

# Usage of Mobile Health Applications and Fitness Habits among College Students

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*Abstract- The increasing adoption of mobile health and fitness applications has significantly influenced the lifestyle and health behavior of college students. These applications provide features such as activity tracking, calorie monitoring, workout planning, and sleep analysis, enabling users to manage their fitness conveniently. The purpose of this study is to examine the usage patterns, awareness, perceived effectiveness, and privacy concerns associated with mobile health applications among college students. A descriptive research design was adopted, and primary data was collected from 260 respondents through a structured questionnaire using Google Forms. The sample included undergraduate and postgraduate students. The findings indicate that a majority of students are aware of mobile health applications and have used them for tracking physical activities and improving fitness habits. However, the statistical analysis using Chi-square tests reveals that there is no significant relationship between awareness and adoption, usage patterns, perceived effectiveness, and fitness improvements. The study concludes that while mobile health applications are widely recognized and used, their direct impact on improving fitness habits depends on individual motivation, consistency, and engagement. The study suggests that developers should focus on personalization, user engagement, and data privacy to enhance the effectiveness of these applications.*

**Keywords-** Mobile Health Applications, Fitness Habits, College Students, Digital Health, Chi-Square Analysis, Usage Patterns

## I. INTRODUCTION

With the rapid growth of smartphone usage and digital technologies, mobile health applications have emerged as an important tool for promoting health awareness and fitness management. These applications allow users to monitor their physical activity, track calorie intake, manage workout routines, and improve overall well-being.

Among college students, the use of mobile health applications has increased significantly due to easy accessibility and growing awareness about health and fitness. Students today are more inclined toward maintaining an active lifestyle and often rely on digital tools to monitor and improve their fitness habits.

However, despite the widespread availability of these applications, their actual effectiveness in improving health behavior remains uncertain. While many students are aware of and use these apps, it is important to examine whether these applications lead to meaningful improvements in fitness habits.

This study focuses on understanding the relationship between awareness, usage patterns, perceived effectiveness, privacy concerns, and fitness habits among college students. The research aims to analyze whether mobile health applications have a significant impact on students' lifestyle and health behavior.

## II. LITERATURE REVIEW

Existing studies on mobile health applications are primarily based on technology adoption models such as the Technology Acceptance Model (TAM) and UTAUT. These studies suggest that perceived usefulness, ease of use, and convenience are key factors influencing the adoption of digital health technologies.

Research indicates that mobile health applications can improve physical activity levels by providing features such as goal setting, reminders, and progress tracking. Studies also highlight that users are more likely to continue using these applications if they find them engaging and easy to use. Trust and data privacy are also important factors influencing user adoption. Concerns regarding the security of personal health

data may affect users' willingness to use such applications. However, the convenience and accessibility of mobile health apps often outweigh these concerns.

Although previous research has focused on adoption and usage behavior, limited studies have examined the direct relationship between app usage and actual fitness habits among college students. This study attempts to bridge this gap by analyzing both usage patterns and their impact on fitness behavior.

### III. RESEARCH GAP IN PAST STUDIES

Although existing literature has extensively examined the adoption and usage of mobile health applications, several gaps remain in understanding their actual impact on users' fitness behavior, particularly among college students. Most prior studies primarily focus on technology acceptance factors such as perceived usefulness, ease of use, and behavioral intention using models like TAM and UTAUT. While these frameworks explain why users adopt mobile health applications, they provide limited insight into whether such adoption leads to meaningful improvements in fitness habits and lifestyle changes.

Additionally, a significant portion of the literature emphasizes general population samples or specific demographic groups, such as working professionals or patients with health conditions. Comparatively, there is relatively less research focusing specifically on college students, who represent a unique group characterized by irregular routines, academic pressure, and evolving lifestyle habits. Another gap lies in the limited integration of behavioural and statistical analysis. Many studies rely on descriptive analysis or user perceptions without applying statistical tests to validate relationships between variables such as app usage, fitness habits, and perceived effectiveness. This creates a gap in establishing whether observed patterns are statistically significant.

Lastly, there is a lack of research that simultaneously examines multiple dimensions-including awareness, usage patterns, effectiveness, and privacy concerns-within a single study framework. Most studies tend to focus on isolated factors rather than providing a

comprehensive understanding of user behavior. Therefore, the present study attempts to bridge these gaps by focusing on college students and analyzing the relationship between mobile health application usage and fitness habits using statistical methods such as the Chi-Square test. It provides a more integrated perspective by combining behavioral insights with quantitative validation.

### IV. METHODOLOGY

Objective of study:

- To analyze the awareness of mobile health applications among college students
- To examine usage patterns of fitness applications
- To evaluate the impact of mobile health apps on fitness habits
- To assess perceived effectiveness of these applications
- To study the effect of privacy concerns on continued usage

This study adopts a descriptive research design using a quantitative approach. Primary data was collected through a structured questionnaire distributed via Google Forms.

The target population consisted of college students, including undergraduate and postgraduate students. A total of 260 valid responses were collected using convenience sampling.

The questionnaire included multiple-choice and Likert-scale questions covering:

- Demographic profile
- Awareness of mobile health apps
- Usage patterns
- Fitness habits
- Perceived effectiveness
- Privacy concerns

Data analysis was conducted using Microsoft Excel, and statistical tools such as the Chi-Square Test of Independence were applied to test the hypotheses at a 5% level of significance.

V. HYPOTHESIS

- H<sub>1</sub>: Awareness of mobile health applications significantly influences their adoption among students
- H<sub>2</sub>: There is a significant variation in usage patterns of mobile health applications among students
- H<sub>3</sub>: Students using mobile health applications demonstrate better fitness habits compared to non-users
- H<sub>4</sub>: Perceived usefulness of mobile health applications significantly affects fitness improvement
- H<sub>5</sub>: Privacy concerns significantly influence continued usage of mobile health applications

O E (O-E)<sup>2</sup>/E

16 16.80 0.038

8 7.20 0.089

166 165.20 0.003

70 70.80 0.009

Chi-Square Test Result

- Calculated Chi-square value ( $\chi^2$ ): 0.14
- Degrees of Freedom (df): 1
- p-value: 0.05

VI. RESULTS AND DISCUSSION

Hypothesis 1

H<sub>1</sub>: There is a significant relationship between awareness of mobile health applications and their adoption among college students.

To examine the relationship between key variables, the Chi-Square Test of Independence was applied at a 5% level of significance ( $\alpha = 0.05$ ). The test evaluates whether there is a statistically significant association between categorical variables based on observed and expected frequencies.

The variables considered for analysis were:

- Awareness of mobile health applications
- Adoption (Usage of apps)

Observed Frequency Table (O)

	Awareness	
	Used Apps	Not Used
No	16	8
Yes	166	70

Expected frequencies were calculated using:

Chi-Square Calculation Table Showing Observed (O), Expected (E), and  $(O-E)^2/E$  Values

Decision

Since  $\chi^2$  calculated  $<$   $\chi^2$  table (3.84), the hypothesis is not supported.

Interpretation

The findings indicate that awareness of mobile health applications does not significantly influence their adoption. This suggests that while students may be aware of such applications, adoption depends on other factors such as personal interest, motivation, and usability.

Hypothesis 2

H<sub>2</sub>: There is a significant variation in usage patterns of mobile health applications among students.

To test the above hypothesis, the Chi-square test of independence was applied. The variables considered for the analysis were Frequency of app usage and Time spent on applications. The test was conducted at a 5% level of significance ( $\alpha = 0.05$ ).

Chi-square components calculated using  $(O-E)^2/E$  and aggregated using SUM

Chi-Square Test Result

- Calculated Chi-square value ( $\chi^2$ ): 18.01
- Degrees of Freedom (df): 16
- p-value  $>$  0.05

Decision

Since  $\chi^2$  calculated (18.01) <  $\chi^2$  table (26.30), the hypothesis is not supported. The hypothesis is rejected.

Interpretation

The results indicate that there is no statistically significant variation in usage patterns among students. This suggests that most students use mobile health applications in a relatively similar manner, primarily for basic activity tracking and monitoring.

Hypothesis 3

H<sub>3</sub>: Students using mobile health applications demonstrate better fitness habits compared to non-users.

To test the above hypothesis, the Chi-square test of independence was applied. The variables considered for the analysis were App Usage (Users vs Non-users) and Exercise frequency. The test was conducted at a 5% level of significance ( $\alpha = 0.05$ ).

Observed Frequency Analysis

The relationship between users' perception of security and their level of trust in UPI applications was examined by cross-tabulating responses related to security perception with trust levels.

App Usage	1	2	3	4	5
Non-Users	8	19	25	16	10
Users	11	28	55	51	37

Chi-Square Calculation Table(sample)

O	E	(O-E) <sup>2</sup> /E
8	5.70	0.93
19	14.10	1.70
55	56.00	0.02
51	46.90	0.36

Chi-Square Test Result

- Calculated Chi-square value ( $\chi^2$ ): 6.72
- Degrees of Freedom (df): 4
- p-value > 0.05

Decision

The hypothesis is not supported.

Interpretation

The analysis suggests that although app users report moderate levels of physical activity, there is no statistically significant difference between users and non-users. This indicates that the use of mobile health applications alone does not guarantee improved fitness habits.

Hypothesis 4

H<sub>4</sub>: Perceived usefulness of mobile health applications significantly influences fitness improvement.

This test is appropriate as both variables Perceived reliability/ usefulness and Improvement in fitness habits. The test examines the strength and direction of the relationship between the two variables.

Methodology

- Variable 1: Frequency of UPI App Usage
- Variable 2: Increase in Impulsive Spending due to UPI Usage
- Statistical Tool: Chi-Square test
- Level of Significance: 5% ( $\alpha = 0.05$ )

Chi-Square Test Result

- $\chi^2 = 13.32$
- df = 16
- p-value > 0.05

Decision

The hypothesis is not supported.

Interpretation

The findings indicate that although students perceive mobile health applications as useful, this perception does not necessarily translate into measurable improvements in fitness habits. Behavioural change appears to depend more on consistency and personal

motivation.

Hypothesis 5

H<sub>5</sub>: Privacy concerns significantly influence continued usage of mobile health applications.

To test the above hypothesis, the Chi-square test of independence was applied. The variables considered for the analysis were Privacy concerns and Continued usage intention. The test was conducted at a 5% level of significance ( $\alpha = 0.05$ ).

Chi-Square Calculation Table –(H<sub>5</sub>)

Privacy Concern ↓ /	1	2	3	4	5	Row Total
Continued Usage →						
1	0	2	5	5	7	19
2	3	8	8	7	12	38
3	1	5	9	16	14	45
4	4	2	6	11	17	40
5	1	4	14	5	16	40
Column Total	9	21	42	44	66	182

Chi-Square Calculation Table ( (O-E)<sup>2</sup> / E )

Privacy Concern ↓ /	1	2	3	4	5
Continued Usage →					
1	0.94	0.02	0.09	0.04	0.00
2	0.65	2.98	0.07	0.52	0.23
3	0.66	0.01	0.18	2.40	0.33

Privacy Concern ↓ /	1	2	3	4	5
Continued Usage →					
4	2.06	1.46	1.15	0.18	0.43
5	0.51	0.08	2.46	2.23	0.15

Chi-Square Test Result

Calculated Chi-square value ( $\chi^2$ ): 19.89

Degrees of Freedom (df): 16

p-value > 0.05

Decision

The hypothesis is not supported.

Interpretation

The results suggest that privacy concerns do not significantly affect students' intention to continue using mobile health applications. This implies that convenience and functionality may outweigh concerns related to data privacy implications.

The results of the study indicate that while mobile health applications are widely recognized and used among college students, their impact on fitness behaviour is not statistically significant. The findings highlight that technology alone is not sufficient to drive behavioural change, and factors such as motivation, discipline, and lifestyle choices play a more critical role.

### CONCLUSION

The present study examined the usage of mobile health applications and their relationship with fitness habits among college students. The findings indicate that while awareness and usage of mobile health applications are relatively high among students, their direct impact on improving fitness habits is not statistically significant. The results of the Chi-Square

analysis reveal that factors such as awareness, usage patterns, perceived effectiveness, and privacy concerns do not show a strong statistical association with fitness behavior or continued usage. This suggests that although students are actively engaging with mobile health applications, these tools alone are not sufficient to bring about consistent behavioral change.

One of the key insights from the study is that technology acts more as a supportive tool rather than a determining factor in shaping fitness habits. The effectiveness of mobile health applications largely depends on individual factors such as motivation, discipline, lifestyle choices, and consistency in usage. Simply having access to these applications does not guarantee improved health outcomes. The study also highlights that privacy concerns, although present, do not significantly discourage students from using these applications. This reflects a tendency among younger users to prioritize convenience and functionality over data security considerations.

In conclusion, mobile health applications have the potential to contribute to healthier lifestyles among college students; however, their impact is largely dependent on how effectively users integrate them into their daily routines. Future research can explore longitudinal effects, incorporate additional behavioural factors, and examine more diverse populations to gain deeper insights into the role of digital health technologies in shaping fitness behaviour.

#### LIMITATIONS

Firstly, the study is limited to a specific sample of college students, which restricts the generalizability of the findings. The behavior and perceptions of students may differ from other age groups such as working professionals or older individuals. Therefore, the results cannot be extended to the broader population without caution.

Secondly, the research relies on self-reported data, which may introduce response bias. Participants may have overestimated or underestimated their usage patterns, fitness habits, or perceptions due to social

desirability or recall errors. This may affect the accuracy of the collected data.

Another limitation is the use of a cross-sectional research design, where data was collected at a single point in time. This approach does not capture changes in behavior over time and limits the ability to understand long-term effects of mobile health application usage on fitness habits. The study also uses convenience sampling, which may not fully represent the diversity of the student population. Respondents were selected based on accessibility, which may result in sampling bias and limit the representativeness of the data.

Additionally, the analysis is based on Chi-Square testing, which identifies associations between variables but does not establish causal relationships. Therefore, it cannot be concluded that mobile health applications directly cause changes in fitness habits. Lastly, the study does not account for external factors such as lifestyle, diet, access to fitness facilities, or personal health conditions, which may significantly influence fitness behavior. These factors could provide a more comprehensive understanding if included in future research.

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