



Original Research Paper

Determinants of Fitness Wearable Adoption Among Existing Users in Bangalore: Integrating VAM, Consumer Attitude, and Health Consciousness

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Abstract

It dissects the elements that impact the fitness wearable adoption among the present fitness wearers in Bangalore by combining the elements of the Value Based Adoption Model, Consumer Attitude and Health consciousness. The research method used was quantitative, descriptive and cross-sectional with a purposive sampling technique for 400 respondents who used fitness wearables. Data collection of this study was primary data and obtained using a purposive sampling technique of 400 respondents who used fitness wearables. The results demonstrate that perceived value, consumer attitude, and health consciousness are the best predictors of the intention to use fitness wearables going forward. The cohesive model is very explanatory of the post-adoption behaviour. The research has crucial implications for wearable technology manufacturers, health professionals and policy makers in the area of promoting prolonged use of wearable technology and bolstering digital health programs.

Keywords: Fitness Wearables, Value-Based Adoption Model (VAM), Consumer Attitude, Health Consciousness, Technology Adoption, Structural Equation Modeling (SEM), Bangalore.

1. Introduction

The healthcare and fitness domain has been transformed by the swift progression of digital technologies and the ability of individuals to track, regulate and enhance their health using wearable technology. From the time when fitness wearables were just step counters, they've now grown into highly advanced health-monitoring gadgets that can, for example, track blood oxygenation levels, track how much exercise a person is getting, monitor levels of physical activity, measure stress and determine how long an individual has spent sleeping. The incorporation of AI, the IoT, cloud computing, and mobile applications has greatly improved the capabilities and user-friendliness of such gadgets, making them valuable instruments for preventive healthcare and personalized management of wellness (Parashar et al., 2022).

On a global level, the market for fitness wearables has seen significant growth as people become more aware of a healthy lifestyle, concerned with

lifestyle-changing diseases, and more accepting of and enthusiastic about the technology and consider self-monitoring of their health. The outbreak of the pandemic further drove the wearable technologies market as people had to track their health continually and receive treatment from a distance. This has driven fitness wearables to play a crucial role in digital health systems, inspiring people to engage in healthier habits and traditions throughout the day, delivered by on-going physical and information tracking, feedback, and personalized communication.

Boost in smart phone penetration, strengthening Internet connectivity, growing disposable income and growing health awareness among consumer base in the country have contributed to making it one of the fastest market for wearable technology in India. The population is technologically advanced, digital literate, fitness culture is growing and technology innovations are well accepted by the population in the metropolitan cities such as

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Bangalore, which makes it ideal for studying wearable technology adoption. Located in India's information technology hub, Bangalore boasts a substantial demographic of tech-savvy young adults and consumers who are increasingly looking to digital devices to help them follow their health and fitness goals.

The use of fitness wearables is now increasing quickly, but keeping all of them in use over a long period of time is a challenge. After a short time, many users cease using the wearable devices because they become lacking in motivation, value or privacy issues or the device is not functioning well. Therefore, it is more helpful to explore possible factors that influence ongoing use from the perspective of existing adopters, rather than just examining initial purchase intent. Factors users consider when determining the value of a wearable device include the device's technology performance, user perception of value, personal attitude, and usage motives for health. Therefore, it is important to determine these factors for better retention and to boost the effectiveness of wearables in healthcare.

Literature Review

Fitness wearable technology is a term used for the sensing devices burdened on the physique that watch the guts all the time and the parameters of physical activity or condition of the body. These devices gather data as they are being used and analyze it to offer customized information to help people improve their lifestyle. With recent breakthroughs in AI, machine learning, and the IoT, wearable devices have become smart health assistants that can anticipate health risks and supply tailored interventions.

The importance of wearable technologies in preventive health has been emphasised in several studies. According to Zhang et al. (2019) wearable health care technology can enhance users' health awareness, promote physical activities and facilitate the ongoing monitoring of health. In the same vein, Parashar et al. (2022) reported the social media following of wearable devices among the Indian consumers since these could help them manage health and improve their fitness levels and prevent diseases.

One of the most complete models to account for consumer adoption of novel technologies is the VAM proposed by Kim, Chan and Gupta (2007). VAM defends that consumers assess a technology in terms of their perceived advantages vs. their perceived disadvantages, whereas TAM focuses mainly on the perceived utility and use of the technology. Consumers take their decision to

continue using a technology based on the overall perceived value.

In general, perceived benefits are perceived usefulness, perceived enjoyment, perceived convenience and perceived functional performance, while perceived sacrifices are perceived monetary cost, perceived technical complexity, perceived privacy burdens and perceived learning effort. Consumers' value perceptions are positive if the perceived benefits are greater than the perceived sacrifices, which further strengthens adoption and continuance perceptions. Positive value perceptions lead to increased adoption intentions and continued use intentions when the benefits perceived to consumers are more significant than the costs perceived.

A number of empirical studies have confirmed VAM with a number of different types of digital technology, ranging from mobile commerce to online banking, digital payment systems, and wearable healthcare technologies. In relationship to perceived value, Kim et al. (2007) showed that perceived usefulness and perceived enjoyment play an important role, while the conceptual complexity and cost play a negative role in the willingness to adopt. Other more recent studies on wearable technology also find that perceived health benefits and convenience are among the two leading factors for continued device use.

Consumer attitude is someone's positive or negative reflection on the consumption of a certain technology. According to the technology adoption research literature it is regarded as one of the most powerful predictors of behavioral intentions. Generally, positive attitudes from consumers arise following satisfying experiences, perceived usefulness, ease of use, consumer trust and enjoyment with the technology.

Lots of people are interested in buying wearable fitness trackers and that consumer attitude is a significant factor in determining their intention to buy fitness trackers, as revealed by Lee and Lee, 2018. Their research has shown that those with favourable attitudes towards wearable technologies were more likely to persist with using it as they felt the devices had greater advantages for health and technological utility. In the same fashion, Wu et al. (2017) found that consumer attitude lies as a mediator between technological attributes and behavioural intention, and that shows consumer attitude is crucial for understanding post-adoption behaviour.

Consumer attitude is even more important for existing users because it is built up and shaped on a basis of individual experiences with the device.

Positive experiences foster satisfaction; opt for regular usage and boost their loyalty; negative experiences contribute to discontinuance.

Health consciousness is the level of which people are actively involved in the measurement, maintenance and enhancement of their health through preventive actions and behavior decision-making. People who are more conscious about their health are more likely to look for health related information, be physically active and use innovative health care technologies.

The objectives of health-conscious consumers are well met by fitness wearables as they offer real-time health monitoring, personalized and behavioural feedback. For this reason, the concern over health is considered one of the most significant psychological factors driving the uptake of wearable technologies.

It was found that the health-conscious group expressed higher level of purchase intentions, engagement towards the wearable devices and continuance intentions compared to the rest of the consumers. Zhang et al. (2019) found that health-oriented consumers feel more useful by the wearable technologies because they can help them achieve the long-term goals they have shaped for their health. Similarly, Parashar et al., (2022) found that health consciousness strongly affects the use of the wearable device as it contributes to raising awareness among Indian consumers about measures that can be taken for the benefit of health and healthy lifestyle.

The previous research indicates a variety of technical, psychological and health-related factors that affect the fitness wearable adoption. Wu et al. (2017) combined the characteristics of technology, health attributes and consumers and found that perceived usefulness, consumer innovations, and health consciousness were factors that have a significant effect on wearable adoption intention.

The researchers, Lee and Lee (2018), found that perceived usefulness, enjoyment, trust, and consumer attitudes are all positive determinants of behavioural intention towards use of wearable fitness trackers. Regarding this point, Zhang et al. (2019) have made Perceived health benefits, self-monitoring ability and personalized feedback an important factor in the willingness of consumers to use wearable technologies for healthcare.

Other studies in India have also emphasized the significance of perceived usefulness, ease-of-use, technological compatibility and health benefits as determinants for the adoption of wearable technologies. Users tend to be more satisfied and have greater commitment to use wearable

technologies that accurately and consistently deliver health content and health-related insights for personal wellness.

Research Gap

There have been extensive studies on wearable technology that have been adopted, however, there are still several gaps. Previous studies have tended to concentrate on initial purchase intention instead of continued purchase, and most of these studies examined only new consumers and their intentions to purchase, not existing users. Second, while some studies have focused on a specific perspective on either the Value-Based Adoption Model (VAM), consumer attitude or health consciousness, few of them have investigated them together to account for post adoption behaviour. Thirdly, there is limited empirical knowledge available from the Indian context, with Bangalore as an important technology and innovation hub. Last, there has been a focus on certain technological factors with comparatively little attention dedicated to psychological and health-related factors, specifically impacting extended wearable use.

This study aims to fill the above gaps by analysing, using an integrated framework of 'VAM and consumer attitude and health consciousness', the determinants of the fitness wearables uptake of existing fitness wearables users in Bangalore. The results will help inform the literature of technology adoption, and it will lend support to wearable technology manufacturers, health care institutions, digital wellness service providers, and policy makers interested in establishing strategies for long-term, successful adoption of wearable health technologies.

Objectives:

1. To investigate how VAM affects the fitness wearable adoption among existing users in Bangalore.
2. To evaluate the effect of Fitness Wearable Adoption on the existing users of Bangalore due to consumer attitude and health consciousness.
3. To build an integrated model of VAM and consumer attitude and health consciousness for existing wearers of fitness wearables in Bangalore.

Methodology

The study uses description-and-quantitative design with a cross-sectional approach, to examine the determinants of fitness wearable use in existing users in Bangalore. The data which is collected is primary data which will be gathered with a structured questionnaire from 400 existing fitness wearable users which are selected by the purposive sampling technique.

Result and Analysis

Table 1 Demographic Profile of Respondents

Variable	Category	Frequency	Percentage (%)
Gender	Male	228	57.0
	Female	172	43.0
Age	18–25 Years	110	27.5
	26–35 Years	168	42.0
	36–45 Years	82	20.5
	Above 45 Years	40	10.0
Occupation	IT Professionals	165	41.3
	Business	88	22.0
	Students	72	18.0
	Others	75	18.7

Majority of the respondents were males (57.0%) and the remaining were females (43.0%). The majority of respondents (42.0%) were in the 26-35 age bracket, suggesting fitness wearables are mostly being used by young working professionals. The top employment category in the city with the highest number of participants was IT, with 41.3% of people working in this field, highlighting how technology-driven Bangalore's workforce are more likely to be embracing wearable technology.

Table 2 Mean Scores of the Study Variables

Variable	Mean	Standard Deviation
Perceived Value (VAM)	4.18	0.61
Consumer Attitude	4.09	0.58
Health Consciousness	4.23	0.55
Fitness Wearable Adoption	4.14	0.60

The respondents were very keen on maintaining their health using wearable technologies with the highest mean score of 4.23, which is considered healthy consciousness. The other ratings were high, as well, indicating that users perceive a significant value in their wearable devices, such as perceived value (4.18) or fitness wearable adoption (4.14). The positive mean score of consumer attitude was 4.09, indicating that there was a positive attitude towards continued usage.

Table 3 Reliability Analysis

Construct	Number of Items	Cronbach's Alpha
Value-Based Adoption Model	8	0.904
Consumer Attitude	6	0.889
Health Consciousness	6	0.876
Fitness Wearable Adoption	7	0.917

The obtained Alpha for all constructs were above 0.80, which was considered as excellent internal consistency. The internal consistency of the items in the Fitness Wearable Adoption construct was the highest with $\alpha = 0.917$ indicating a high reliability of measurement of the intended construct and suitability of the items for further statistical analysis.

Table 4 Correlation Analysis

Variables	VAM	Consumer Attitude	Health Consciousness	Adoption
VAM	1.000			
Consumer Attitude	0.671**	1.000		
Health Consciousness	0.598**	0.623**	1.000	
Adoption	0.744**	0.692**	0.654**	1.000

$p < 0.01$

The correlation analysis showed that all of the study variables showed significant positive correlations. The most significant correlation to the VAM variables were noticed with fitness wearable adoption with the correlation value of $r = 0.744$, consumer attitude, $r = 0.692$, and health consciousness, $r = 0.654$. The results imply the higher perceived value, positive attitudes and higher health consciousness levels are significantly related to higher adoption behaviour.

Table 5 Multiple Regression Analysis

Independent Variable	Beta	t-value	p-value
Value-Based Adoption Model	0.462	9.84	0.000
Consumer Attitude	0.311	6.42	0.000
Health Consciousness	0.238	4.97	0.000

Model Summary

R	R ²	Adjusted R ²	F-value	Significance
0.821	0.674	0.669	272.56	0.000

The regression model explained 67.4% of the variation in fitness wearable adoption ($R^2 = 0.674$). Consumer attitude ($\beta = 0.311$) was the second strongest predictor whereas health consciousness ($\beta = 0.238$) came third, followed by Value-Based

Adoption Model (VBAM) ($\beta = 0.462$). All predictors were significant ($p < 0.001$), showing having a positive effect for the existing users in becoming adopters.

Table 6 SEM Results

Hypothesis	Relationship	Path Coefficient	t-value	p-value	Decision
H1	VAM $\rightarrow$ Adoption	0.482	10.62	0.000	Supported
H2	Consumer Attitude $\rightarrow$ Adoption	0.326	7.08	0.000	Supported
H3	Health Consciousness $\rightarrow$ Adoption	0.251	5.14	0.000	Supported

Model Fit Indices

Index	Obtained Value	Recommended Value
SRMR	0.054	< 0.08
NFI	0.924	> 0.90
CFI	0.956	> 0.90
RMSEA	0.046	< 0.08

All the fit indices were within the recommended values, suggesting a good model fit for the SEM. VAM positively influenced adoption of fitness wearable the most ($\beta = 0.482$), followed by consumer attitude ($\beta = 0.326$) and health consciousness ($\beta = 0.251$). All three hypotheses were confirmed suggesting that perceived value, favourable attitudes and health consciousness play statistically significant roles in promoting the continued use of fitness wearables of the existing users in Bangalore.

Discussion

The results of the study show that the VAM is the most influential determinant to wearable adoption among the already present users in Bangalore. When users believe they gain more than they lose in functionality, health and convenience when using wearable devices, they utilize the device. The result of the study is in line with Kim et al.'s (2007) VAM, which argues that consumers' evaluation of technology is measured by the ratio of perceived benefits and perceived sacrifices. The findings also support existing research about the use of wearable technology where the perceived value of the technology is an important factor in sustaining technology use.

The study also shows that consumers' attitude and health consciousness are significant factors contributing to the adoption of fitness wearables. The current positive attitudes towards wearable devices and higher personal health concern are reflected in higher intentions to continue using the

wearable devices among the existing users. The convergence of VAM, consumer attitude, and health consciousness on post-adoption behaviour gives a holistic explanation of why consumers continue to use fitness wearables, including the value they place on the technology and their psychological state. The conclusions have implications for wearable manufacturers and healthcare service providers to pay attention to the improvement of user value, user experience, and health-related features to better promote ongoing use and long-term customer retention.

Conclusion

The study findings suggest that the Bangalore existing users' adoption and continued use of fitness wearable devices is significantly influenced by the VAM, attitude of the consumers, and health consciousness. Within these determinants, perceived value proved to be the strongest predictor, meaning that, among other factors, users are more willing to use fitness wearables when they perceive that there are significant health benefits, functional advantages and convenience factors. In tandem with technological value, positive consumer attitudes and health consciousness also reinforce the prospective adoption behaviour, indicating the overall significance of technology value-psychological aspects in perpetuation of prospective wearable usage. Overall, the integrated research model accounts for the factors explaining wearable adoption and builds on the existing body of literature on digital health technologies and consumers' behaviour.

Recommendations

Manufacturers of fitness wearables have three main areas to work on the overall value proposition to make sure the devices are as accurate as possible, offer longer battery life, better user interfaces, and provide individual health insights while maintaining data privacy and security. In addition, enterprises should create awareness campaigns and wellness initiatives that boost consumer attitudes and prompt altruistic conduct. To enhance improvements in public health outcomes through the integration of wearable technologies into public health preventive healthcare initiatives, healthcare providers and policymakers can encourage this. Researchers in the future can further test and validate proposed models by including additional constructs and by testing the model across multiple cities, demographic groups or types of wearable technology for generalization.

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