced diet for improved health and wellness.
- **Community and Social Networking Apps:** These applications place a strong emphasis on fostering a sense of community among users who have common fitness objectives and interests. In these platforms individuals can connect with like-minded peers, exchange progress updates, engage in friendly challenges, and provide mutual support and encouragement. Users have the opportunity to form connections, share achievements, and offer motivational messages to one another, creating a supportive environment that fuels motivation and accountability. Additionally, these apps often facilitate group discussions, organize virtual events, and offer features such as group challenges or leaderboards to promote camaraderie and friendly competition. By prioritizing community-building, these apps aim to enhance the overall fitness experience by providing users with a network of support and inspiration to help them stay committed to their health and wellness goals.
- **Activity Tracking Apps:** These applications are geared towards keeping track on users' everyday activity levels, encompassing metrics like steps walked, distance covered, and calories expended throughout the day. They achieve this by leveraging either the builtin sensors of smartphones or by syncing with wearable fitness trackers to collect relevant data. In addition to basic activity tracking, these apps often offer advanced features such as setting activity goals, providing real-time feedback on progress, and offering insights into overall activity patterns and trends over time. By encouraging users to stay active and aware of their daily movement, these apps play a crucial role in promoting a more active lifestyle and fostering a greater sense of awareness regarding personal fitness habits.

- **Gaming and Gamified Apps:** These applications integrate elements of gamification to add an element of fun and excitement to fitness activities, aiming to make them more engaging and enjoyable. Users are encouraged to participate actively by earning points, unlocking achievements, and competing with friends or other users in various challenges and virtual races. These gamified features may include completing daily tasks, reaching activity milestones, or adhering to workout routines. Additionally, users may have the opportunity to join virtual communities, form teams, and collaborate with others to achieve common goals or conquer challenges together. By infusing fitness with game-like elements, these apps seek to motivate users to stay consistent with their exercise routines and maintain a healthy lifestyle while also fostering a sense of camaraderie and friendly competition within the fitness community.
- **Health Monitoring Apps:** These applications are primarily designed to track various health metrics, including heart rate, blood pressure, sleep patterns, and stress levels, offering users valuable insights into their overall well-being. By continuously monitoring these metrics, users can gain a deeper understanding of their health status and identify areas for improvement. These apps may also offer personalized recommendations and actionable insights based on the data collected, suggesting strategies to enhance overall health and well-being. For instance, they might provide tips for improving sleep quality, managing stress levels, or maintaining a healthy heart rate. Additionally, some apps may integrate features such as meditation exercises, breathing techniques, or relaxation techniques to help users better manage stress and improve their mental well-being. Overall, these applications serve as comprehensive tools for users to take a proactive approach to their health by tracking key metrics and implementing positive lifestyle changes based on personalized recommendations.

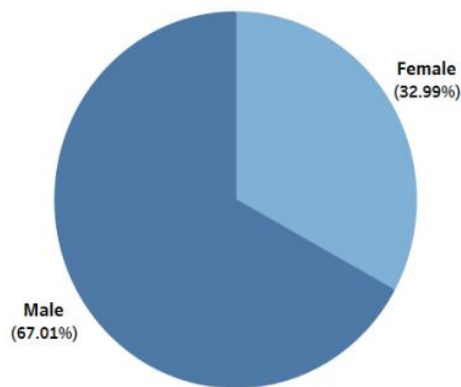
Impact of Social Fitness Applications on physical activity of the user

- **Physical Health:** Social fitness applications motivate users to participate in consistent physical activity, yielding a multitude of health benefits. Regular engagement in exercise facilitated by these apps contributes to enhanced cardiovascular health, bolstered muscular strength and endurance, effective weight management, and a decreased susceptibility to chronic ailments like obesity, diabetes, and heart disease. By encouraging users to lead more active lifestyles, these apps serve as powerful tools in promoting overall well-being and reducing the risk factors associated with sedentary living.
- **Mental Well-being:** Regular exercise facilitated by social fitness apps can have positive effects on mental health, including reduced stress, anxiety, and depression. The supportive community and motivational features of these apps also contribute to users' overall sense of well-being and happiness.
- **Increased Motivation:** Social fitness apps create an inclusive environment for users to forge connections with like-minded individuals, enabling them to share their fitness journey, celebrate achievements, and engage in friendly competitions. This sense of community fosters a supportive network where users feel encouraged and motivated to stay active. By witnessing the progress of others and receiving positive reinforcement from peers, individuals are inspired to increase their physical activity levels and strive towards their fitness goals with renewed enthusiasm.
- **Goal Setting and Tracking:** Social fitness applications enable users to establish customized fitness objectives and monitor their advancement over time. This functionality aids individuals in maintaining focus and dedication to reaching their goals, ultimately resulting in heightened levels of physical activity. By setting specific targets tailored to their needs and preferences, users are empowered to take ownership of their fitness journey and remain accountable for their progress. Regularly tracking their accomplishments not only provides users with a clear overview of their achievements but also serves as a source of motivation, encouraging them to persist in their efforts and strive for continuous improvement.
- **Education and Awareness:** These applications are primarily designed to track various health metrics, including heart rate, blood pressure, sleep patterns, and stress levels, offering users valuable insights into their overall well-being. By continuously monitoring these metrics, users can gain a deeper understanding of their health status and identify areas for improvement. These apps may also offer personalized recommendations and actionable insights based on the data collected, suggesting strategies to enhance overall health and well-being.

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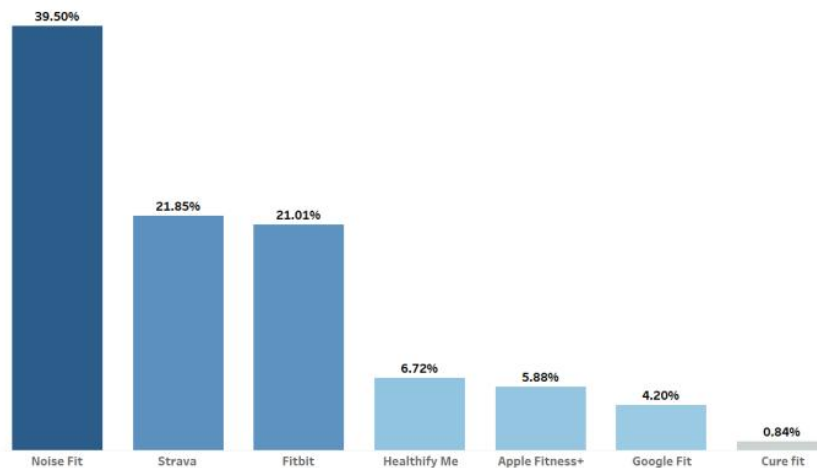
- Inclusivity and Accessibility:** Social fitness apps champion inclusivity by providing a wide array of workouts and activities tailored to accommodate various interests, fitness levels, and abilities. This comprehensive approach ensures that users from diverse backgrounds and with different physical capabilities can access options that resonate with their preferences and requirements. By offering a broad spectrum of choices, these apps foster a sense of belonging and acceptance, creating an environment where individuals feel valued and encouraged to engage in physical activity.

Gender



Social fitness applications are more commonly used by male respondents, with approximately 67.01% of males utilizing these apps compared to 32.99% of females. This gender discrepancy suggests a higher adoption rate among men for social fitness apps. It indicates that a larger proportion of males are leveraging these platforms to track, monitor, and improve their fitness levels compared to females.

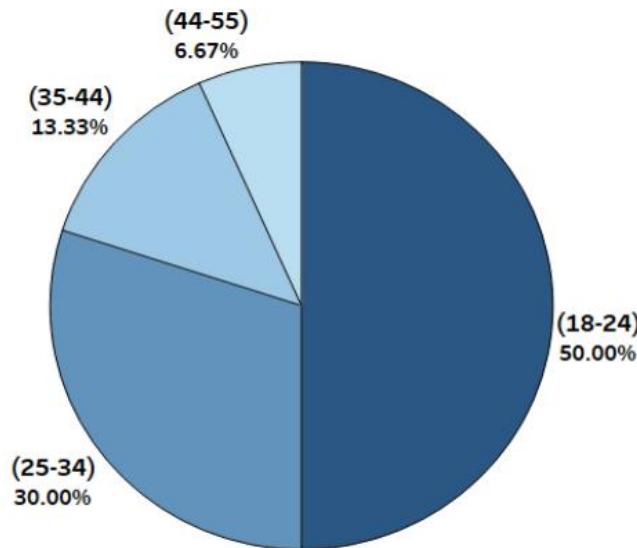
Application Users:



According to the statistics from all respondents, Noise-Fit emerges as the most commonly used app for fitness, with Strava and Fitbit following closely behind. On the other hand, Cure Fit is less frequently used for fitness, with Google

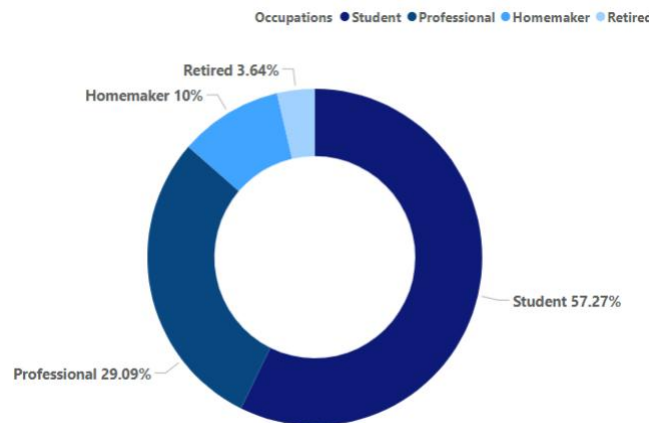
Fit and Apple Fitness Plus trailing behind in terms of usage. This data indicates that among the surveyed individuals, Noise-Fit, Strava, and Fitbit are the top choices for fitness tracking and improvement, while Cure Fit, Google Fit, and Apple Fitness Plus are less popular options. This insight can be valuable for both users looking for the most widely used fitness apps and developers aiming to understand the preferences of their target audience.

Age Group:



Based on the statistics gathered from all respondents, individuals aged 18 to 24 exhibit a higher frequency of usage of social fitness applications, followed closely by those aged 25 to 34 and 35 to 44. Conversely, the utilization of social fitness applications among individuals aged 45 to 55 is notably lower. This data suggests a clear trend wherein younger age groups demonstrate greater engagement with social fitness apps compared to their older counterparts.

Occupation:

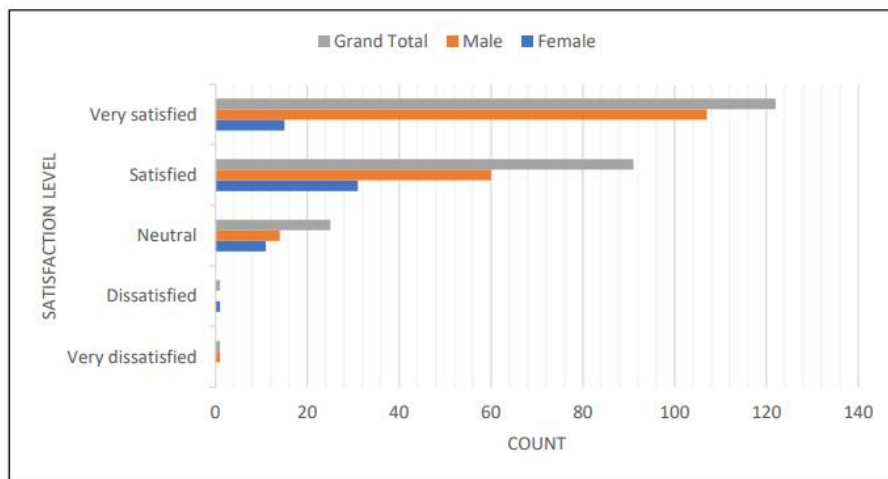


According to the data collected from all participants, it's evident that students are the most frequent users of social fitness applications, comprising 57.27% of the total respondents. Following closely behind are working professionals, representing 29.09% of users, while homemakers account for 10%. In contrast, the usage among retired individuals is notably lower at 3.64%. These findings indicate a distinct trend where younger age groups exhibit higher levels of engagement with social fitness apps compared to older demographics.

Crosstab of satisfaction level of users and gender:

Crosstab

			Gender		Total
			Male	Female	
Satisfied_with_the_fitness_applications	Very Dissatisfied	Count	1	0	1
		% within Gender	.5%	.0%	.4%
		% of Total	.4%	.0%	.4%
	Dissatisfied	Count	0	1	1
		% within Gender	.0%	1.7%	.4%
		% of Total	.0%	.4%	.4%
	Neutral	Count	14	11	25
		% within Gender	7.7%	19.0%	10.4%
		% of Total	5.8%	4.6%	10.4%
	Satisfied	Count	60	31	91
		% within Gender	33.0%	53.4%	37.9%
		% of Total	25.0%	12.9%	37.9%
	Very satisfied	Count	107	15	122
		% within Gender	58.8%	25.9%	50.8%
		% of Total	44.6%	6.2%	50.8%
Total		Count	182	58	240
		% within Gender	100.0%	100.0%	100.0%
		% of Total	75.8%	24.2%	100.0%



Among all respondents, there's a notable discrepancy in satisfaction levels with fitness applications between genders. Approximately 69.6% of male respondents reported being satisfied, contrasted with only 19.1% of female respondents expressing satisfaction. This significant difference underscores a potential gender-related trend in the perception of fitness apps. Conversely, approximately 8% of respondents overall indicated dissatisfaction with their fitness applications, indicating a relatively low dissatisfaction rate across the sampled population. This suggests that while the majority of users are content with their fitness apps, there remains room for improvement in addressing the needs and preferences of both male and female users to enhance overall satisfaction levels.

Chi-Square Tests

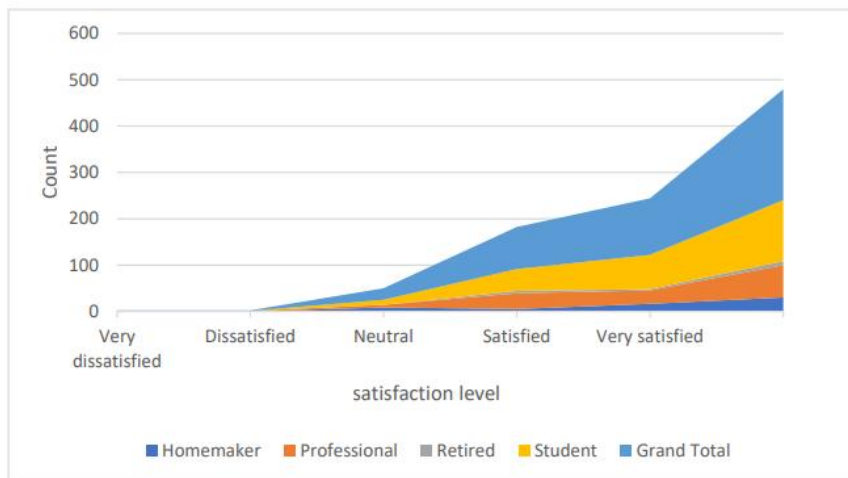
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	23.071 ^a	4	.000
Likelihood Ratio	23.438	4	.000
Linear-by-Linear Association	17.835	1	.000
N of Valid Cases	240		

As P value is less than 0.05 (i.e. $P=0.000$), hence it indicates a highly significant association between the satisfaction level of users with fitness applications and their gender. This implies that the difference in satisfaction levels between genders is not likely due to random chance but rather suggests a meaningful distinction in the experiences of male and female users with fitness applications.

Crosstab of satisfaction level of users and occupation

Crosstab

			Occupation				Total
			Student	Professional	Homemaker	Retired	
Satisfied with the fitness_applications	Very Dissatisfied	Count	0	0	1	0	1
		% within Occupation	0%	0%	3.3%	0%	.4%
		% of Total	0%	0%	4%	0%	.4%
	Dissatisfied	Count	0	1	0	0	1
		% within Occupation	0%	1.4%	0%	0%	.4%
		% of Total	0%	4%	0%	0%	.4%
	Neutral	Count	11	6	8	0	25
		% within Occupation	8.3%	8.6%	26.7%	0%	10.4%
		% of Total	4.6%	2.5%	3.3%	0%	10.4%
	Satisfied	Count	47	34	5	5	91
		% within Occupation	35.6%	48.6%	16.7%	62.5%	37.9%
		% of Total	19.6%	14.2%	2.1%	2.1%	37.9%
	Very satisfied	Count	74	29	16	3	122
		% within Occupation	56.1%	41.4%	53.3%	37.5%	50.8%
		% of Total	30.8%	12.1%	6.7%	1.2%	50.8%
Total	Count	132	70	30	8	240	
	% within Occupation	100.0%	100.0%	100.0%	100.0%	100.0%	
	% of Total	55.0%	29.2%	12.5%	3.3%	100.0%	



Among all respondents, there is a significant variation in satisfaction levels with fitness applications across different occupational groups. Notably, students represent the highest percentage of satisfied users at approximately 50.4%, followed by working professionals at 26.6%. Homemakers and retired individuals report lower satisfaction rates, with 8.8% and 3.3% respectively. This disparity highlights how satisfaction with fitness applications may be influenced by one's occupation, suggesting that individuals in certain occupational categories may have distinct needs or expectations from these apps. Among all respondents, there is a dissatisfaction levels with fitness applications among different occupational groups, particularly notable among homemakers and retired individuals, who both report a dissatisfaction rate of approximately 8%. This disparity suggests that individuals in these specific occupational categories may encounter challenges or have unique needs that are not adequately addressed by current fitness applications.

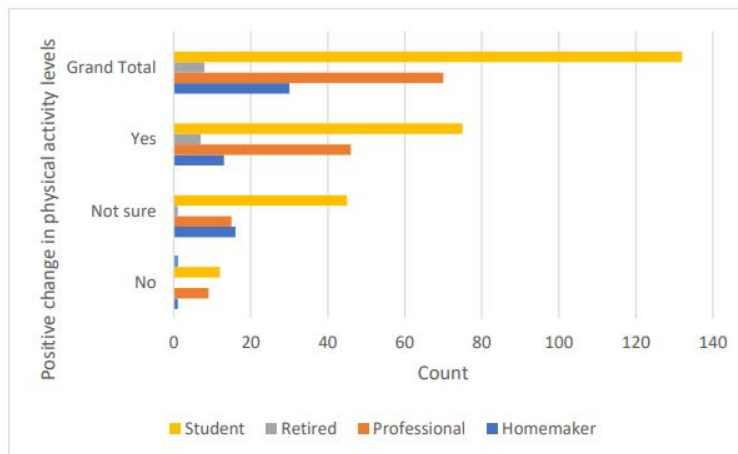
Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	28.019 ^a	12	.005
Likelihood Ratio	24.454	12	.018
Linear-by-Linear Association	4.254	1	.039
N of Valid Cases	240		

As P value is less than 0.05 (i.e. P=0.005), the results indicate a highly significant association between users' satisfaction levels with fitness applications and their occupation. This suggests that the variation in satisfaction levels among different occupational groups is not merely coincidental but rather reflects a meaningful disparity. In other words, individuals' occupations appear to influence their experiences and perceptions regarding the effectiveness and utility of fitness applications.

Crosstab of positive changes among users after using fitness apps and their occupation:

			Occupation				Total
			Student	Professional	Homemaker	Retired	
Positive_changes_in_physical_activity_levels	No	Count	12	9	1	0	22
		% within Occupation	9.1%	12.9%	3.3%	.0%	9.2%
		% of Total	5.0%	3.8%	.4%	.0%	9.2%
	Yes	Count	75	46	13	7	141
		% within Occupation	56.8%	65.7%	43.3%	87.5%	58.8%
		% of Total	31.2%	19.2%	5.4%	2.9%	58.8%
	Not sure	Count	45	15	16	1	77
		% within Occupation	34.1%	21.4%	53.3%	12.5%	32.1%
		% of Total	18.8%	6.2%	6.7%	.4%	32.1%
Total	Count	132	70	30	8	240	
	% within Occupation	100.0%	100.0%	100.0%	100.0%	100.0%	
	% of Total	55.0%	29.2%	12.5%	3.3%	100.0%	



Among all respondents, 31.2% of students and 19.2% of working professionals report experiencing a positive shift in their activity levels. Following these groups, homemakers represent 5.4% and retired individuals comprise 2.9% of respondents who have noticed a positive change. This variation highlights how different occupational demographics exhibit varying levels of engagement in physical activity, with students and working professionals demonstrating relatively higher rates of improvement compared to homemakers and retired individuals.

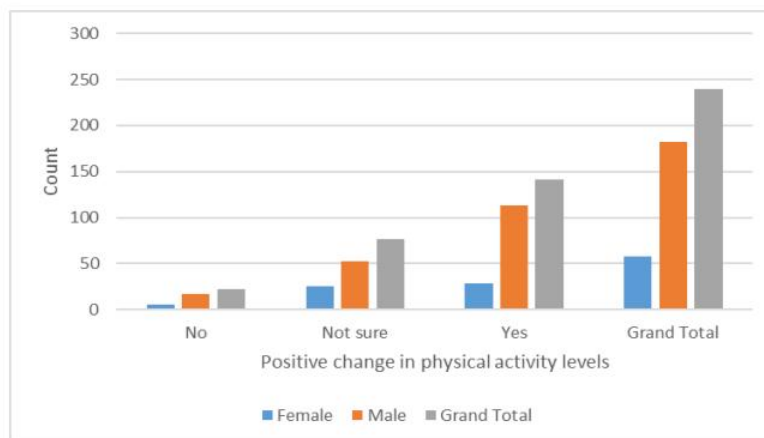
Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	13.710 ^a	6	.033
Likelihood Ratio	14.554	6	.024
Linear-by-Linear Association	.233	1	.629
N of Valid Cases	240		

As P value is less than 0.05 (i.e. P=0.033), the findings suggest a highly significant association between the positive changes observed in users' physical activity levels following the use of fitness applications and their respective occupations. This implies that the differences in the extent of improvement in physical activity levels among various occupational groups are not merely random occurrences but rather indicative of meaningful distinctions. In essence, individuals' occupations appear to play a significant role in influencing the effectiveness of fitness applications in promoting physical activity.

Crosstab of positive changes among users after using fitness apps and their gender:

		Gender		Total	
		Male	Female		
Positive_changes_in_physical_activity_levels	No	Count	17	5	22
		% within Gender	9.3%	8.6%	9.2%
		% of Total	7.1%	2.1%	9.2%
	Yes	Count	113	28	141
		% within Gender	62.1%	48.3%	58.8%
		% of Total	47.1%	11.7%	58.8%
	Not sure	Count	52	25	77
		% within Gender	28.6%	43.1%	32.1%
		% of Total	21.7%	10.4%	32.1%
Total	Count	182	58	240	
	% within Gender	100.0%	100.0%	100.0%	
	% of Total	75.8%	24.2%	100.0%	



Among all respondents, there is a notable discrepancy in the reported changes in activity levels between males and females. A substantial proportion of males, accounting for 47.1%, indicated experiencing a positive shift in their activity levels, whereas only 11.7% of females reported the same. Conversely, a small percentage of males, at 7.1%, and an even smaller percentage of females, at 2.1%, reported experiencing a negative shift in activity levels. Additionally, while 21.7% of males didn't experience any change in their activity levels, the percentage was slightly lower for females, at 10.4%. These findings suggest a gender disparity in the perception and experience of changes in physical activity levels, with males more likely to report positive shifts and females exhibiting a lower prevalence of both positive and negative changes.

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	4.348 ^a	2	.114
Likelihood Ratio	4.225	2	.121
Linear-by-Linear Association	2.830	1	.092
N of Valid Cases	240		

As P value is greater than 0.05 (i.e. P=0.114), the results indicate that there is no statistically significant association between the positive changes observed in users' physical activity levels after using fitness applications and their gender. This suggests that any differences in the extent of improvement in physical activity levels between genders are likely due to random variation rather than meaningful distinctions. In other words, gender does not appear to be a determining factor in the effectiveness of fitness applications in promoting positive changes in physical activity levels.

Factor Analysis

Rotated Component Matrix:

	Component				
	1	2	3	4	5
Fitness_app_would_be_easy_to_use	.905				
Using_Fitness_app_would_improve_performance_in_exercise	.704	.440			
People_use_Fitness_app_for_managing_health	.699		.508		
Easy_to_manage_Fitness_app_service	.685		.491		
Fitness_App_provides_Accessibility		.773			
Fitness_App_provides_convenience		.732			
Fitness_App_provides_Goal_Tracking		.680			
Easy_to_become_skillful_at_using_Fitness_app			.723		
Using_Fitness_app_for_exercise_is_something_people_would_do			.721		
Using_Fitness_app_for_Implementing_exercise_seems_wise_idea			.652		
People_get_upset_when_they_miss_exercise				.798	
Exercise_is_an_important_part_of_my_life				.726	
Exercise_is_their_top_priority		.412		.659	
People_feel_stressed_when_they_dont_find_time_for_exercise				.522	
Fitness_App_provides_Data_Insights					.864
Fitness_App_provides_Variety_of_Workouts					.780

Component 1: Easy of using fitness application:

Fitness_app_would_be_easy_to_use	0.905
Using_Fitness_app_would_improve_performance_in_exercise	0.704
People_use_Fitness_app_for_managing_health	0.699
Easy_to_manage_Fitness_app_service	0.685

Component 2: Skilful Exercise Integration:

Fitness_App_provides_Accessibility	0.7730992
Fitness_App_provides_convenience	0.7316273
Fitness_App_provides_Goal_Tracking	0.6800538

Component 3: Exercise Commitment:

People_get_upset_when_they_miss_exercise	0.7977
Exercise_is_an_important_part_of_my_life	0.7264
Exercise_is_their_top_priority	0.6586

The rotated component matrix suggests that the variables can be grouped into four main components representing different aspects of users' attitudes, behaviors, and perceptions related to the fitness app: ease of use, exercise-related benefits and attitudes, exercise commitment and emotional responses, and additional features or benefits.

VI. CONCLUSION

The study aimed to investigate the impact, attitudes, behaviors, and usage patterns associated with social fitness applications. Results revealed a significant positive impact of these applications on users' physical activity levels, with users reporting noticeable improvements in their exercise habits. Additionally, findings indicated that users generally exhibit positive attitudes and behaviors towards exercise after utilizing social fitness applications, demonstrating a strong commitment to physical activity. Furthermore, the evaluation of usage patterns highlighted that users find these applications easy to use and believe they can enhance exercise performance and productivity. Users also expressed a willingness to engage with these apps for managing their health and implementing exercise routines. Overall, the study suggests that social fitness applications play a crucial role in promoting physical activity, shaping positive attitudes towards exercise, and influencing usage patterns among users, thereby contributing to overall health and well-being.

6.1. Recommendations:

- Collaborate with fitness influencers and experts to endorse the use of these apps and share success stories.
- Engage in community outreach initiatives to introduce social fitness apps to diverse demographics and populations.
- Develop comprehensive tutorials and guides within the app to educate users on its features and functionalities.
- Offer online webinars or workshops to teach users how to set realistic fitness goals and track their progress effectively.
- Conduct regular user surveys and feedback sessions to identify areas for improvement and new feature development.
- Explore advanced technologies such as AI and machine learning to personalize workout recommendations and tailor experiences to individual users.
- Implement social features within the app, such as forums, chat rooms, and virtual challenges, to facilitate peer interaction and support.
- Recognize and celebrate user achievements, such as reaching milestones or completing challenges, to foster a sense of accomplishment and motivation.

- Provide transparent privacy policies and settings within the app to give users control over their data sharing preference.

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