Factors Influencing Continuance Intention Among Health Apps User Mediating Effect of Satisfaction and Moderating Effect of Health Consciousness

Dr. Bhavna Prajapati*[1], Dr. Arijit Goswami**[2]

[1]Dean Academics, RSR-Rungta College of Engineering and Technology, Kohka – 490024, Bhilai, Chhattisgarh, India

[2]Dean Academics, Commerce and Management, RCST-Rungta College of Science and Technology, Kohka – 490024, Bhilai, Chhattisgarh, India

***Corresponding author**

Dr. Bhavna Prajapati

Dean Academics, RSR-Rungta College of Engineering and Technology, Kohka – 490024, Bhilai, Chhattisgarh, India

Abstract

The appeal to maintain a healthy lifestyle is mounting amongst consumers globally as well as the adoption of health apps. Based on the Information Systems Continuance Model and combining social (i.e. subjective norms) and psychological factors (i.e. flow experience, health consciousness, behavioral change techniques), the factors influencing users' CI for health apps were identified. The study observes that perceived usefulness, perceived ease of use, flow experience and behavioral change techniques are significant interpreters of CI, and satisfaction mediates these effects. Health consciousness positively moderates the effect between perceived usefulness and satisfaction and negatively moderates the effect between perceived ease of use and satisfaction. A total of 397 health app users from raipur were administered by Partial Least Square Structural Equational Modelling (PLS – SEM) in Smart PLS version 3.3.2. The paper will be beneficial for all the health app companies to know about the factors which helps a customer to adopt the health apps.

Keywords: Continuance Intention; Subjective norms; Flow experience; Behavior change techniques

Introduction

Health Plays a significant role in individuals' life. And to be more cautious about health is the new lifestyle. The routine of every individual is very tight now a days due to work. So the consumers are seeking for better alternatives to manage the things properly. The health Application has paved the way to consumers for better opportunities. These health Apps has made the life easy and at the same time have provided solutions to the consumers to get the products and avail better pricing. As all the industries are expanding and the health industry is also in the same pace. As the concern for health is very earnest so people are downloading certain Apps to seek advice. Now not only food but how to be healthy is the new fashion. Initial days few Gyms were existing were people used to do their best to

be in shape. It was quit boring and tiresome to motivate oneself to go gyming and be in shape. But with the advent of technology and opportunities people have started connecting online for better results. Things were next to impossible to consult a Nutrition expert sitting in a remote place. But Health Apps has bridged the gaps and made it very easy. Seeking advice getting fit now is click away. This has made people to interact with experts in affordable prices and reap the benefits. There are several factors responsible for the acceptance of the App and live a better lifestyle. The Apps not only provide solutions but at the same time the experts are available who have undergone courses related to health. The buzz word is to be fit and to make county a healthy one. These Apps has really come up well to provide better lifestyle in affordable prices to the consumers.

Background and Hypothesis Development

The desire to stay fit and eat healthier has become a global trend, with the demand for healthier food and fitness aids increasing, with ever greater numbers posting and watching exercise videos and photos on social media (Daphne, 2017; Fricker, 2018; Mintel, 2018). The growing popularity of health apps attracted researchers' attention. The paper, contributes to theory by integrating social (i.e. subjective norms) and psychological factors (i.e. flow experience, health consciousness, behavior change techniques) into the IS Continuance model (Bhattacherjee, 2001).

Perceived Usefulness (PU)

Perceived usefulness indicates to the extent to which an individual thinks that using a particular technique would boost his or her job performance (Davis, Bagozzi, & Warshaw, 1992). The substantial influence of Perceived usefulness on Continuance intention was proved for various online technologies (Lin & Filieri, 2015; Lu, 2014; Susanto et al., 2016; Yoon & Rolland, 2015). Most users choose to use a health app for a specific persistence, for example, to become fitter (fitness), eat healthier (diet app) or find inner peace (mediation app), so that it is vital that the health app is measured beneficial and able to encounter users' requirements and foster satisfaction. Thus, the user is more probable to feel satisfied and in turn is more probable to expect to use the health app continually.

H1: Perceived Usefulness has a positive and significant impact on satisfaction.

H1a: The influence of perceived usefulness on continuance intention is mediated by satisfaction.

Perceived Ease of Use (PEoU)

Perceived ease of use refers to the extent to which a person considers that using a particular technique is free of effort (Davis, 1989). The substantial impact of Perceived ease of use on continuance intention has been verified by studies relating health apps (Beldad & Hegner, 2018; Huang & Ren, 2020). Perceived ease of use influence on continuance intention was partially mediated by satisfaction, in the perspective of a health app Cho (2016).

H2: Users' perceived ease of use has a positive and significant impact on satisfaction.

H2a: The influence of perceived ease of use on continuance intention is mediated by satisfaction.

Subjective Norms (SN)

Subjective norms (SN) is a Theory of Planned Behavior (TPB) construct and refers to the perceived social pressure to perform or not to perform a behavior (Ajzen, 1991, p.188). SN reflects how individuals can be affected by the perceptions and wishes of people who they regard as important. SN's significant influence on CI was supported by studies in the context of social networking (Al-Debei et al., 2013; Yoon & Rolland, 2015) and online games (I. C. Chang et al., 2014).

H3: Subjective norms towards users' health behavior has a positive and significant impact on satisfaction.

H3a: The influence of subjective norms on continuance intention is mediated by satisfaction.

Flow Experience (FE)

FE occurs when users experience a state of concentration so focused that it amounts to absolute absorption in an activity (Csikszentmihalyi, 1990). Users enter a flow state when undertaking a challenge which requires effort at just the right level of 'stretch' for their skills (Csikszentmihályi et al., 2005). A study on e-learning also found that flow's influence on CI is mediated by perceived hedonic/utilitarian value and satisfaction (Guo et al., 2016).

H4: Flow Experience has a positive and significant impact on satisfaction.

H4a: The influence of Flow Experience on continuance intention is mediated by satisfaction.

Behavioral Change Techniques (BCT)

Behavioral Change Techniques are observable tactics designed to inhibit or facilitate behavioral change (Abraham & Michie, 2008). Behavioral Change Techniques may increase users' overall satisfaction with a health app. Moreover, BCTs by improving user satisfaction with an app can in turn influence users' CI for the health app.

H5: Behavioral Change Techniques related to health behavior have a positive and significant impact on satisfaction.

H5a: The influence of Behavioral Change Techniques on Behavioral Change Techniques is mediated by satisfaction.

Health Consciousness (HC)

HC reflects an individual's level of awareness of his/her health conditions and willingness and readiness to be healthier (Cho, Park, & Lee, 2014). Individuals with a higher HC are more likely to be involved in fitness, nutrition and stress management activities (Kraft & Goodell, 1993; Newsom, McFarland, Kaplan, Huguet, & Zani, 2005; Plank & Gould, 1990). They are also more likely to seek information and apply approaches which could improve or maintain their health and quality of life (Rodgers, Chen, Duffy, & Fleming, 2007),

H6a: Health consciousness increases the predictive power of perceived usefulness on satisfaction.

H6b: Health consciousness increases the predictive power of perceived ease of use on satisfaction.

H6c: Health consciousness increases the predictive power of subjective norms on satisfaction.

H6d: Health consciousness increases the predictive power of flow experience on satisfaction.

H6e: Health consciousness increases the predictive power of behavioral change techniques on satisfaction.

Satisfaction

Customer satisfaction refers to a customer's overall evaluation of the performance of an offering to date (Johnson & Fornell, 1991). Satisfaction (or dissatisfaction) results from a comparison between consumers' expectations about product performance and product's actual performance (Oliver, 1980). Prior research thus suggested that satisfaction is a predictor of continuance intention for a range of digital technologies; satisfaction is assumed that it acts in a similar manner for health apps, so that if the user feels satisfied with a health app, he/she is more likely to keep using it.

H7: Satisfaction has a positive and significant impact on continuance intention

Conceptual Framework

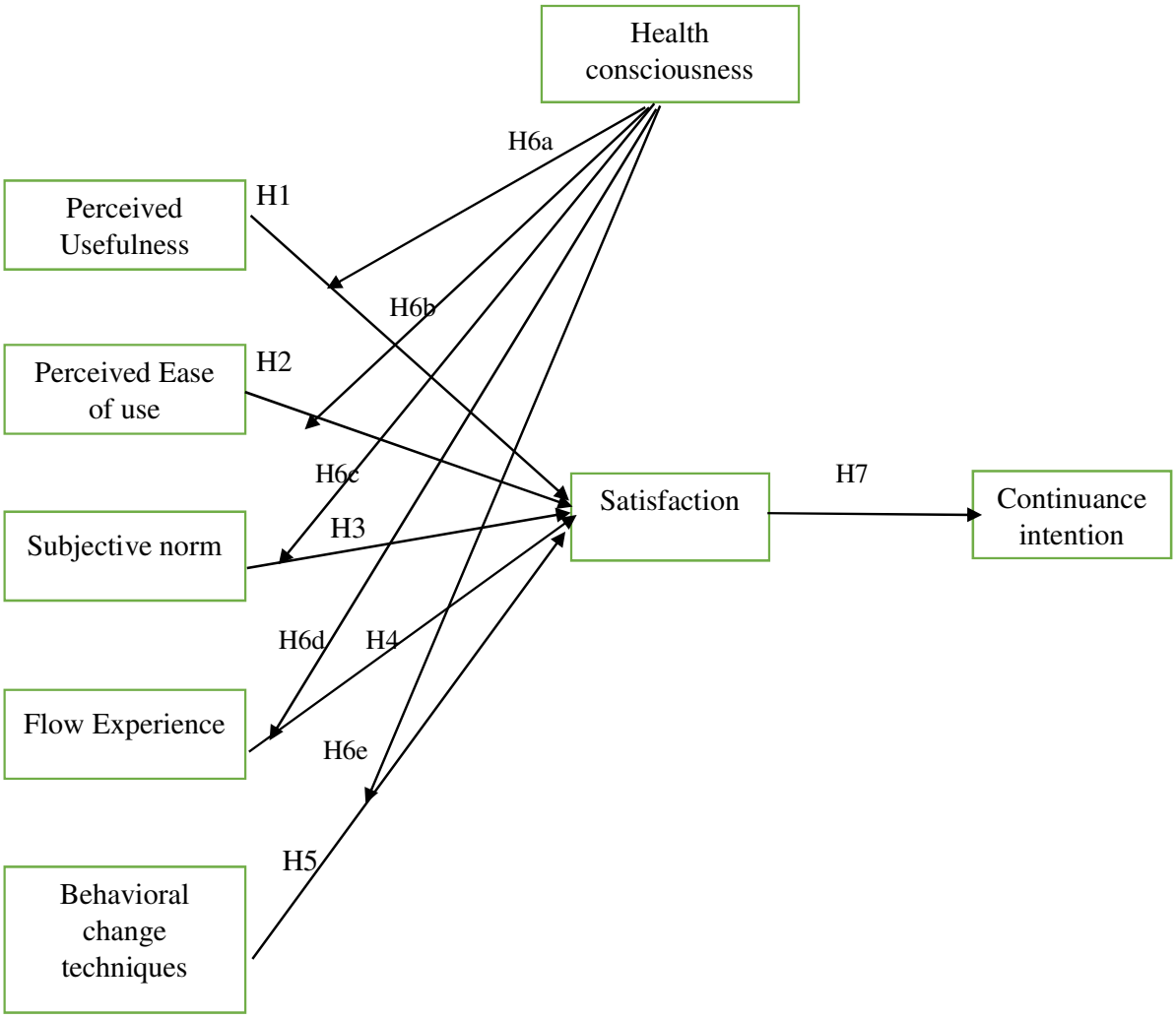

Figure 1: Conceptual model.

Research methodology

This study has used a survey questionnaire to collect data from respondents. The origins of each of these items has been summarized in **Table 1.**

Construct	Reference		Item
Perceived Usefulness (PU)	Davis, 1989	PU1	Using the health app improves my health performance
		PU2	Using the health app enhances my effectiveness in getting healthier
		PU3	Using the health app makes it easier to keep a health habit
		PU4	I find the health app useful for me to keep a healthy lifestyle
Perceived Ease of Use (PEoU)	Davis, 1989	PEoU1	Learning to use the health app is easy for me
		PEoU2	The interface of the health app is clear and understandable
		PEoU3	It is easy for me to become skilful at using the health app
		PEoU4	I find the health app easy to use
Subjective Norms (SN)	Francis et al., 2004; Venkatesh, Thong, & Xu, 2012	SN1	It is expected of me to become healthier
		SN2	People whose opinions that I value make me think that I should be healthier
		SN3	People who are important to me want me to be healthier
Flow Experience (FE)	Jackson & Marsh, 1996	FE1	I felt in total control of what I was doing
		FE2	My attention was focused entirely on what I was doing
		FE3	I enjoyed the feeling of that performance and want to capture it again
Behavioral Change Techniques (BCT)	McKay, Slykerman, & Dunn, 2019	BCT1	The health app allows me to set health goals
		BCT2	The health app allows me to record and monitor my health progress
		BCT3	The app allows me to review goals, update, and change when necessary
		BCT4	The health app will remind me to keep the health behavior regularly
Satisfaction (SAT)	Oliver, 1980	SAT1	I am satisfied with my decision to use this app

		SAT2	I am satisfied with my previous experiences with this app
		SAT3	My choice to use this app is a wise one
Continuance Intention (CI)	Bhattacherjee, 2001	CI1	I intend to continue using this health app rather than discontinue its use
		CI2	My intentions are to continue using this health app than use others similar apps
		CI3	I will recommend others to use the health app
		CI4	If I could, I would like to continue my use of this health app
Health Consciousness (HC)	Michaelidou & Hassan, 2008	HC1	I'm very self-conscious about my health
		HC2	I'm alert to changes in my health
		HC3	I'm usually aware of my health
		HC4	I take responsibility for the state of my health

Table 1: Items identified from Literature Review

The study was conducted in the Raipur city of Chhattisgarh. Sampling technique used for this study is Random Sampling. The population for the research was the members who using the fitness app. The data was collected from 423 respondents out of which 397 were used for further purpose. Structural Questionnaire was used for the purpose of research. Measurement scales of the research model constructs were adopted from previous related studies. Questionnaire was divided into 2 parts. The first part covered the demographic profile of the respondents whereas the second one was related to factors affecting the satisfaction among the fitness health app users. Five point Likert scale was used for measuring the factors ranging from Strongly Agree, Agree, Neutral, Disagree and Strongly Disagree. Pilot testing of the questionnaire was done on 55 respondents before proceeding for the further research. The results 55 respondents were acceptable. Hence, the researcher proceeded for the further research.

Analysis and Research

Under the descriptive statistics, the results as shown below in Table 2 shows that 29.7 percent of the respondents are males and 70.3 percent are females. 70.3 percent of the respondents are married. The age of respondents revealed that about 16.8 percent are in the age of 19-25, followed by 23.6 percent in the age of 26-35, 24.6 percent are in the age of 36-45, 20.6 percent are in the age of 46-55 and the least are the respondents in the age bracket of 56 and above. The education level of the respondents from the study is 50.1 percent respondents are graduate, 44.8 percent are post graduate and only 5.1 percent are PhD degree holders. 24.6 percent of respondents are students, followed by 23.6 percent as

government employees, 34.8 percent are private employee and 16.8 percent of the respondents are having their business. Monthly income of the respondents in the income group of 10000-20000 is least ie 14.1 percent, followed by 16.8 percent in income group of 20001-30000, followed by 20.6 percent in the income group of 30001-40000, 23.6 percent are in income group of 40001-50000 and 24.6 percent respondents are in the category of 50001 and above.

Table 2: Respondent profile.

Demographic	Frequency	Percentage
Gender		
Male	118	29.7
Female	279	70.3
Marital Status		
Married	279	70.3
Unmarried	118	29.7
Age		
19-25	67	16.8
26-35	94	23.6
36-45	98	24.6
46-55	82	20.6
56 and Above	56	14.1
Education		
Graduate	199	50.1
Post Graduate	178	44.8
PhD	20	5.1
Occupation		
Student	98	24.6
Government employee	94	23.6
Private Employee	138	34.8
Business	67	16.8
Monthly Income		
10000-20000	56	14.1
20001-30000	67	16.8
30001-40000	82	20.6
40001-50000	94	23.6
50000 and Above	98	24.6

Assessment result of Measurement model

The assessment of the measurement model is done using PLS -SEM technique. The process begins with checking the reliability of the item which is done factor loading. The item score of the items were above 0.7. For checking the internal consistency of the construct, the composite reliability is evaluated which is above 0.7 representing a good internal reliability of the model. Another check of reliability is Cronbach's alpha value which above 0.7 shows good reliability, Hair et.al., (2017). The convergent validity is checked through the composite reliability and average variance explained. The results of

AVE are above 0.5 which is required for validity (Hair et al, 2017). Table 3 represents the results of assessment model.

Table 3: Assessment result of measurement model.

Items	Indicator loading	Cronbach's Alpha	rho_A	Composite Reliability	AVE
PU1	0.793				
PU2	0.718	0.768	0.776	0.851	0.588
PU3	0.793				
PU4	0.761				
PEoU1	0.730				
PEoU2	0.828	0.705	0.711	0.836	0.631
PEoU3	0.821				
SN1	0.769				
SN2	0.806	0.701	0.701	0.833	0.624
SN3	0.795				
FE1	0.795				
FE2	0.825	0.739	0.739	0.852	0.657
FE3	0.811				
BCT1	0.740				
BCT2	0.786	0.740	0.744	0.836	0.561
BCT3	0.740				
BCT4	0.729				
CI1	0.820				
CI2	0.734	0.737	0.753	0.834	0.558
CI3	0.714				
CI4	0.714				
HC1	0.728				
HC2	0.798	0.759	0.761	0.847	0.581
HC3	0.738				
HC4	0.784				
SAT1	0.737				
SAT2	0.716	0.760	0.770	0.846	0.580
SAT3	0.814				

Source: Author’s calculation

Discriminant Validity - Fornell Larcker criterion

Fornell and Larcker (1981) in their studies mentioned that if the square root of AVE is higher than the correlation coefficients there is a discriminant validity. The results of the Table 4 exhibits that criteria for discriminant validity is achieved.

Table 4: Discriminant validity -fornell larcker criterion.

	PU	PEoU	SN	FE	BCT	CI	HC	SAT
PU	0.767							
PEoU	0.545	0.762						
SN	0.529	0.531	0.790					
FE	0.462	0.427	0.520	0.747				
BCT	0.484	0.481	0.559	0.379	0.749			
CI	0.523	0.523	0.475	0.466	0.461	0.810		
HC	0.576	0.513	0.519	0.475	0.516	0.387	0.762	
SAT	0.493	0.504	0.552	0.467	0.532	0.453	0.611	0.794

Source: Author's calculation

Discriminant Validity- HTMT Criterion

Heterotrait Monotrait Ratio (HTMT) criterion to check discriminant validity is also used. HTMT is contemporary technique developed by Henseler, Ringle and Sarstedt (2015). The studies of Kline,(2011) suggest the values obtained by HTMT ratio should be below 0.85. Table 5 exhibits the results are below 0.85.

Table 5: Discriminant validity- HTMT criterion.

	PU	PEoU	SN	FE	BCT	CI	HC	SAT
PU								
PEoU	0.233	0.533						
SN	0.549	0.583	0.241					
FE	0.324	0.441	0.658					
BCT	0.225	0.410	0.377	0.553				
CI	0.309	0.614	0.413	0.767	0.534			
HC	0.511	0.561	0.567	0.410	0.309	0.461		
SAT	0.583	0.324	0.241	0.432	0.302	0.432	0.465	

	P U	PEoU	SN	FE	BCT	CI	HC	SAT
PU1	1.746							
PU2	1.826							
PU3	1.998							
PU4	1.853							
PEoU1		1.969						
PEoU2		2.244						
PEoU3		3.051						
SN1			1.992					
SN2			1.958					
SN3			2.244					
FE1				2.224				
FE2				2.265				
FE3				1.790				
BCT1					1.953			
BCT 2					1.052			
BCT3					2.011			
BCT 4					2.066			
CI 1						1.722		
CI 2						2.483		
CI 3						2.318		
CI 4						2.270		
HC 1							1.819	
HC 2							2.31	
HC 3							1.942	
HC 4							1.986	
SAT1								2.152
SAT2								2.066
SAT3								1.412

Source : Author's calculation

Structural Model

The hypotheses in the structural model are tested using the bootstrapping method which assesses the significance of the path coefficient and evaluates their confidence intervals. A bootstrapping procedure with 5,000 iterations to measure the statistical significance of the path coefficients. The model fit criteria was tested using the standardized root mean square residual (SRMR) as suggested by studies of Henseler, Hubona and Ray (2016) .The perfect fit for SRMR is implied by 0 generally a SRMR value of less than 0.08 is suggested to be an adequate fit threshold for PLS path models as suggested

by Merli, Preziosi, Acampora, Lucchetti, & Ali, 2019. The SRMR value for the proposed model is 0.064 indicating an adequate model fit. The structural model is tested by examining the R2, beta value, and identical t values as well as the effect size (f2) as suggested by Hair, Ringle and Sarstedt (2013). The R2 value for satisfaction is 0.459 representing moderate fit. The R2 value for continuance intention is 0.374 for the dependent variables in the model is considered strong based on the recommendations of Chin (1998). The predictive relevance of the model was tested by Stone-Geisser's blindfolding test. Based on the recommendations of Tenenhaus, Vinzi, Chatelin, & Lauro, (2005) if the values for predictive relevance are greater than zero the predictive validity of the proposed model is high. To measure the size of the relationship between the latent variables effect sizes were evaluated stating the extent to which an exogenous latent variable contributes to an endogenous latent variable's R2 value as suggested by Wong (2013).

Table 6: Explained Variance (R^2) and Predictive relevance (Q2)

	R Square (R2)	**Predictive Relevance (Q2)**
Satisfaction	0.459	0.265
Continuance intention	0.374	0.213

Source: Author's calculation

Hypothesis Testing

Inner model represents the p-values & outer model represents the t-value of factors.

Table 7: Direct hypothesis testing.

Hypotheses	Path coefficient	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Value	Decision
H1: PU→SAT	0.192	0.055	3.492	0.000	Supported
H2: PEoU→SAT	0.185	0.063	2.920	0.002	Supported
H3: SN→SAT	0.034	0.061	0.562	0.287	Not Supported
H4: FE→SAT	0.197	0.079	2.498	0.006	Supported
H5: BCT→SAT	0.114	0.072	1.588	0.050	Supported

Source: Author's calculation

Perceived Usefulness (β=0.192; p value=0.000) and Perceived ease of use (β=0.185; p value=0.002) has a significant positive influence on the on Satisfaction among users of fitness app. So, H1 and H2 alternative hypotheses were duly supported by the result. Subjective norms do not have significant positive influence on Satisfaction among users of fitness app as (β =0.034 ; p value is 0.287) which indicated that alternative hypothesis H3 is not duly supported. Flow experience (β=0.197; p value=0.006) and Behavioural change techniques (β=0.114; p value=0.050) has a significant positive influence on the on Satisfaction among users of fitness app. So, H4 and H5alternative hypotheses were duly supported by the result.

Direct, Indirect and Total effects

To calculate the direct effects, the significance of the path coefficients has been measured based on the t-value and the bias-corrected confidence interval using the bootstrap resampling approach. The results

indicate a level of significance for direct effects for continued usage intention, Continued usage behaviour and Habit. The findings of the study exhibit a significant effect of habit on continued usage intention and continued usage behaviour. Indirect effect exhibits the mediator. Bootstrap resampling method was used to assess the mediation as suggested by the study of Hayes and Scharkow (2013) it is the best assessment approach. The results suggested the indirect effect of habit which confirms a significant mediating role of habit on continued usage intention of mobile health app users. The total effect of continued usage intention and continued usage behaviour was checked. Findings of Hair et al., 2017; Rasoolimanesh, Jaafar, Badarulzaman, & Ramayah, 2015 emphasize the significance of assessing total effects when certain success factors impact on a dependent variable among some direct and indirect effects. Total effects have been assessed using the t-value and bias-corrected confidence interval using the bootstrap resampling approach. The results indicate that continued usage intention have a significant effect on continued usage behaviour. Further in the study the type of mediation was anlaysed through Variance accounted for (VAF). The amount of indirect effect determines whether no/partial/full mediation takes place. Mediation effects (Direct effects + Indirect Effects= Total Effects) . VAF is calculated by dividing the indirect effect from the total effect. In the study The VAF is 0.49 or 49% which reports that the value is between 20% to 80% that is case of partial mediation.

Table 8: Mediation test results.

Hypotheses	Path coefficient	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Value	Decision
H6a: PU → SAT → CI	0.192	0.055	3.492	0.000	Supported
H6b: PEoU → SAT → CI	0.185	0.063	2.920	0.002	Supported
H6c: SN → SAT → CI	0.034	0.061	0.562	0.287	Not Supported
H6d: FE → SAT → CI	0.197	0.079	2.498	0.006	Supported
H6e: BCT → SAT → CI	0.114	0.072	1.588	0.050	Supported

Source :Author's calculation

To test whether the influence of PU, PEoU, SN, FE and BCT on CI is mediated by satisfaction, the bootstrapping method recommended by Zhao, Lynch and Chen (2010) was done. In the study, only one of the indirect effects was insignificant, which is for the path "subjective norms > satisfaction > continuance intention" and the 95% confidence interval includes zero (-0.042; 0.085). All the remaining four indirect effects are significant, with a 95 % confidence interval, excluding zero. Hence, it can be concluded that the effects of PU, PEoU, FE and BCT on CI is mediated by satisfaction.

Moderation test

In the study it was tested whether HC (Hypotheses H6a to H6e) moderates the effect of PU, PEoU, SN, FE and BCT on satisfaction.

Table 9: Moderation test.

Hypotheses	Path coefficient	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Value	Decision
H6a: HC*PU → SAT	0.128	0.055	2.308	0.011	Supported

H6b: HC*PEoU→SAT	-0.100	0.059	1.674	0.047	Not Supported
H6c: HC*SN →SAT	0.041	0.047	0.878	0.190	Not Supported
H6d: HC*FE→SAT	-0.024	0.054	0.444	0.329	Not Supported
H6e: HC*BCT→SAT	-0.031	0.067	0.460	0.323	Not Supported

Source: Author's calculation

From the findings reported in table there is a positive moderating effect of HC on the relationship between PU and satisfaction and thus H6a is supported. There is a negative and no significant moderation effect of HC on the relationship between PEoU, SN and FE and satisfaction, which states that the H6b. For H6c, H6d and H6e is not supported with the results.

Conclusion

This study develops a theoretical framework, augmenting the IS Continuance model (Bhattacherjee, 2001) by integrating subjective norms as a social factor; and flow experience, BCT and health consciousness as psychological factors, to explain CI for health apps. According to the findings in the study, with the exception of the non-significant effect of SN, most hypotheses regarding the predecessors effect on satisfaction are supported. Moreover, the mediating effect of satisfaction between other antecedents and CI is also supported. The study also supports the moderating effect of health consciousness for the constructs PU on satisfaction. HC does not moderate the relationships between other factors (SN, FE and BCT) and satisfaction (H6c,H6d & H6e are rejected). This implies that for individuals with higher HC the effect of PU on satisfaction is magnified, as one might expect given the greater personal salience for this group. Health-conscious users are intrinsically committed to changing their behavior. However, in contrast to expectations, HC negatively moderates the effect between PEoU on satisfaction. This may reflect that a user with a higher level of HC has better health knowledge and clearer health goals so that even if the app is not easy to use, complexity is not regarded as necessarily a bad thing. In contrast, users with low HC may link PEoU with simplicity of the app and consider poor PEoU as a frustration.

Managerial Implication

After evaluating the proposed the theoretical model with empirical data from health app users in Raipur the factors that explain CI for mobile health apps are identified. They indicate that apart from technological factors (perceived usefulness and perceived ease of use), psychological factors like flow experience and Behavioral change techniques also predict Continuance Intention. Moreover, the moderating effect of user's health consciousness on Continuance Intention for health apps was assessed and supported in this study. The findings generate actionable insights for health app developers, marketers and public health officials. Perceived Usefulness is important in promoting users' Continuance Intention for health apps. Users typically download health apps for specific purposes and expect that the functions provided by the health app can guide or motivate them to achieve their health goals, build healthy habits, and/or break bad habits. The respondents also suggested that, even if one app is preferred, other health apps with different functions were also downloaded and used in their daily life. As there is emerging awareness about mental as well as

physical health, and with more users having specific health needs and dieting plans such as intermittent fasting, app developers should pay greater attention to this growing market to meet different users' needs, such as meditation, sleep monitoring and management of special diets. With the increasing desire to be fitter and healthier, health consciousness is becoming more prominent.

References

Abraham, C., Michie, S., 2008. A taxonomy of behavior change techniques used in interventions. Health Psychol. 27(3), 379-387. https://doi.org/10.1037/0278-6133.27.3.379

Ajzen, I., 1991. The theory of planned behavior. Organ. Behav. Hum. Decis. Process. 50(2), 179-211. https://doi.org/10.1016/0749-5978(91)90020-T

Al-Debei, M. M., Al-Lozi, E., Papazafeiropoulou, A., 2013. Why people keep coming back to Facebook: Explaining and predicting continuance participation from an extended theory of planned behaviour perspective. Decis. Support Syst. 55(1), 43-54. https://doi.org/10.1016/j.dss.2012.12.032

Beldad, A. D., Hegner, S. M., 2018. Expanding the Technology Acceptance Model with the Inclusion of Trust, Social Influence, and Health Valuation to Determine the Predictors of German Users' Willingness to Continue using a Fitness App: A Structural Equation Modeling Approach. Int. J. Hum-Comput. Int. 34(9), 882-893. https://doi.org/10.1080/10447318.2017.1403220

Bhattacherjee, A., 2001. Understanding Information Systems Continuance: An Expectation-Confirmation Model. MIS Q. 25(3), 351-370. https://doi.org/10.2307/3250921

Chang, I. C., Liu, C. C., Chen, K., 2014. The effects of hedonic/utilitarian expectations and social influence on continuance intention to play online games. Internet Res. 24(1), 21-45. https://doi.org/10.1108/IntR-02-2012-0025

Chin, W. W., 1998. Commentary: Issues and Opinion on Structural Equation Modeling. MIS Q. 22(1), vii-xvi. Retrieved from: http://www.jstor.org/stable/249674

Cho, J., 2016. The impact of post-adoption beliefs on the continued use of health apps. Int. J. Med. Inform. 87, 75-83. https://doi.org/10.1016/j.ijmedinf.2015.12.016

Cho, J., Park, D., Lee, H. E., 2014. Cognitive factors of using health apps: systematic analysis of relationships among health consciousness, health information orientation, eHealth literacy, and health app use efficacy. J. Medical Internet Res. 16(5), 125. https://doi.org/10.2196/jmir.3283

Csikszentmihályi, M., Abuhamdeh, S., Nakamura, J., 2005. Flow, in: Elliot, A. (Ed.), Handbook of Competence and Motivation (pp. 598–698). The Guilford Press, New York.

Daphne, K.-A., 2017. Top 10 Global Consumer Trends for 2017. Retrieved from https://go.euromonitor.com/white-paper-economies-consumers-2018-global-consumer-trends-EN.html

Davis, F. D., 1989. Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. MIS Q. 13(3), 319-340. https://doi.org/10.2307/249008

Davis, F. D., Bagozzi, R. P., Warshaw, P. R., 1992. Extrinsic and intrinsic motivation to use computers in the workplace. J. Appl. Soc. Psychol. 22(14), 1111-1132. https://doi.org/10.1111/j.1559-1816.1992.tb00945.

Francis, J., Eccles, M. P., Johnston, M., Walker, A. E., Grimshaw, J. M., Foy, R., . . . Bonetti, D., 2004. Constructing questionnaires based on the theory of planned behaviour: A manual for health services researchers. In. Newcastle upon Tyne, UK: Centre for Health Services Research, University of Newcastle upon Tyne. Retrieved from https://openaccess.city.ac.uk/id/eprint/1735/

Fricker, H., 2018. HEALTH AND FITNESS CLUBS, UK - July 2018. Retrieved from http://academic.mintel.com/display/859321/

Guo, Z., Xiao, L., Van Toorn, C., Lai, Y., Seo, C., 2016. Promoting online learners' continuance intention: An integrated flow framework. Inf. Manag. 53(2), 279-295. https://doi.org/10.1016/j.im.2015.10.010

Hair, J. F., Ringle, C. M., Sarstedt, M., 2013. Partial Least Squares Structural Equation Modeling: Rigorous Applications, Better Results and Higher Acceptance. Long Range Plann. 46(1-2), 1-12. https://doi.org/10.1016/j.lrp.2013.01.001

Huang, G., Ren, Y., 2020. Linking technological functions of fitness mobile apps with continuance usage among Chinese users: Moderating role of exercise self-efficacy. Comput. Hum. Behav. 103, 151-160. https://doi.org/10.1016/j.chb.2019.09.013

Jackson, S. A., Marsh, H. W., 1996. Development and validation of a scale to measure optimal experience: The Flow State Scale. J. Sport Exerc. Psychol. 18(1), 17-35. https://doi.org/ 10.1123/jsep.18.1.17

Johnson, M. D., Fornell, C., 1991. A framework for comparing customer satisfaction across individuals and product categories. J. Econ. Psychol. 12(2), 267-286. https://doi.org/10.1016/0167-4870(91)90016-M

Kraft, F. B., Goodell, P. W., 1993. Identifying the health conscious consumer. J. Healthc. Mark. 13(3), 18-25. PMID: 10129812

Lin, Z., Filieri, R., 2015. Airline passengers' continuance intention towards online check-in services: The role of personal innovativeness and subjective knowledge. Transp. Res. Part E. 81(C), 158-168. https://doi.org/10.1016/j.tre.2015.07.001

Lu, J., 2014. Are personal innovativeness and social influence critical to continue with mobile commerce? Internet Res. 24(2), 134-159. https://doi.org/10.1108/IntR-05-2012-0100

McKay, F. H., Slykerman, S., Dunn, M., 2019. The App Behavior Change Scale: Creation of a Scale to Assess the Potential of Apps to Promote Behavior Change. JMIR mHealth uHealth. 7(1), e11130. https://doi.org/10.2196/11130

Merli, R., Preziosi, M., Acampora, A., Lucchetti, M. C., Ali, F., 2019. The impact of green practices in coastal tourism: An empirical investigation on an eco-labelled beach club. Int. J. Hosp. Manag. 77, 471-482. https://doi.org/10.1016/j.ijhm.2018.08.011

Mintel., 2018. Mobile Device Apps, UK - October 2018. Retrieved from: http://academic.mintel.com/display/859587/

Michaelidou, N., Hassan, L. M., 2008. The role of health consciousness, food safety concern and ethical identity on attitudes and intentions towards organic food. Int. J. Consum. Stud. 32(2), 163-170. https://doi.org/10.1111/j.1470-6431.2007.00619.x

Newsom, J. T., McFarland, B. H., Kaplan, M. S., Huguet, N., Zani, B., 2005. The health consciousness myth: implications of the near independence of major health behaviors in the North American population. Soc. Sci. Med. 60(2), 433-437. https://doi.org/10.1016/j.socscimed.2004.05.01

Oliver, R. L., 1980. A cognitive model of the antecedents and consequences of satisfaction decisions. J. Mark. Res. 17(4), 460-469. https://doi.org/10.2307/3150499

Plank, R. E., Gould, S. J., 1990. Health consciousness, scientific orientation and wellness: an examination of the determinants of wellness attitudes and behaviors. Health Mark. Q. 7, 65-82. https://doi.org/ 10.1300/J026v07n03_06

Rodgers, S., Chen, Q., Duffy, M., Fleming, K., 2007. Media Usage as Health Segmentation Variables. J. Health Commun. 12(2), 105-119. https://doi.org/10.1080/10810730601150064

Susanto, A., Chang, Y., Ha, Y., 2016. Determinants of continuance intention to use the smartphone banking services An extension to the expectation-confirmation model. Ind. Manag. Data Syst. 116(3), 508-525. https://doi.org/10.1108/IMDS-05-2015-0195

Tenenhaus, M., Vinzi, V. E., Chatelin, Y.-M., Lauro, C., 2005. PLS path modeling. Comput. Stat. Data. Anal. 48(1), 159-205. https://doi.org/10.1016/j.csda.2004.03.005

Venkatesh, V., Thong, J. Y. L., Xu, X., 2012. Consumer Acceptance and Use of Information Technology: Extending the Unified Theory of Acceptance and Use of Technology. MIS Q. 36(1), 157-178. https://doi.org/10.2307/41410412

Yoon, C., Rolland, E., 2015. Understanding Continuance Use in Social Networking Services. J. Comput. Inf. Syst. 55(2), 1-8. https://doi.org/10.1080/08874417.2015.11645751