



Continuous to Use Health and Fitness Applications: Extended TCT Models

Assyfa Meilyandra Panca Putri ¹⁾; Tengku Ezni Balqiah ²⁾

¹⁾Study Program of Magister Management Faculty Of Economics and Business, Universitas Indonesia, Indonesia

²⁾Department of Magister Management, Faculty Of Economics and Business, Universitas Indonesia, Indonesia

Email: ¹⁾ assyfa.meilyandra@ui.ac.id ;²⁾ tebalqiah@gmail.com

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ABSTRACT

The rapid advancement of digital technology and high mobile penetration have driven the growth of health and fitness application usage. However, despite rising downloads, user retention remains low. This study investigates factors influencing continuance intention using the technology continuance theory (TCT). A quantitative approach was employed by distributing online questionnaires to 271 respondents, analyzed using pls-sem. Results show all hypotheses are supported, indicating the model's effectiveness. This study contributes theoretically by extending TCT with lifestyle compatibility and perceived security, offering insights for developers to enhance user retention strategies.

INTRODUCTION

The rapid advancement of internet technology has transformed mobile devices into essential components of modern lifestyles. These devices are now used not only for communication but also for work, education, shopping, and accessing digital services (Oseghale et al., 2023; Duan et al., 2023; Whelan & Turel, 2024). According to We Are Social (2025), over 96% of the global digital population accesses the internet via mobile devices, underscoring their dominant role in the digital ecosystem. This high level of dependency has accelerated the global mobile app market, driven by changing consumer behaviors and the need for digital mobility (Pal et al., 2023; Chouk & Mani, 2019). In 2023 alone, mobile app downloads reached 257 billion, signaling the increasing integration of mobile apps into everyday life (Statista, 2025).

Among the various types of mobile applications, health-related apps—particularly those in the Health and Fitness category—have seen remarkable growth. By 2021, there were over 350,000 health apps on the market (IQVIA, 2021), with Health and Fitness apps emerging as some of the most popular globally (Chakraborty et al., 2022). According to Adjust (2023), 81% of global consumers intend to use Health and Fitness apps on their smartphones. These

applications have become important tools in modern health management, offering features such as fitness tracking, diet monitoring, workout planning, and self-monitoring capabilities (Business of Apps, 2025). Their popularity reflects a growing trend toward personalized and accessible health solutions (Cho et al., 2020; Lau et al., 2020).

This global health and wellness trend is evident in the growing usage of Health and Fitness apps. Statista (2025) reports that downloads of these apps surpassed 3.6 billion in 2024, a 6% increase from the previous year. Furthermore, the Digital Fitness and Well-Being segment is projected to grow by approximately 30.22%, or 490.8 million users, between 2024 and 2029. However, despite this growth, user retention remains low. Business of Apps (2025) notes that the average retention rate for Health and Fitness apps is only around 3%, and it declined further in 2023. Previous studies have identified that initial user enthusiasm often wanes over time, leading to high dropout rates (Yang & Koenigstorfer, 2021; Bellary et al., 2024). Bhattacharjee (2001), as cited in Correia and Tam (2024), emphasizes that the long-term success of an app depends on users' continued engagement. Similarly, Keen and Roberts (2017) argue that without sustained use, the benefits of Health and Fitness apps diminish over time. Therefore, understanding the factors that influence continuance intention is critical for designing effective retention strategies (Soren & Chakraborty, 2024a).

This research aims to provide deeper insights regarding factors influencing continuance intention in Health and Fitness application usage using the Technology Continuance Theory (Liao et al., 2009) integrated with lifestyle compatibility and perceived security variables in analyzing continuance intention for Health and Fitness application usage as research novelty. Lifestyle compatibility refers to the extent to which applications align with user lifestyles and facilitate their daily habits. Since Health and Fitness applications are fundamentally used to support users' healthy lifestyles (Kim et al., 2020), lifestyle compatibility can be considered an important factor influencing user continuance intention in Health and Fitness applications. Furthermore, perceived security refers to the extent users feel secure regarding their personal data protection when using technology (Chanda et al., 2025). In Health and Fitness application contexts, users tend to be cautious about how their personal health data is collected, stored, and used, potentially creating reluctance in sharing accurate information or continuing application usage (Bellary et al. 2024).

LITERATURE REVIEW

Health and Fitness Applications

Health and Fitness Applications (HFAs) have become essential tools in modern health management, aligning with global trends toward more personalized and accessible health solutions (Cho et al., 2020). These applications enable users to monitor and manage their health and fitness conditions anytime and anywhere, without relying on physical healthcare facilities (Higgins, 2016; Prins et al., 2015). HFAs encompass various functions, from physical activity tracking, dietary management, sleep and stress monitoring, to providing personalized exercise recommendations (Bellary et al., 2024). Research demonstrates that using these applications can increase health awareness, exercise motivation, and support individual health goal achievement (Edney et al., 2020).

Extended-Technology Continuance Theory

The Technology Continuance Theory (TCT) model was developed by Liao et al. (2009) to predict and explain technology acceptance and continued usage in information systems. TCT integrates three major models: Technology Acceptance Model (TAM), Expectation Confirmation Model (ECM-IS), and Cognitive Model (COGM) (Davis, 1989; Bhattacharjee, 2001; Oliver, 1980). This theory was introduced to address limitations of TAM and ECM, which relied on single constructs to explain user behavior with technology or information systems.

The key strength of TCT lies in unifying satisfaction and attitude concepts within one model, thereby enhancing predictive capability for continuance intention (Liao et al., 2009). TCT emphasizes that maintaining long-term users is more important for technology sustainability than merely achieving high initial adoption rates (Pattanayak et al., 2017). The TCT model comprises six main constructs: expectation confirmation, perceived usefulness, perceived ease of use, satisfaction, attitude, and continuance intention. Although the TCT model has comprehensive explanatory power in explaining technology usage continuance, TCT development through technology application in specific contexts remains highly feasible for research (Liao et al., 2009).

Expectation Confirmation

Expectation Confirmation is defined by Oliver (1980) as evaluation of compatibility between initial expectations and actual system performance perceptions. The Expectation Confirmation Model (ECM-ISC) demonstrates that expectation confirmation positively influences perceived usefulness and satisfaction (Bhattacharjee, 2001). When users perceive that benefits align with initial expectations, this confirmation strengthens their perception of the system's usefulness and enhances satisfaction levels (Chiu et al., 2021; Foroughi et al., 2019).

H1: Expectation Confirmation positively influences Perceived Usefulness in Health and Fitness Application usage

H2: Expectation Confirmation positively influences Satisfaction in Health and Fitness Applications usage

Perceived Usefulness

Perceived usefulness represents users' perception of expected benefits from technology-based services (Bhattacharjee, 2001). This construct plays a crucial role in determining satisfaction with health service technology (Nissinen et al., 2023) and significantly influences attitude formation (Zhu et al., 2023). Empirical studies consistently support positive relationships between perceived usefulness and satisfaction, attitude, and continuance intention (Dehghani et al., 2018; Nascimento et al., 2018).

H3: Perceived Usefulness positively influences Satisfaction in Health and Fitness Applications usage

H4: Perceived Usefulness positively influences Attitude toward Health and Fitness Applications

H5: Perceived Usefulness positively influences Continuance Intention in Health and Fitness Applications usage

Perceived Ease of Use

Perceived ease of use refers to individuals' belief that using technology will be effortless (Davis, 1989). When technology is designed for easy use, this enhances user experience and increases satisfaction (Shaukat et al., 2023). Research confirms that perceived ease of use positively influences both satisfaction and attitude toward health and fitness applications (Yu et al., 2021).

H6: Perceived Ease of Use positively influences Satisfaction in Health and Fitness Applications usage

H7: Perceived Ease of Use positively influences Attitude toward Health and Fitness Applications

Lifestyle Compatibility

Lifestyle compatibility refers to alignment between users' needs, values, and information systems. When applications align with users' lifestyles, they tend to use them more frequently (Correia & Tam, 2024). Compatibility directly influences perceived usefulness, expectation confirmation, satisfaction, and continuance intention (Chau & Hu, 2002; Hidayat-ur-Rehman et al., 2020; Basha et al., 2022).

H8: Lifestyle Compatibility positively influences Perceived Usefulness in Health and Fitness

Applications usage

H9: Lifestyle Compatibility positively influences Expectation Confirmation in Health and Fitness

Applications usage

H10: Lifestyle Compatibility positively influences Satisfaction in Health and Fitness Applications

usage

H11: Lifestyle Compatibility positively influences Continuance Intention in Health and Fitness

Applications usage

Perceived Security

Perceived security reflects users' beliefs about a system's ability to protect sensitive information (Bergmann et al., 2023; Chanda et al., 2025). Security concerns are primary determinants of user attitudes and behavioral intentions (Khalilzadeh et al., 2017). Ensuring robust security mechanisms not only fosters trust but also enhances users' confidence in the system, which is essential for shaping positive attitudes. In the context of Health and Fitness applications, users who believe that an app can guarantee the security and confidentiality of their health-related data are more likely to develop favorable attitudes toward continued use (Dahiya & Sani, 2024).

H12: Perceived Security positively influences Attitude toward Health and Fitness Applications

Satisfaction

Satisfaction is defined as the difference consumers perceive between expectations and results received after consumption (Oliver, 1980). Satisfaction acts as a primary driver of continued usage intention by creating loyalty (Zhu et al., 2023). Research demonstrates that satisfaction influences both continuance intention and attitude in health and fitness applications (Chiu et al., 2021; Bellary et al., 2024).

H13: Satisfaction positively influences Continuance Intention in Health and Fitness Applications usage

H14: Satisfaction positively influences Attitude toward Health and Fitness Applications

Attitude Toward Application

Attitude Toward Application reflects individuals' evaluative tendencies toward technology based on beliefs, emotions, and previous experiences (Pramudita et al., 2023). In technology contexts, attitude reflects users' overall evaluation of services based on their experiences, perceptions, and beliefs about technology benefits (Tensen et al., 2025). Attitude significantly influences behavior and serves as a reliable predictor of continuance intentions (Kunwar et al., 2022).

H15: Attitude toward Health and Fitness Applications positively influences Continuance Intention in Health and Fitness Applications usage

METHODS

This study employed a quantitative explanatory research approach combined with a deductive reasoning framework to analyze the causal relationships among variables in the extended Technology Continuance Theory with Lifestyle Compatibility and Perceived Security as additional variables. The research applied a cross-sectional design (Neuman, 2014), meaning data were collected at a single point in time. Primary data were obtained through a self-administered online questionnaire distributed via various social media platforms using a Google Form link. The questionnaire used a 5-point Likert scale to measure each latent variable. The sample size was determined using the guideline from Hair et al. (2021), recommending five to ten respondents per indicator. With a total of 32 indicators, the estimated sample size ranged from 160 to 320 respondents. Using purposive sampling, the study targeted Indonesian

residents aged 18 years and above who had used Health and Fitness applications within the past two months.

Data analysis was conducted using Partial Least Squares Structural Equation Modeling (PLS-SEM), a statistical technique suitable for complex models and smaller sample sizes. PLS-SEM enables the simultaneous assessment of the measurement model (outer model), which evaluates the reliability and validity of indicators in representing their respective constructs, and the structural model (inner model), which tests the hypothesized relationships among the constructs (Malhotra, 2010; Hair et al., 2021). This method was selected due to its robustness in handling multiple interrelated variables and its effectiveness in producing reliable estimates, particularly in research contexts with moderate to limited sample sizes.

RESULTS

Descriptive Analysis

In this study, a total of 323 responses were collected. However, after a series of screening procedures based on the predefined respondent criteria, 271 responses were deemed valid and eligible for further analysis. Descriptive statistical analysis was conducted on these 271 valid responses to obtain the mean, maximum, minimum, and standard deviation values for each indicator measured in the study.

Table 1. Descriptive Analysis

Variable	Indicator	Min. Value	Max. Value	Mean	Std Deviation
Lifestyle Compatibility	LC1	1.000	5.000	4.125	0.773
	LC2	1.000	5.000	4.111	0.746
	LC3	2.000	5.000	4.111	0.794
	LC4	2.000	5.000	4.125	0.758
Expectation Confirmation	EC1	1.000	5.000	3.336	0.793
	EC2	2.000	5.000	3.823	0.618
	EC3	2.000	5.000	3.391	0.627
	EC4	2.000	5.000	3.627	0.593
Perceived Usefulness	PU1	2.000	5.000	3.731	0.652
	PU2	2.000	5.000	3.893	0.556
	PU3	2.000	5.000	3.343	0.685
	PU4	2.000	5.000	3.502	0.631
Perceived Ease of Use	PEU1	2.000	5.000	4.148	0.709
	PEU2	2.000	5.000	4.214	0.697
	PEU3	2.000	5.000	4.133	0.757
	PEU4	2.000	5.000	4.159	0.677
Perceived Security	PS1	1.000	5.000	4.070	0.828
	PS2	1.000	5.000	3.985	0.806
	PS3	1.000	5.000	4.033	0.830
	PS4	1.000	5.000	4.089	0.787
Satisfaction	SAT1	3.000	5.000	4.133	0.541
	SAT2	2.000	5.000	3.930	0.535
	SAT3	2.000	5.000	3.705	0.590
	SAT4	2.000	5.000	3.513	0.642
Attitude	ATT1	2.000	5.000	3.863	0.619
	ATT2	2.000	5.000	3.664	0.672
	ATT3	3.000	5.000	3.978	0.522

Variable	Indicator	Min. Value	Max. Value	Mean	Std Deviation
	ATT4	3.000	5.000	4.125	0.529
Continuance Intention	CI1	1.000	5.000	4.007	0.583
	CI2	2.000	5.000	3.616	0.698
	CI3	2.000	5.000	3.782	0.602
	CI4	3.000	5.000	4.118	0.516

Based on the responses obtained from 271 participants, as presented in Table 1, it can be observed that all indicators have a mean value greater than 3. This indicates that respondents generally expressed a neutral to slightly positive agreement toward the questionnaire items. Furthermore, the standard deviation for each indicator is smaller than its corresponding mean value, suggesting that the data are evenly distributed and do not exhibit high variability across responses.

Measurement Model Evaluation

The measurement model was evaluated to assess its convergent validity and reliability, as shown in Table 2. All indicators demonstrated adequate convergent validity, with outer loading values exceeding 0.70 and average variance extracted (AVE) values above 0.50, meeting the criteria suggested by Wong (2013). In addition, the composite reliability and Cronbach's alpha values for all constructs were greater than 0.70, indicating strong internal consistency in accordance with the standards set by Hair et al. (2021). These results confirm that the measurement model is both valid and reliable.

Table 2. Measurement Model Evaluation

Variable	Indicator	Factor Loading	Cronbach's Alpha	Composite Reliability	AVE
Lifestyle Compatibility	LC1	0.882	0.895	0.927	0.760
	LC2	0.879			
	LC3	0.864			
	LC4	0.862			
Expectation Confirmation	EC1	0.839	0.852	0.900	0.692
	EC2	0.796			
	EC3	0.868			
	EC4	0.822			
Perceived Usefulness	PU1	0.857	0.879	0.917	0.735
	PU2	0.823			
	PU3	0.871			
	PU4	0.876			
Perceived Ease of Use	PEU1	0.812	0.841	0.893	0.676
	PEU2	0.857			
	PEU3	0.814			
	PEU4	0.804			
Perceived Security	PS1	0.848	0.890	0.924	0.753
	PS2	0.861			
	PS3	0.887			
	PS4	0.873			
Satisfaction	SAT1	0.829	0.886	0.921	0.745
	SAT2	0.877			

Variable	Indicator	Factor Loading	Cronbach's Alpha	Composite Reliability	AVE
	SAT3	0.879			
	SAT4	0.868			
Attitude	ATT1	0.873	0.851	0.900	0.693
	ATT2	0.875			
	ATT3	0.852			
	ATT4	0.720			
Continuance Intention	CI1	0.825	0.834	0.889	0.669
	CI2	0.859			
	CI3	0.868			
	CI4	0.709			

Discriminant validity was assessed to confirm that each construct in the model is empirically distinct from the others (Hair et al., 2021). The Fornell-Larcker criterion was applied, as presented in Table 3.

Table 3. Fornell-Larcker Criterion

Variable	ATT	CI	EC	LC	PEU	PS	PU	SAT
Attitude	0.832							
Continuance Intention	0.690	0.818						
Expectation Confirmation	0.648	0.672	0.832					
Lifestyle Compatibility	0.478	0.507	0.482	0.872				
Perceived Ease of Use	0.421	0.337	0.170	0.155	0.822			
Perceived Security	0.246	0.182	0.133	0.050	0.036	0.868		
Perceived Usefulness	0.692	0.653	0.731	0.526	0.140	0.056	0.857	
Satisfaction	0.713	0.676	0.664	0.517	0.455	0.014	0.665	0.863

The results show that the correlation values for each construct with itself are higher than the correlation values it shares with other constructs, with all values exceeding 0.70. These findings demonstrate that each construct is more strongly associated with its own measurement items than with those of other constructs, thus meeting the requirements for discriminant validity. These results confirm that the measurement model is both valid and reliable, and therefore suitable for further structural model analysis.

Structural Model Evaluation

After assessing the measurement model, the next step is structural model evaluation, which examines the relationships between constructs in the research model. This evaluation includes testing several key indicators: the coefficient of determination (R^2), predict relevance (Q^2), and the significance of path coefficients. The structural model analysis was conducted

using SmartPLS 4, employing bootstrapping procedures with 5,000 subsamples, a 5% significance level, a one-tailed test, and blindfolding techniques to assess predictive relevance.

The R^2 results in Table 4 indicate that the variable with the highest explanatory power is attitude ($R^2 = 0.671$), followed by satisfaction ($R^2 = 0.643$), perceived usefulness ($R^2 = 0.573$), and continuance intention ($R^2 = 0.581$), suggesting that the model accounts for a substantial portion of the variance in these constructs. Expectation confirmation has the lowest R^2 value (0.233), indicating that it is only moderately explained by the model, with most of its variance likely influenced by external factors.

Table 4. Coefficient of Determination (R^2) and Predictive Relevance (Q^2)

Variable	R^2	Q^2
Attitude	0.671	0.458
Continuance Intention	0.581	0.380
Perceived Usefulness	0.573	0.417
Satisfaction	0.643	0.470
Expectation Confirmation	0.233	0.156

Furthermore, Table 4 also presents the Q^2 values for all endogenous variables, each of which is greater than zero, confirming that the model has acceptable predictive relevance (Hair et al., 2021).

Based on the hypothesis testing results presented in Table 5, all path relationships have t-statistics greater than 1.65 and p-values below 0.05, indicating that all 15 hypothesized are statistically significant and supported.

Table 5. Hypothesis Tested

Hypothesis	Direct Effect	Path coefficients	T statistics	P values	Concl.
H1	Expectation Confirmation → Perceived Usefulness	0.622	15.523	0.000	Supported
H2	Expectation Confirmation → Satisfaction	0.302	5.009	0.000	Supported
H3	Perceived Usefulness → Satisfaction	0.318	4.886	0.000	Supported
H4	Perceived Usefulness → Attitude	0.431	8.197	0.000	Supported
H5	Perceived Usefulness → Continuance Intention	0.207	3.109	0.001	Supported
H6	Perceived Ease of Use → Satisfaction	0.336	8.633	0.000	Supported
H7	Perceived Ease of Use → Attitude	0.202	4.752	0.000	Supported
H8	Lifestyle Compatibility → Perceived Usefulness	0.226	5.645	0.000	Supported

Hypothesis	Direct Effect	Path coefficients	T statistics	P values	Concl.
H9	Lifestyle Compatibility → Expectation Confirmation	0.482	11.531	0.000	Supported
H10	Lifestyle Compatibility → Satisfaction	0.152	3.340	0.000	Supported
H11	Lifestyle Compatibility → Continuance Intention	0.118	2.418	0.008	Supported
H12	Perceived Security → Attitude	0.210	5.626	0.000	Supported
H13	Satisfaction → Continuance Intention	0.260	3.858	0.000	Supported
H14	Satisfaction → Attitude	0.331	6.201	0.000	Supported
H15	Attitude → Continuance Intention	0.305	4.989	0.000	Supported

The strongest path was from expectation confirmation to perceived usefulness (0.622), indicating that fulfilled expectations enhance users' perceptions of an app's utility. Perceived usefulness significantly influenced satisfaction (0.318), attitude (0.431), and continuance intention (0.207), confirming its key role in shaping user responses. Perceived ease of use contributed to satisfaction (0.336) and attitude (0.202), while perceived security affected attitude (0.210). Satisfaction strongly influenced both attitude (0.331) and continuance intention (0.260), highlighting its mediating role. Attitude had the strongest direct effect on continuance intention (0.305), supporting its role as a primary predictor of sustained use. Although lifestyle compatibility was significantly linked to continuance intention (0.118), its influence was relatively weak. These findings suggest that cognitive and emotional factors—particularly usefulness, satisfaction, and attitude—play a more substantial role than lifestyle alignment in driving continued app usage.

DISCUSSION

This section discusses the findings of the study in relation to the proposed hypotheses, previous literature, and the theoretical framework used. The discussion focuses on interpreting the significance of each relationship among variables, particularly within the context of Health and Fitness application usage.

Expectation confirmation demonstrated a positive effect on perceived usefulness with a path coefficient of 0.622 and t-statistic of 15.523. This finding aligns with Wu et al. (2022) who showed that perceived usefulness is directly influenced by post-expectation confirmation in mobile health applications and Yan et al. (2021) who specifically stated that perceived usefulness of health and fitness applications is highly influenced by the extent to which applications can meet user expectations in supporting their health activities efficiently and effectively. The highest indicator in describing user expectations is features that exceed user expectations, indicating that perception of feature superiority becomes a primary aspect in forming benefit perception in health and fitness contexts. Expectation confirmation also positively affects satisfaction ($\beta=0.302$, $t=5.009$), supporting Expectation Confirmation Theory. This result differs from Correia and Tam (2024) but aligns with Chiu et al. (2021) who specifically studied Health and Fitness applications and found that users feel more satisfied when applications can meet their expectations,

particularly regarding feature effectiveness that supports health and fitness activities (Faizah et al., 2023).

Perceived usefulness showed positive effects on satisfaction ($\beta=0.318$, $t=4.886$), attitude ($\beta=0.431$, $t=8.197$), and continuance intention ($\beta=0.207$, $t=3.109$). This finding is reinforced by Chiu et al. (2021) who found that in Health and Fitness applications, user satisfaction levels increase significantly when applications are perceived as beneficial in supporting physical activities and healthy lifestyle management. The functional benefits also play a direct role in forming users' affective responses, namely satisfaction (Jiang et al., 2021). The effect on continuance intention is supported by Jiang et al. (2021) and Chiu et al. (2021) who found that perceived benefits can increase continuance intention in health and fitness-oriented applications, particularly relevant to respondent characteristics aged 17-35 years who represent a productive and technology-aware generation (Pramudita et al., 2023).

Perceived ease of use positively affects satisfaction ($\beta=0.336$, $t=8.633$) and attitude ($\beta=0.202$, $t=4.752$). In Health and Fitness application contexts, ease of use perception is crucial because these applications are designed to support users' health routines such as recording food intake, monitoring physical activities, or following fitness programs. Yan et al. (2021) found that difficult-to-use applications can decrease user satisfaction. Research by Yao et al. (2025) also showed that in using applications, user satisfaction is influenced by perceived ease of use. Yu et al. (2021) stated that in fitness applications, ease of use can increase users' positive attitudes toward applications, while Slazus et al. (2022) found that health and fitness application users assess that applications can improve their health due to their practicality.

Lifestyle compatibility showed significant effects on perceived usefulness ($\beta=0.226$, $t=5.645$), expectation confirmation ($\beta=0.482$, $t=11.531$), satisfaction ($\beta=0.152$, $t=3.340$), and continuance intention ($\beta=0.118$, $t=2.418$). In Health and Fitness applications, this is relevant as several previous studies stated that health and fitness applications can help support users' healthy lifestyle goals, namely healthy and fit bodies (Yan et al., 2021; Herrmann and Kim, 2017). Lifestyle compatibility contributes to increasing perceived usefulness because applications are not only considered technical tools but also as partners that align with the healthy lifestyle users pursue (Yan et al., 2021). Bellary et al. (2024) stated that lifestyle patterns can encourage intention to continue using Health and Fitness applications.

Perceived security positively affects attitude ($\beta=0.210$, $t=5.626$), which is crucial in Health and Fitness applications as they frequently access and store highly sensitive data such as personal information, health history, physical activity levels, biometric data, and user location (Faizah et al., 2023). Users who trust that health and fitness applications can guarantee security and confidentiality of such data tend to have more positive attitudes toward applications (Dahiya and Sani, 2024).

Satisfaction positively affects continuance intention ($\beta=0.118$, $t=2.418$) and attitude ($\beta=0.331$, $t=6.201$). Bellary et al. (2024) confirmed that users who are satisfied with Health and Fitness applications tend to have intention to continue using them. This aligns with studies by Jiang et al. (2021) and Chiu et al. (2020) which revealed that in fitness application contexts, user satisfaction functions as the main driver for continuance intention, while satisfaction toward self-monitoring services available in health and fitness applications reflects overall user satisfaction (Faizah et al., 2023). Attitude positively affects continuance intention ($\beta=0.305$, $t=4.989$), with Bellary et al. (2024) confirming that positive evaluation of applications can emerge when user satisfaction levels are high, and Dahiya and Sani (2024) finding that when users feel successful in controlling weight, maintaining eating patterns, or increasing daily exercise intensity through application assistance, they develop positive attitudes leading to continued usage intention.

CONCLUSION AND IMPLICATIONS

This study aimed to identify the key factors influencing continuance intention in using health and fitness applications by employing the extended technology continuance theory with lifestyle compatibility and perceived security variables. The findings support all 15 proposed hypotheses, confirming the robustness of the model in explaining user behavior. Continuance intention is primarily driven by attitude, satisfaction, perceived usefulness, and lifestyle compatibility, with attitude being the strongest predictor. The results also show that perceived usefulness is significantly influenced by expectation confirmation and lifestyle compatibility, while satisfaction is shaped by perceived ease of use, usefulness, expectation confirmation, and lifestyle compatibility.

Theoretically, this study reinforces the core of tct by demonstrating that both cognitive (perceived usefulness) and affective (satisfaction, attitude) factors are central to continued usage. Although the added constructs—lifestyle compatibility and perceived security—are significant, their effects are relatively weaker, suggesting that model extensions must be conceptually strong and practically relevant. From a managerial perspective, developers should focus on enhancing perceived usefulness through features that meet or exceed expectations, improving user satisfaction via ease of use and personalization, and ensuring data security to build trust. A positive user attitude, shaped by these elements, plays a crucial role in encouraging long-term application use.

SUGGESTIONS AND LIMITATIONS

This study presents several limitations that provide opportunities for future research. First, the analysis does not focus on a specific Health and Fitness application, limiting its application to broader generalizations. Second, platform differences such as Android versus iOS were not considered, preventing insights into device-based behavioral patterns. Third, geographic segmentation (urban vs. rural users) was not explored, which may influence lifestyle-related app usage. Lastly, distinctions between free and paid users were not examined, even though premium features may significantly affect satisfaction, perceived security, and continuance intention.

Future research is encouraged to focus on individual applications or compare multiple platforms, while considering demographic and behavioral segmentation such as location, subscription status, and device type. By addressing these limitations, future studies can generate more specific, actionable insights to support both academic development and practical application strategies in the Health and Fitness app industry.

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