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Exploring Factors Affecting Consumers' Intention to Use Smartwatch in Bangladesh: An Empirical Study

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ABSTRACT

Smartwatch, one of the popular forms of wearable gadget and a converging point of information technology innovation and fashion, is gaining much acceptance in countries belonging to the Asia-Pacific region. However, little is known about factors affecting consumers' intention to use smartwatches in Bangladesh. Therefore, this study explores factors driving Bangladeshi consumers' intention to use smartwatches and expands the general understanding of the emerging Asia-Pacific region's market. The study extends the conventional Technology Acceptance Model (TAM) by incorporating perceived enjoyment, aesthetic appeal, healthology, and two fashion-related factors, such as fashion innovativeness and fashion involvement. Data representing 300 respondents were analyzed using the structural equation model (SEM). The results reveal that, among other predictors, attitude toward using has the strongest direct effect on behavioral intention to use smartwatches. Moreover, attitude toward using smartwatches is significantly influenced by perceived enjoyment, perceived usefulness, perceived ease of use, fashion innovativeness, and fashion involvement. The study further discusses some interesting theoretical contributions that would be important insights for future studies. The empirical findings of this study would benefit the manufacturers and marketers who are trying to enter or penetrate the market in the Asia-pacific region.

Keywords: Fashion Innovativeness, Fashion Involvement, Healthology, Smartwatch, Technology Acceptance Model

Ⅰ. Introduction

Technology is characterized as "practical implementations of intelligence" (Ferré, 1988, p. 26). The technology that is used to secure and process information for assisting human purposes is known

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as information technology, which has drawn logical consideration for its impact on organizational effectiveness both positively and negatively (March and Smith, 1995). Currently, its magical touch is spreading to different industries as well. Numerous information technology devices are administering the business world, and smart wearable is one of them.

Wearables, which are stylish electronic devices, can be attached to clothing or put on the body to facilitate continuous interactions between users and a smart environment (Dehghani and Dangelico, 2017). These devices are not quite the same as cell phones or portable computers just as they work continually and are inseparably wrapped with the human body (Mann, 2018). There are various types of wearable devices in the market like Implantable, Smartwatch, Smart Jewelry, Fitness Tracker, Smart Clothing, and Head-Mounted Display; among these, smartwatches have become an important beginning point for the wide diffusion of wearable devices (Choi and Kim, 2016). A smartwatch is "a wrist-worn device with computational power that can connect to other devices via short-range wireless connectivity; provides alert notifications; collects personal data through a range of sensors and stores them; and has an integrated clock" (Cecchinato et al., 2015, p. 2). Smartwatch is a unique form of innovation, and its shape and design are indistinguishable with a wristwatch (Choi and Kim, 2016).

Since the smartphone market is maturing, information technology merchants are attempting to generate new interest in cell phones, and to a large extent, their concentration is directed toward wearable devices (Jung et al., 2016). In 2014, 3.6 million smartwatches were sold, and this volume is projected to reach 101 million in 2020 (Omdia, 2015). The sales volume and the tremendous amounts of applications offered for smartwatches are facts that mirror the increased interest in this innovation (Curry, 2015). Hence, smartwatches are acknowledged as the next big thing that will have a remarkable influence on our everyday lives (Cecchinato et al., 2015).

It is reported that the quickest smartwatch adoption in the Asia-pacific region will be triggered by the increased disposable income of general people and the increased infiltration of the Internet and smartphones (Orion Market Research, 2017). Besides, Perez (2017) pointed out that the remarkable growth of the wearables market across the US and Europe is now slowing down, whereas the Chinese market is continually experiencing considerable growth. China ranked first in the world in 2019 with $4599 million in revenue in wearable sales and expects a compound annual growth rate (2019-2023) of 3.7% (Statista, 2019a). Besides, in Bangladesh, revenue from the wearables segment amounts to $77 million (Statista, 2019b). It is also expected that by 2023 Bangladesh will achieve a compound annual growth rate (2019-2023) of 6.1% (Statista, 2019b). As a developing country, Bangladesh is experiencing a growth rate of 7.9% annually (Dhaka Tribune, 2018). Adopting digitalization and using the Internet, now people are getting educated and more knowledgeable. Vision 2021, a manifesto that presents a framework of future Bangladesh, is driving the nation toward achieving the status of a middle-income country within 2021 by flourishing its information and communication technologies (ICT) sector (Rahman, 2015). Four pillars are playing an essential role in achieving the Vision 2021 that are Human Resource Development, Connecting Citizens, Digital Government, and Promotion of ICT Industry. Currently, the revenue from exporting ICT products is around $1 billion, and it is projected to reach $5 billion by 2021 (Palak, 2019). Old devices are being replaced by updated and innovative technologies; some of these trendy

technologies are Smart Phones, 3D Printing, Biographic Security System, Nano-computer, and Wearable Devices (Rahman, 2015). In Bangladesh, as the purchasing power of general people is increasing, people are showing more enthusiasm for these new advancements. According to the research of Counterpoint's Market Monitor Service, the smartwatch market grew 45% year-on-year in the first quarter of 2019 in Bangladesh (Abhishek, 2019). It is also expected that the market volume of wearables will be $97 million by 2023 compared to $77 million in 2019, and user penetration will mount to 2.1% by 2023 compared to 1.9% in 2019 (Statista, 2019b). Consequently, as a country belonging to the Asia-Pacific region with expected substantial future growth, Bangladesh needs extensive study exploring factors that drive consumers' intention to use smartwatches.

Nowadays, consumers are considering wearable devices not only as 'technology' but also as 'fashion or fashnology (i.e., fashion and technology)' (Hein and Rauschnabel, 2016). Besides, Choi and Kim (2016) mentioned smartwatch as a kind of consumer product that possesses both the characteristics of information technology and everyday fashion items. They further indicated that for quite a while, 'watch' has been regarded as luxury jewelry. Likewise, now consumers are more likely to perceive the smartwatch to be a depiction of wealth and fashion. Thus, Choi and Kim (2016) and Chuah et al. (2016) recognized 'smartwatch' as both the information technology innovation and luxury fashion product. However, research on fashion aspects of the smartwatch is still at an emerging stage that warrants further investigation in this arena.

Moreover, Reeder and David (2016) posit that smartwatch can support unvarying health care service in our everyday life because (1) it is an accessible and available consumer device; (2) it works as a personal health information device; (3) it empowers almost real-time physical and physiological monitoring; (4) it provides reminders; (5) it facilitates interactive communication between patients and those who take care of him/her. Acknowledging the dearth of studies, Reeder and David (2016) urged the importance of further study on the healthcare-related feature of a smartwatch. In sum, as the smartwatch is in the early stage of its product lifecycle, both Choi and Kim (2016) and Chuah et al. (2016) postulated that there are still a lot of conjectures and specifications about its adoption yet to come that merit future studies.

Therefore, there are three explicit inspirations of this study. First, this study intends to extend the research on fashion aspects of smartwatch by testing the effects of fashion-related factors on smartwatch use. Second, the study intends to assess whether the smartwatch as a technology and healthcare facilitator prompts users to use it. Third, the study intends to explore factors affecting Bangladeshi consumers' intention to use smartwatches, therefore, expand the general understanding of the emerging Asia-Pacific region's market. In this process, this study aims to make essential contributions to the existing literature in three significant ways. First, similar to Choi and Kim (2016), this study recognizes a smartwatch as both the information technology and fashion product. Thus, the study will empirically test two relatively new fashion-related factors in the smartwatch context that are 'fashion innovativeness' and 'fashion involvement' in predicting consumers' intention to use smartwatches. Second, this study will add to the extant argument on whether a smartwatch is just a technology or both technology and a regular health-monitoring device. Third, the findings of this study will provide important insights to smartwatch marketers

who are planning to enter or expand business in Bangladesh by uncovering factors affecting Bangladeshi consumers' intention to use smartwatches.

Ⅱ. Literature Review

2.1. Previous Studies on Smartwatches

Bodine and Gemperle (2003) found that there is a positive association between the perception of comfort and functionality of smart wearable devices. Based on a qualitative study of 25 respondents, Adapa et al. (2018) stated that look and feel, compatibility and availability of specific apps are the factors that affect the adoption of google glasses and smartwatch. Wu et al. (2016) commented that attitude toward smartwatch is significant in predicting consumers' intention to accept smartwatch, whereas result demonstrability of smartwatches has a substantial impact on attitude toward smartwatch. Moreover, they posited that gender has no significant impact on the acceptance of smartwatches. Extending the technology acceptance model (TAM), Chuah et al. (2016) pointed out that visibility and perceived usefulness are critical predictors of smartwatch adoption. Likewise, Choi and Kim (2016) investigated factors affecting consumers' intention to use smartwatches by using an extended TAM. They anticipated that vanity and the need for uniqueness influence attitude toward using smartwatches through perceived enjoyment and perceived self-expressiveness. Results from 562 Korean participants revealed that attributes of the smartwatch as a fashion accessory are significant in explaining consumers' intention. A study on 341 Taiwanese respondents compared factors that influence the adoption intention of Apple and non-Apple smartwatches. The results uncovered that product attributes, precisely relative advantage, have a significant impact on the adoption intention of smartwatch (Hsiao, 2017). Besides, Hsiao (2017) found that personality traits like openness to experience is a significant predictor that influences users to accept non-Apple smartwatches. Focusing on the shape of smartwatches, Kim (2016) indicated that compared to a square screen, a round screen is more effective in augmenting device's hedonic qualities that further promote smartwatch adoption. Hong et al. (2017) summarized that hedonic and utilitarian value mediated the positive relationship between consumer innovativeness and continuance intention to use smartwatches. In this regard, Hsiao and Chen (2018) illustrated that design aesthetics has the highest significant effect on attitude toward using smartwatches that further has the most significant impact on purchase intention of smartwatches. Besides, Dehghani et al. (2018) disclosed that hedonic motivation, healthology, complementary goods, and aesthetic appeal are key drivers that influence user behavior of smartwatches. In a more recent study, Dutot et al. (2019) investigated the determinants of smartwatch adoption in three different countries. Extending the classical TAM by incorporating factors like perceived affective quality (PAQ), mobility, availability, and trust, Dutot et al. (2019) inferred that determinants of smartwatch adoption vary across different countries. <Table 1> summarizes the past studies on smartwatches.

2.2. Technology Acceptance Model (TAM)

In line with the ever-evolving and emerging information and communication technologies, several models have been recommended to investigate the consumers' behavior in adopting technologies (Chuah et al., 2016). Some of these are Innovation

<Table 1> Summary of Past Studies on Smartwatches

Authors	Title	Methods	Findings
Adapa et al. (2018)	Factors influencing the adoption of smart wearable devices	Qualitative (n = 25)	The adoption of google glasses and the smartwatch is mostly influenced by look and feel, compatibility and availability of specific apps.
Wu et al. (2016)	Exploring consumers' intention to accept smartwatches	Quantitative survey (n = 212) PLS-SEM	Attitude toward smartwatch is the prime factor for predicting the customer's intention to accept smartwatch as well as it is found that result demonstrability has a strong effect on attitude.
Chuah et al. (2016)	Wearable technologies: The role of usefulness and visibility in smartwatch adoption	Quantitative survey (n = 246) SEM	Visibility and usefulness are key factors that influence smartwatch adoption. Consumers perceive smartwatch as fashnology (fashion and technology).
Choi and Kim (2016)	Is the smartwatch an IT product or a fashion product? A study on factors affecting the intention to use smartwatches	Quantitative survey (n = 562) PLS-SEM	Vanity and uniqueness influence both the enjoyment and self-expressiveness that further predict attitude toward using smartwatches.
Hsiao (2017)	What drives smartwatch adoption intention? Comparing Apple and non-Apple watches	Quantitative survey (n = 341) PLS-SEM	Product attributes, precisely relative advantage, have a significant impact on adoption intention, whereas personality traits are essential for Apple and Non-Apple smartwatch.
Kim (2016)	Round or Square? How Screen Shape Affects Utilitarian and Hedonic Motivations for Smartwatch Adoption	Quantitative survey (n = 200) SEM	In comparison between the round and square screen, round one increases the hedonic quality that influences adoption.
Hong et al. (2017)	The effect of consumer innovativeness on perceived value and continuance intention to use smartwatches	Quantitative survey (n = 246) SEM	Hedonic and utilitarian value has mediating effects in the relationship between consumer innovativeness and continuance intention to use a smartwatch. Consumers are more satisfied with the perceived usefulness of a smartwatch than enjoyment/joy.
Hsiao and Chen (2018)	What drives smartwatch purchase intention? Perspectives from hardware, software, design, and value	Quantitative survey (n = 260) PLS-SEM	Smartwatch purchase intention is directly affected by the attitude toward using smartwatches and design aesthetics.
Dehghani et al. (2018)	Will smartwatches last? Factors contributing to intention to keep using smart wearable technology	Quantitative survey (n = 383) PLS-SEM	Complementary goods, healthology, aesthetic appeal, and hedonic motivation are the key factors that drive the user behavior of a smartwatch.
Dutot et al. (2019)	Applying the technology acceptance model in a three-countries study of smartwatch adoption	Quantitative survey (n = 446) PLS-SEM	The strongest path of influence across different countries is perceived affective quality to perceived usefulness to attitude to intention to use smartwatches. Perceived affective quality and mobility are more influential than availability and trust.

Note: PLS = Partial Least Squares; SEM = Structural Equation Model

Diffusion Model (Rogers, 1962); Theory of Reasoned Action (TRA) (Fishbein and Ajzen, 1975); Theory of Planned Behavior (TPB) (Ajzen, 1991); Technology Acceptance Model (TAM) (Davis et al., 1989); Unified

Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et al., 2003); Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) (Venkatesh et al., 2012). While TRA and TPB primarily focus on human behavior, the Innovation Diffusion Model has been reproached because the expanded application of this model across various research topics makes its theoretical standards and uniformity fragmented (Greenhalgh et al., 2005). Besides, UTAUT has been criticized for excluding some significant variables that could make the model less attuned to new factors (Bagozzi, 2007), as well as the framework is mostly organization-oriented (Venkatesh et al., 2012). Further, Wu et al. (2016) argued that some UTAUT constructs partially disclose their root definitions. On the contrary, the Technology Acceptance Model (TAM) is introduced as a robust model to the field for predicting technology acceptance of users (Venkatesh and Davis, 2000). TAM is a widely recognized and highly validated model in understanding individual acceptance behavior of information technologies (Kim and Shin, 2015).

TAM infers that consumers' adoption of a particular technology is determined by behavioral intention, which is predicted by attitude toward using and perceived usefulness. In addition to that, perceived usefulness is influenced by perceived ease of use, and both perceived usefulness and perceived ease of use altogether predict attitude toward using (Davis et al., 1989). Since its development, the model has been applied in a wide range of technology adoption studies such as e-commerce (Pavlou, 2003), Internet banking (Lee, 2009), mobile games (Park et al., 2014), mobile payment (Liébana-Cabanillas et al., 2014), and smartphones (Joo and Sang, 2013). In line with this, our study preferred using TAM as the basic framework over other models due to its parsimony and simplicity (Dutot et al., 2019). Moreover, Venkatesh and Davis (2000) argued that TAM received considerable theoretical and empirical support. Chuah et al. (2016) also favored TAM in light of its robustness and explanation power of variance in usage intention. Further, they contended that TAM originated from the TRA, one of the original theories in behavioral psychology.

Nonetheless, as suggested, to increase the extrapolative power of TAM, some additional factors need to be incorporated with the original model (Kalantari, 2017; Wu et al., 2016). Therefore, considering the smartwatch as consumer-oriented hardware, several researchers highlighted 'perceived enjoyment' as an additional factor (Davis et al., 1992; Kalantari, 2017).

Moreover, a growing concern for healthcare has constrained us to take essential precautions to keep up good health. In this regard, Reeder et al. (2017) asserted that smartwatch, a network-enabled and skin attached wearable device, offers an amazing opportunity for supporting personal health management and monitoring by providing health-related data such as pulse rate, body movements and calories burned. Also, two systematic reviews by Lu et al. (2016) and Reeder and David (2016) posited that due to its health-related applications smartwatch has been gaining a considerable presence in recent scientific research. Hence, this study incorporates the health-related aspect of smartwatch (i.e., healthology) as a predictor.

As discussed, previous researchers consider smartwatch technology as both technological innovation and fashion accessory (Choi and Kim, 2016; Chuah et al., 2016; Hein and Rauschnabel, 2016). Thus, Choi and Kim (2016) incorporated 'vanity' and 'need for uniqueness' factors to predict consumers' behavioral intention to use smartwatches. However, it is argued that Choi and Kim (2016) overlooked general fashion-related factors and concentrated their evaluation

on 'luxury fashion' that possibly restrains the pertinence of their findings to less luxurious smartwatches. Therefore, Chuah et al. (2016) proposed 'visibility' as a general, fashion-related factor concerning smartwatch adoption. However, these fashion-related factors are all technical aspects of a smartwatch. Consequently, Wu et al. (2016) suggested the inclusion of factors relating to the consumers' perception, such as necessity and involvement. Hence, alongside the inclusion of perceived enjoyment and healthology, this study incorporates two related and relatively consequential fashion-related factors, in particular 'fashion innovativeness' and 'fashion involvement' in investigating consumers' intention to use smartwatches. These factors were found significant in explaining consumers' intentions toward fashion products (Hourigan and Bougoure, 2012; O'Cass, 2004; Zhang and Kim, 2013). In addition, since the smartwatch is considered as both technology and fashion accessory, 'aesthetic appeal' can contribute to explaining consumers' intention to use smartwatches as rationalized by Dehghani et al. (2018) and Hsiao and Chen (2018).

2.3. Theoretical Background and Hypothesis Development

2.3.1. Fashion Innovativeness (FInn)

The degree of an individual's eagerness to embrace new thoughts, products, or services relatively earlier than others within a social framework is known as innovativeness (Rogers, 1995). Fashion innovativeness is thought of as a critical factor that plays a vital role in consumers' fashion adoption process, and it stimulates more shopping for new items (Park and Jun, 2003).

Park et al. (2007) reported that fashion innovativeness is one of the highly motivational drivers that has a significant positive effect on intentions to purchase fashion goods. The fashion innovativeness trait of consumers can determine the intention to adopt a new fashion (Goldsmith and Hofacker, 1991). Fashion innovativeness helps a consumer to be an opinion leader, and when a consumer becomes an opinion leader or fashion leader, he will naturally be a fashion innovator (Rahman et al., 2014). Moreover, in purchasing a fashion product, an innovative consumer gets pleasure that further positively influences consumer's intention to adopt fashion products (Workman, 2010). In this regard, Zhang and Kim (2013) illustrated a positive influence of fashion innovativeness on attitude toward purchasing luxury fashion goods. Since smartwatch is being perceived as a fashion accessory, therefore, drawing on above studies (Park et al., 2007; Zhang and Kim, 2013), we extend the assumption in smartwatch context and assume that fashion innovativeness of a consumer might have a positive impact on attitude toward using smartwatches. Accordingly, we hypothesize that:

H1: Fashion innovativeness has a significant positive effect on attitude toward using smartwatches.

2.3.2. Perceived Enjoyment (PE)

In line with Davis et al. (1992), this study outlines perceived enjoyment as the degree to which using smartwatches is perceived as enjoyable apart from any performance consequence that might be anticipated. It is regarded as a crucial intrinsic and hedonic motivation (Venkatesh, 2000). Perceived enjoyment was incorporated in UTAUT2 to clearly explain the consumers' intrinsic insights (Venkatesh et al., 2012). Also, perceived enjoyment was used as a determinant

of continuance intention to use virtual services (Mäntymäki and Salo, 2011). Empirical studies suggest that demand for wearable devices will increase because of its exclusive features (Moar, 2018). In this regard, Van der Heijden (2003) asserted that in the context of entertaining products, the relationship between perceived enjoyment and attitude would be more evident. Moreover, Moon and Kim (2001) found that perceived enjoyment has a significant impact on attitude toward using the Internet. This discussion leads us to propose that:

H2: Perceived enjoyment has a significant positive effect on attitude toward using smartwatches.

2.3.3. Fashion Involvement (FInv)

Fashion refers to the consumer's preferences or choices about any object that changes now and then (Barnard, 2002). Besides, involvement refers to the degree to which a consumer considers a particular purchase decision and perceives it to be important to him/her (Schiffman and Kanuk, 1983). Fashion involvement has the strongest effect on the consumer's buying behavior that means if consumers get involved in selecting and evaluating the new fashion, then they will demonstrate a more positive intention to buy that particular product (Seo et al., 2001).

In this regard, O'Cass (2004) found that fashion involvement has a significant effect on consumers' confidence that subsequently influences consumers' intention to adopt a new fashion. Moreover, both Summer et al. (2006) and Zhang and Kim (2013) predicted involvement as a determinant of attitude toward purchasing luxury fashion goods. Since the smartwatch is being perceived as a fashion item, thus, building on the above discussion, we revise the supposition in the smartwatch context and presume that fashion involvement might have a positive impact on attitude. Accordingly, the following hypothesis is formulated:

H3: Fashion involvement has a significant positive effect on attitude toward using smartwatches.

2.3.4. Perceived Usefulness (PU)

The expected performance or outcome of a behavior is referred to as extrinsic motivation; perceived usefulness, one of the fundamental components of TAM, represents extrinsic utilitarian motivation (Davis et al., 1992; Moon and Kim, 2001). Perceived usefulness is prescribed as "the degree to which a person believes that using a particular system would enhance his or her job performance" (Davis, 1989, p. 320). Perceived usefulness is considered as performance expectancy in the UTAUT model, and as the relative advantage in the Innovation Diffusion Theory (IDT) (Kalantari, 2017). Drawing on the rationale of classical TAM, Choi and Kim (2016) surmised that individuals' perception of the usefulness of innovation to their regular activities is a significant factor that impacts on their attitude toward using the innovation. Several former studies (e.g., Kim and Shin, 2015; Wu et al., 2016) also reported a positive impact of perceived usefulness on attitude. Therefore, in our study, we hypothesize that:

H4: Perceived usefulness has a significant positive effect on attitude toward using smartwatches.

2.3.5. Perceived Ease of Use (PEOU)

Perceived ease of use is one of the fundamental and key elements of TAM (Davis, 1989). Davis (1989) defined perceived ease of use as "the degree to which

a person believes that using a particular system would be free of effort" (p. 320). When a person takes the initiative to use new technology, perceived ease of use would be the prime factor that influences users' attitudes toward usage (Davis, 1989). Perceived ease of use is the users' conviction that using a device is easier than any other options that serve similar needs (Lunney et al., 2016). Extant studies (e.g., Choi and Kim, 2016; Cronan and Al-Rafee, 2008; Park et al., 2014) highlighted perceived ease of use as a significant determinant of attitude. Thus, based on extant findings and core TAM logic, we posit that:

H5: Perceived ease of use has a significant positive effect on attitude toward using smartwatches.

Moreover, Choi and Kim (2016) posited that perceived ease of use is a significant determinant of perceived usefulness. In essence, if a person thinks that a particular device is easy to use, then it would lead him/her to perceive the device as more useful. Furthermore, several studies investigated and illustrated a significant positive influence of perceived ease of use on perceived usefulness (Choi and Kim, 2016; Chuah et al., 2016; Dutot et al., 2019). Therefore, we hypothesize that:

H6: Perceived ease of use has a significant positive effect on perceived usefulness.

2.3.6. Aesthetic Appeal (AA)

Aesthetic appeal indicates the level of feeling that is associated with style or fashion (Nam et al., 2007). Aesthetic appeal plays a vital role in making decisions about product consumption (Kendall and Sproles, 1986). Hsiao and Chen (2018) opined that the beauty of a product's appearance is called design aesthetic. The design aesthetic is a significant determinant of acceptance of new technology (Nanda et al., 2008).

Chuah et al. (2016) posited that aesthetics and product design are essential factors in smartwatch adoption as smartwatches are in the early stages of diffusion. In this regard, Choi and Kim (2016) ascertained that smartwatches are fashion products, and consumers who want uniqueness are more interested in them. Jeong et al. (2017) indicated that aesthetics is an important characteristic of wearable devices. Besides, Jung et al. (2016) found that display shape has a greater aesthetic appeal that has a significant impact on the acceptance of smartwatch. In line with this, Hsiao and Chen (2018) identified a significant positive effect of the design aesthetic of smartwatch on attitude toward using smartwatches. Since the association between aesthetic appeal and behavioral intention to use smartwatches has not been explicitly investigated yet, drawing on past studies (Jung et al., 2016; Kendall and Sproles, 1986) following hypothesis is proposed to be tested:

H7: Aesthetic appeal has a significant positive effect on behavioral intention to use smartwatches.

2.3.7. Healthology (HLT)

The extent to which health is integrated into an individual's day to day activities is recognized as health motivation (Dehghani et al., 2018). It is an estimator of an individual's quality of life (Jayanti and Burns, 1998). According to Claussen et al. (2015), individuals who accept a 'wellness-oriented' way of life are more likely to involve in restrictive health practices (e.g., exercising regularly, eating well nourishment) than those who are unconscious about

health. Because of the latest wearable technologies, it is now possible for health-conscious people to pursue advancements in their traditional way of life.

Moreover, it is not so far when the management of health and disease of the human race will significantly be controlled by wearable devices (Nwosu et al., 2018). Currently, the accuracy of health-related measurements has been accomplished through different wearable technologies enabling individuals to be more proactive in observing their wellness (Canhoto and Arp, 2017). With the rise of wearable technologies and its usage in monitoring health, the introduction of a new measurement for assessing both technology and health seemed right (Dehghani, 2018). Accordingly, a new term has emerged, namely healthology; It is a combination of health issues, informatics, and technology. Healthology is characterized as a tool that aims to provide creative approaches to fulfill unique healthcare necessities (Dehghani et al., 2018). In other words, the term 'healthology' can be defined as a component that allows health- and technology-conscious people to monitor their health more conveniently through a bit of technology (e.g., smartwatch). For instance, several healthcare services like improved preventive care, patient-centered practice, and lower overall healthcare cost have transferred from traditional center-based framework to a more personalized system through smartwatches and other fitness wearables (Canhoto and Arp, 2017). Moreover, smartwatch provides health-related data (e.g., calories burned, pulse monitoring) that motivate users to exercise regularly and to perceive the device as a health watch monitoring instrument (Dehghani et al., 2018). Though Dehghani et al. (2018) tested the connection between healthology and actual usage of smartwatch, the effect of healthology on attitude and behavioral intention to use smartwatch has not been explored yet. Therefore, taking the above discussions into account, we intend to test the following two hypotheses:

H8: Healthology has a significant positive effect on attitude toward using smartwatches.

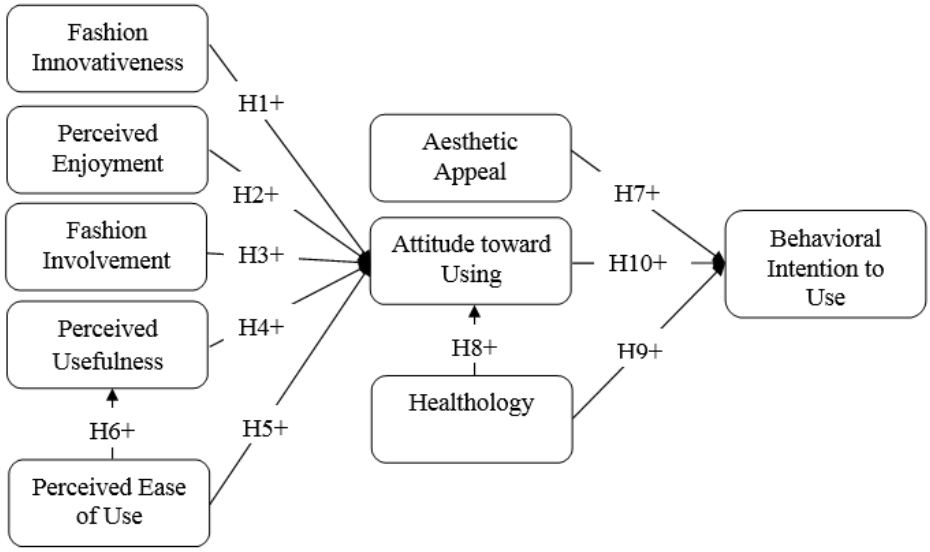
H9: Healthology has a significant positive effect on behavioral intention to use smartwatches.

2.3.8. Attitude (ATT)

An individual's intention for technology adoption is greatly influenced by his/her attitude (Park and Chen, 2007). According to Lee and Lee (2018), an individual's intention to acquire various new technologies or information technology devices can be predicted or explained by assessing his/her attitude. Individuals' intention to perform a behavior or adopt a product would be influenced by their attitude toward the behavior or the product (Ajzen, 1991).

Moreover, Lee and Lee (2018) outlined that the attitude of an individual is an important predictor of the adoption of both information technology devices and health-related behavior. The degree of a user's positive or negative valuation concerning the use of a smartwatch represents his/her attitude toward using it (Choi and Kim, 2016). Empirical studies (e.g., Hsiao and Chen, 2018) suggest that there is a positive relationship between attitude and adoption intention. This implies that if consumers have a positive attitude toward technology, then there is a good chance that they will adopt it. This discussion leads us to postulate that:

H10: Attitude toward using smartwatches has a significant positive effect on behavioral intention to use smartwatches.



<Figure 1> Proposed Research Model

Ⅲ. Methodology

3.1. Population and Sampling

This is a quantitative study. The study collected data from 300 respondents using a survey approach. This sample size is analogous to previous studies that highlighted a similar area (Chuah et al., 2016; Hong et al., 2017; Hsiao and Chen, 2018; Wu et al., 2016). The target population of this study was all potential smartwatch users in Bangladesh. Employing a purposive sampling technique (Hong et al., 2017), the study collected data from university students who study at the University of Dhaka, University of Rajshahi, and the University of Chittagong. These are the first three general public universities established in Bangladesh. Using university students as sample seems appropriate as they are more inclined to accept latest technological devices before other demographic groups (Lee, 2014), as well as they belong to the leading group of latest technology users (Davis, 1989). Moreover, Chuah et al. (2016) opined that a relatively homogenous student sample benefits the study by allowing the elimination of further exogenous variables. Among the respondents, some own smartwatches while some do not. Details of the respondents are presented in <Table 2>.

3.2. Data Collection and Analysis

This study employed a quantitative questionnaire survey (Wu et al., 2016) approach for data collection. The questionnaire has 40 items that are adopted from previous literature, and items are modified according to this study context. The constructs and corresponding items with sources are listed in <Appendix>. Questionnaire quality and instrument's validity were checked by conducting a pretest with 19 respondents chosen through convenience sampling. A five-point Likert scale ranging from "strongly disagree" (1) to "strongly agree" (5) was used to measure the items (Dutot et al., 2019; Hong et al., 2017; Hsiao, 2017; Wu et al., 2016). At the beginning of the ques-

<Table 2> Descriptive Statistics of the Respondents

		Frequency	Percentage of Respondents
Age	15-25	189	63
	26-35	91	30
	36-45	15	5
	46 and above	5	2
	Total	300	100.0
Gender	Male	178	59
	Female	122	41
	Total	300	100.0
Smartwatch Ownership	Yes	209	70
	No	91	30
	Total	300	100.0

tionnaire, a short synopsis of the smartwatch was provided in case respondents lack prior knowledge of the idea. Besides, demographic questions were included after the summary. Data were initially assessed by exploratory factor analysis (EFA). After that, structural equation modeling (SEM) was performed using AMOS 23 software. In AMOS, confirmatory factor analysis (CFA), a two-stage procedure, was performed using Maximum Likelihood Estimation (MLE) (Anderson and Gerbing, 1988).

Ⅳ. Results

4.1. Exploratory Factor Analysis (EFA)

Primarily, exploratory factor analysis was performed to understand the essential relationships of the factors.

EFA measured the acceptance level of sampling adequacy by estimating the Kaiser-Meyer-Olkin (KMO) measure and Bartlett's Test of Sphericity. Though the KMO index ranges from 0 to 1, Tabachnick and Fidell (2014) recommended 0.6 as a minimum for good factor analysis. Here, both the KMO value (0.939) and Bartlett's test of sphericity (0.000 < 0.05) are in acceptable range (see <Table 3>) for the factor analysis to be considered appropriate (Hair et al., 2014).

Principal component analysis with varimax rotation was performed to estimate exploratory factor analysis (see <Table 4>). Factors with an eigenvalue greater than one were retained for further analysis. In this process, the analysis extracted nine factors explaining 77.03 percent of the variance. The study considered a cut off value of 0.70 for factor loadings (Hair et al., 2014) to achieve a stable and distinct factor structure.

The unidimensionality assessed by EFA was further confirmed through confirmatory factor analysis. Accordingly, the study estimated measurement and structural model using AMOS software.

<Table 3> KMO and Bartlett's Test of Sphericity for EFA

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.939
Bartlett's Test of Sphericity	Approx. Chi-Square	9484.406
	df	780
	Significance (p-value)	0.000

<Table 4> Results of Exploratory Factor Analysis

Construct/Indicator	Item	Factor loading	Eigenvalue	Percentage of explained variance
Fashion Involvement	FInv4	0.814	16.237	40.592
	FInv3	0.795		
	FInv2	0.782		
	FInv1	0.765		
	FInv5	0.750		
Perceived Ease of Use	PEOU3	0.803	2.754	6.885
	PEOU2	0.778		
	PEOU1	0.766		
	PEOU4	0.756		
	PEOU5	0.746		
Fashion Innovativeness	FInn4	0.792	2.297	5.743
	FInn2	0.766		
	FInn5	0.746		
	FInn3	0.741		
	FInn1	0.729		
Aesthetic Appeal	AA3	0.792	1.893	4.733
	AA5	0.780		
	AA2	0.745		
	AA1	0.727		
	AA4	0.713		
Perceived Usefulness	PU1	0.845	1.803	4.507
	PU2	0.819		
	PU3	0.818		
	PU4	0.816		
Behavioral Intention	BI2	0.807	1.730	4.326
	BI1	0.803		
	BI3	0.752		
	BI4	0.715		
Perceived Enjoyment	PE2	0.798	1.576	3.939
	PE1	0.789		
	PE3	0.771		
	PE4	0.748		
Healthology	HLT2	0.796	1.492	3.731
	HLT4	0.794		
	HLT3	0.792		
	HLT1	0.747		
Attitude	ATT4	0.735	1.029	2.571
	ATT2	0.731		
	ATT3	0.712		
	ATT1	0.703		

Note: Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

4.2. Measurement Model

The measurement model assessed construct reliability, convergent validity, and discriminant validity. Construct reliability was estimated using Cronbach's alpha (α) scores. As of <Table 5>, Cronbach's alpha (α) scores range from 0.899 to 0.922 surpassing the recommended cut off value of 0.70 (Hair et al., 2006; Nunnally, 1978).

Moreover, convergent validity was verified by examining factor loadings (λ), composite reliability (CR), and average variance extracted (AVE). As presented in <Table 5>, factor loadings (λ) range from 0.759 to 0.887 exceeding the suggested threshold of 0.70, composite reliability ranges from 0.900 to 0.923 exceeding the suggested threshold of 0.70, and average variance extracted ranges from 0.655 to 0.750 exceeding the suggested threshold of 0.50 (Fornell and Larcker, 1981; Hair et al., 2006).

<Table 6> illustrates the mean, standard deviation, correlation coefficients of the constructs, and square root of AVE. Non-diagonal elements represent correlation coefficients, and diagonal elements represent the square root of AVE. To have a satisfactory discriminant validity, the square root of AVE should be higher than the coefficients in the subsequent rows and columns (Fornell and Larcker, 1981). As of <Table 6>, all nine diagonal elements surpass the non-diagonal elements in the subsequent rows and columns confirming Fornell and Larcker (1981)'s criteria for discriminant validity.

The various model fit indices estimated the eminence of the fit of the measurement model, reported in <Table 7>.

As of <Table 7>, all the model fit indices are within the acceptable range suggesting a satisfactory model fit for measurement model.

4.3. Structural Model

Upon establishing a satisfactory measurement model, the study further analyzed the structural model and tested the hypotheses. As presented in <Table 8>, the model fit indices for the structural model are within the satisfactory range.

<Figure 2> shows the results of structural model with standardized path coefficients between constructs. As of <Figure 2>, intention to use is jointly predicted by attitude ($\beta = 0.54$, $p < 0.001$), aesthetic appeal ($\beta = 0.17$, $p < 0.01$) and healthology ($\beta = 0.16$, $p < 0.01$), and together these constructs explain 56% ($r^2 = 0.56$) variations in behavioral intention to use. Thus, H10, H7, H9 are supported. Furthermore, attitude is significantly predicted by fashion innovativeness ($\beta = 0.15$, $p < 0.05$), perceived enjoyment ($\beta = 0.20$, $p < 0.001$), fashion involvement ($\beta = 0.14$, $p < 0.05$), perceived usefulness ($\beta = 0.16$, $p < 0.01$), perceived ease of use ($\beta = 0.15$, $p < 0.05$) and healthology ($\beta = 0.21$, $p < 0.001$), and together these constructs explain 55% ($r^2 = 0.55$) variations in attitude. Consequently, H1, H2, H3, H4, H5, H8 are supported. As hypothesized, perceived ease of use ($\beta = 0.52$, $p < 0.001$) significantly influences perceived usefulness and explains 27% ($r^2 = 0.27$) variance of perceived usefulness. Accordingly, H6 is supported.

<Figure 2> presented all the direct effects between constructs, whereas <Table 9> summarized the indirect effects among the constructs with associated significance level. Coefficients, presented in <Table 9>, are generated using a bootstrapping method with 95% BC (bias-corrected) bootstrap confidence intervals (CI) as this method is appropriate for estimating indirect or mediation effects (Cheung and Lau, 2008).

<Table 5> Construct Reliability and Convergent Validity

Construct/Indicator	Item	Factor loading λ*	Composite reliability (CR)	Average variance extracted (AVE)	Cronbach's alpha α
Fashion Involvement	FInv1	0.828	0.920	0.696	0.919
	FInv2	0.840			
	FInv3	0.869			
	FInv4	0.828			
	FInv5	0.805			
Perceived Ease of Use	PEOU1	0.803	0.904	0.655	0.903
	PEOU2	0.829			
	PEOU3	0.858			
	PEOU4	0.778			
	PEOU5	0.775			
Fashion Innovativeness	FInn1	0.807	0.921	0.700	0.920
	FInn2	0.848			
	FInn3	0.858			
	FInn4	0.844			
	FInn5	0.824			
Aesthetic Appeal	AA1	0.759	0.905	0.655	0.904
	AA2	0.830			
	AA3	0.835			
	AA4	0.801			
	AA5	0.819			
Perceived Usefulness	PU1	0.836	0.907	0.710	0.906
	PU2	0.861			
	PU3	0.872			
	PU4	0.800			
Behavioral Intention	BI1	0.864	0.923	0.750	0.922
	BI2	0.887			
	BI3	0.884			
	BI4	0.829			
Perceived Enjoyment	PE1	0.826	0.911	0.720	0.911
	PE2	0.850			
	PE3	0.865			
	PE4	0.852			
Healthology	HLT1	0.813	0.900	0.693	0.899
	HLT2	0.860			
	HLT3	0.814			
	HLT4	0.843			
Attitude	ATT1	0.810	0.902	0.697	0.902
	ATT2	0.856			
	ATT3	0.825			
	ATT4	0.848			

Ntoe: *All factor loadings (λ) are significant at $p < 0.001$

<Table 6> Square Root of AVE (in bold on diagonal) and Constructs Correlation Coefficients

	Attitude	Healthology	Perceived Enjoyment	Behavioral Intention	Perceived Usefulness	Aesthetic Appeal	Fashion Innovativeness	Perceived Ease of Use	Fashion Involvement
Attitude	**0.835**								
Healthology	0.567	**0.832**							
Perceived Enjoyment	0.574	0.480	**0.849**						
Behavioral Intention	0.716	0.554	0.607	**0.866**					
Perceived Usefulness	0.497	0.328	0.449	0.385	**0.843**				
Aesthetic Appeal	0.554	0.537	0.558	0.544	0.380	**0.809**			
Fashion Innovativeness	0.593	0.532	0.529	0.509	0.476	0.586	**0.837**		
Perceived Ease of Use	0.558	0.463	0.512	0.511	0.496	0.485	0.535	**0.809**	
Fashion Involvement	0.545	0.513	0.509	0.467	0.319	0.574	0.598	0.452	**0.834**
Mean	3.750	3.470	3.546	3.738	3.218	3.696	3.363	3.291	3.582
Standard Deviation	0.785	0.972	0.815	0.777	0.956	0.728	0.794	0.963	0.787

<Table 7> Goodness-of-fit Indicators of the Measurement Model

Measure	Estimate	Recommended value	Interpretation
χ^2/df	1.445 (χ^2 = 1017.4, df = 704)	Between 1 and 3 (Hu and Bentler, 1999)	Excellent fit
GFI	0.862	> 0.80 (Doll et al., 1994)	Acceptable fit
AGFI	0.839	> 0.80 (MacCallum and Hong, 1997)	Acceptable fit
CFI	0.966	> 0.95 (Hu and Bentler, 1999)	Excellent fit
TLI	0.962	> 0.95 (Hu and Bentler, 1999)	Excellent fit
IFI	0.966	> 0.95 (Hu and Bentler, 1999)	Excellent fit
RMSEA	0.039	< 0.06 (Hu and Bentler, 1999)	Excellent fit
SRMR	0.032	< 0.08 (Hu and Bentler, 1999)	Excellent fit

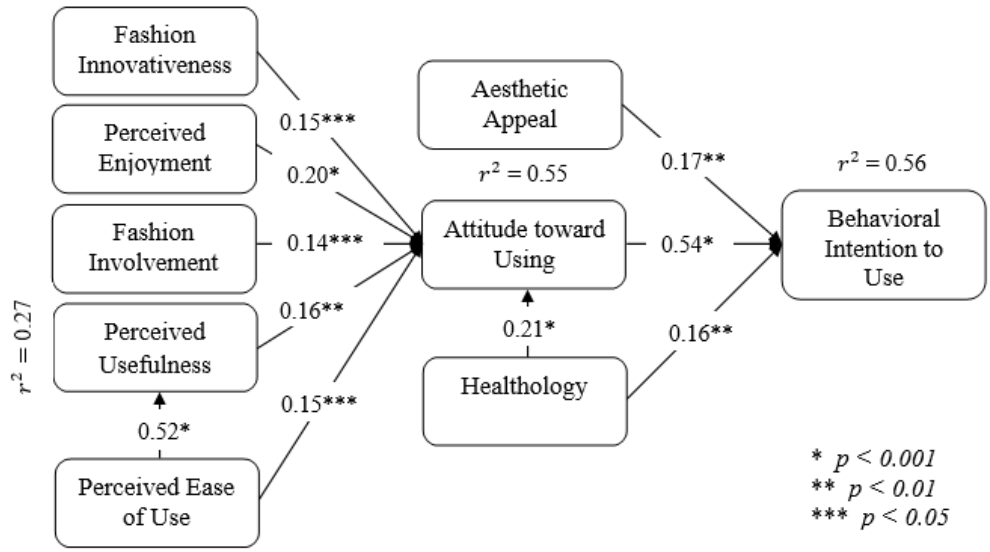
Note: GFI, Goodness-of-Fit Index; AGFI, Adjusted Goodness-of-Fit Index; CFI, Comparative Fit Index; TLI, Tucker-Lewis Index; IFI, Incremental Fit Index; RMSEA, Root Mean Square Error of Approximation; SRMR, Standardized Root Mean Residual.

<Table 8> Goodness-of-fit Indicators of the Structural Model

Measure	Estimate	Recommended value	Interpretation
χ^2/df	1.485 (χ^2 = 1061.9, df = 715)	Between 1 and 3 (Hu and Bentler, 1999)	Excellent fit
GFI	0.857	> 0.80 (Doll et al., 1994)	Acceptable fit
AGFI	0.836	> 0.80 (MacCallum and Hong, 1997)	Acceptable fit
CFI	0.962	> 0.95 (Hu and Bentler, 1999)	Excellent fit
TLI	0.959	> 0.95 (Hu and Bentler, 1999)	Excellent fit
IFI	0.962	> 0.95 (Hu and Bentler, 1999)	Excellent fit
RMSEA	0.040	< 0.06 (Hu and Bentler, 1999)	Excellent fit
SRMR	0.050	< 0.08 (Hu and Bentler, 1999)	Excellent fit

Note: GFI, Goodness-of-Fit Index; AGFI, Adjusted Goodness-of-Fit Index; CFI, Comparative Fit Index; TLI, Tucker-Lewis Index; IFI, Incremental Fit Index; RMSEA, Root Mean Square Error of Approximation; SRMR, Standardized Root Mean Residual.

According to <Table 9>, perceived enjoyment (β = 0.11, p < 0.01; 95% CI, [0.03, 0.22]), perceived usefulness (β = 0.09, p < 0.05; 95% CI, [0.02, 0.18]), perceived ease of use (β = 0.13, p < 0.01; 95% CI, [0.04, 0.22]) and healthology (β = 0.11, p < 0.01; 95% CI, [0.03, 0.20]) are found to have indirect effects



<Figure 2> Results of Structural Modeling Analysis

<Table 9> Indirect Effects among Constructs

Paths	Indirect effects	95% CI
Perceived ease of use → Perceived usefulness → Attitude	0.08***	[0.02, 0.17]
Fashion innovativeness → Attitude → Behavioral Intention to Use	0.08	[-0.01, 0.18]
Perceived enjoyment → Attitude → Behavioral Intention to Use	0.11**	[0.03, 0.22]
Fashion involvement → Attitude → Behavioral Intention to Use	0.07	[-0.01, 0.17]
Perceived usefulness → Attitude → Behavioral Intention to Use	0.09***	[0.02, 0.18]
Perceived ease of use → Attitude → Behavioral Intention to Use	0.13**	[0.04, 0.22]
Healthology → Attitude → Behavioral Intention to Use	0.11**	[0.03, 0.20]

Note: * Significant at $p < 0.001$, ** Significant at $p < 0.01$, *** Significant at $p < 0.05$

on behavioral intention to use. As the 95% confidence intervals of perceived enjoyment, perceived usefulness, perceived ease of use and healthology did not include zero, thus it can be conjectured that these constructs have significant indirect effects on behavioral intention to use through attitude. Therefore, attitude is playing a mediating role here. In addition, perceived ease of use (β = .08, $p < 0.05$; 95% CI, [0.02, 0.17]) has significant indirect effect on attitude through perceived usefulness. However, indirect effects of fashion innovativeness (β = 0.08) and fashion involvement (β = 0.07) on behavioral intention to use were not found to be significant.

Ⅴ. Discussions

Building on and extending the traditional technology acceptance model (TAM), our study aims to (1) shed further light into fashion-technology and

health-technology aspects of smartwatch and (2) understand factors affecting Bangladeshi consumers' intention to use smartwatches. Thus, the study explored the factors that might motive consumers' intention to use smartwatches. Results reveal that aesthetic appeal ($\beta = 0.17$, $p < 0.01$) has a significant positive impact on behavioral intention to use smartwatches. Hence, respondents perceive that amid an attractive interface, smartwatches look appealing and professionally designed. Moreover, respondents do not feel any inconvenience regarding its touch display. The finding is supported by Dehghani et al. (2018) and Hsiao and Chen (2018). Healthology is found to have significant positive ($\beta = 0.16$, $p < 0.01$) impact on behavioral intention to use smartwatches. This finding complements and extends the finding of Dehghani et al. (2018), and might imply that people with growing health concerns are placing their trust in smartwatches in maintaining a balanced diet and receiving personal health information. Therefore, it is now possible to assume that smartwatches motivate its users to exercise, burn calories, and maintain physical fitness. Moreover, healthology ($\beta = 0.11$, $p < 0.01$) is found to have a significant indirect effect on behavioral intention through attitude. With the highest coefficient ($\beta = 0.54$, $p < 0.001$), attitude toward using is a significant predictor of behavioral intention. This indicates that individuals with a positive attitude toward using smartwatch are expected to use a smartwatch. A similar finding was demonstrated in past studies (Hsiao and Chen, 2018; Wu et al., 2016).

Among the predictors of attitude toward using perceived enjoyment is found to have the strongest direct effect. This finding is in line with previous studies (Choi and Kim, 2016; Wu et al., 2016). In this regard, Wu et al. (2016) found that because of having better social status, good job, and handsome income, people aged from 35 to 54 are more prone to be influenced by perceived enjoyment concerning the usage of a smartwatch. Wu et al. (2016) further noted that in some way, this finding appears to be surprising as it is usually anticipated that young people are mostly influenced by enjoyment. Accordingly, this study focused on younger people and infers that respondents get pleasure, fun, and a good feeling by using a smartwatch. Moreover, both the factors of classical TAM that are perceived ease of use and perceived usefulness are found to have significant positive impacts on attitude toward using. These findings imply that if users perceive the smartwatch to be a flexible, user-friendly, or easy-to-use device, then this perception might trigger a positive attitude toward using smartwatches. Moreover, users might recognize the smartwatch as a device that improves their productivity, facilitates organizing and completing their daily tasks. Also, perceived ease of use is illustrated as a significant predictor of perceived usefulness. These findings are likely as several past studies inferred the same (Dutot et al., 2019; Kim, 2016; Kim and Shin, 2015; Wu et al., 2016).

Furthermore, two fashion-related factors that are fashion innovativeness and fashion involvement are found significant in predicting attitude toward using smartwatches. Similar to Zhang and Kim (2013), this study infers that fashion innovativeness plays a decisive role in predicting attitude toward using newly developed fashion products. In the context of information technology adoption, personal innovativeness was also found as a significant determinant of attitude (Wu et al., 2011). In line with this, this study denotes that those who are fashion innovative are more likely to buy and use a newly launched information technology product earlier than others, and it subsequently influences attitude toward using that product. Furthermore, several previous studies

have illustrated the impact of fashion involvement on brand attitude (O'Cass and Choy, 2008) and attitude toward purchasing luxury fashion goods (Zhang and Kim, 2013). Likewise, in the smartwatch context, this study demonstrates the significant positive effect of fashion involvement on attitude toward using. Therefore, it is doable to assume that those who are fashion-conscious, frequently purchase fashion goods, read fashion magazines to keep themselves updated, give advice to others regarding fashion goods are likely to have a positive attitude toward using smartwatches.

Finally, the study outlines attitude toward using as a mediator, which is consistent with the finding of Wu et al. (2016). Accordingly, the means of perceived enjoyment (M = 3.546, SD = 0.815), perceived usefulness (M = 3.218, SD = 0.956), perceived ease of use (M = 3.291, SD = 0.963), healthology (M = 3.470, SD = 0.972) and behavioral intention to use (M = 3.738, SD = 0.777) are greater than 3, illustrating that healthology, extrinsic utilitarian motivation (perceived usefulness and perceived ease of use) (Choi and Kim, 2016) and intrinsic non-utilitarian motivation (perceived enjoyment) (Choi and Kim, 2016) positively augment the behavioral intention to use smartwatch.

Ⅵ. Theoretical Contribution

This study offers several theoretical contributions to the existing body of literature. Firstly, it addresses one of the fastest-growing wearable consumption markets in the Asia-pacific region. Secondly, similar to several previous studies (e.g., Chuah et al., 2016; Dehghani et al., 2018; Wu et al., 2016), this study goes beyond the traditional technology acceptance model by incorporating some additional factors. In this process, the results indicate the significance of attitude toward using in predicting intention to use smartwatches. Besides, unlike previous studies, this study has recognized the impact of healthology on attitude and behavioral intention to use smartwatches. Moreover, Rauschnabel et al. (2016) opined that smart devices (e.g., smart glasses, smartwatch) depict a type of 'fashnology' (i.e., fashion and technology). Accordingly, this is one of the first studies that incorporates fashion innovativeness and fashion involvement factors in better explaining attitude toward using smartwatches. While the direct effects of these fashion-related factors on attitude are significant, the indirect effects of these factors on intention to use smartwatch are insignificant. Thus, further examination of these factors seems worthwhile. Finally, this study supports the notion that the existing models, like the classical technology acceptance model (TAM), should be tailored while using in the context of wearable technologies.

Ⅶ. Managerial Implications

Together with theoretical contributions, this study offers some important implications for marketers. The study has illustrated the significant impact of healthology on intention. Therefore, it can be argued that smartwatch developers should invest enough to add smarter and personal health monitoring features in a smartwatch. For example, developing applications that track older people, monitor the health of newborn babies, or keep health records for several days. Also, marketers should especially take care of the design of the smartwatch. As smartwatches are somewhat perceived as fashion goods, so a smartwatch with a chick look, eye-catching interface, or in sum, an aesthetically pleasing design might ensure

prompt acceptance. Companies could also offer customized designs targeting different demographic segments. Communication strategies should be carried out to generate a more positive attitude toward using smartwatches.

There is a direct association between perceived enjoyment and attitude toward using smartwatches. Hence, marketers should focus on adding features on smartwatches that are fun and pleasing to use. Besides, younger generations are eager to adopt something cool and exciting. From a consumer perspective, a device that provides effectiveness and productivity in managing routine tasks, and that is easy to operate, is something to desire. The findings of our study also support these issues that urge the companies to amend their products as such. Moreover, the findings pertinent to fashion-related factors have important implications for smartwatch producers and marketers. Consumers perceive the smartwatch as technological innovation and a fashion item. This dual dimensionality of the smartwatch contributes to market segmentation. That is, producers should take considerable endeavors on positioning smartwatch as a technology and a fashion item rather than just technological innovation.

Ⅷ. Limitations and Directions for Further Research

Despite its theoretical contribution and managerial implications, the study acknowledges several limitations. First of all, one should be careful about generalizing the results as this study primarily focused on and collected data from young people using a purposive sampling method. Besides, factors like national culture, cultural sensitivity, and social influence might improve the overall explanatory power of the model. Furthermore, the inclusion of age, income, technological know-how, and technological exposure as moderating factors in the current model could add several new and interesting findings. Therefore, those factors offer an avenue for future studies in the Asia-Pacific region. Future studies might test this model in the context of other wearable devices. Finally, practitioners should be cautious enough when interpreting the findings of this study as this study measured the behavioral intention to use smartwatches, and high behavioral intention toward usage does not frequently warrant actual usage behavior (Bagozzi, 2007).

Ⅸ. Conclusion

Smartwatch is a trendy technological product. In developing countries, the market for this product is expanding day by day, and mostly the young generation is showing a greater interest in it. To market a consumer-oriented product such as a smartwatch, marketers need a better understanding of factors that influence consumers in using the product. In this regard, this study will benefit the manufacturers and marketers who are trying to penetrate the market in the Asia-pacific region by empirically analyzing the antecedents of behavioral intention to use smartwatches. Moreover, this study re-emphasized the importance of considering the smartwatch both as a technological and a fashion item. The authors' are hoping that the findings of this study will help companies in making their decisions regarding product design and devising better communication strategies.

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<Appendix> Measurement Items

Construct	Item	Wording	Mean	*SD*	Sources
Fashion Innovativeness (FInn)	FInn1	If I heard about new information technology, I would look for ways to experiment with it	3.477	0.769	Li et al. (2016)
	FInn2	Among my peers, I am usually the first to try out new information technologies	3.413	0.811	
	FInn3	In general, I like to experiment with new information technologies	3.397	0.731	
	FInn4	I will buy a new product, even if I have not heard it yet	3.253	0.823	Hong et al. (2017)
	FInn5	I know more than others about new products	3.280	0.831	
Fashion Involvement (FInv)	FInv1	I read fashion magazines to keep my fashion goods up to date	3.503	0.795	Zhang and Kim (2013)
	FInv2	My friends turn to me for advice on fashion goods	3.530	0.773	
	FInv3	I like to shop for fashion goods	3.650	0.814	
	FInv4	I consider myself to be fashion conscious	3.610	0.787	
	FInv5	When shopping I compare shop for the best prices	3.617	0.765	
Aesthetic Appeal (AA)	AA1	The user interface of smartwatch (i.e., colors, boxes, menus, etc.) is attractive	3.720	0.714	Yang et al. (2016)
	AA2	Smartwatch look professionally designed	3.720	0.742	
	AA3	The overall look and feel of a smartwatch is visually appealing	3.653	0.731	
	AA4	There is no inconvenience for using the smartwatch due to its display size	3.617	0.701	Hsiao and Chen (2018)
	AA5	The touch display of the smartwatch is convenient to use	3.770	0.752	
Healthology (HLT)	HLT1	Smartwatch motivates to exercise	3.383	1.033	Dehghani et al. (2018)
	HLT2	Smartwatch helps to have a well-balanced diet	3.510	0.980	
	HLT3	Health information provided by smartwatch is trustworthy	3.463	0.937	Marakhimov and Joo (2017)
	HLT4	Smartwatch is a good source of personal health information	3.523	0.934	Li et al. (2016)
Perceived Ease of Use (PEOU)	PEOU1	I believe that the smartwatch would be easy to use	3.297	1.016	Wu et al. (2016)
	PEOU2	I believe that smartwatch would work flexibly	3.183	0.990	
	PEOU3	Learning to use a smartwatch would not be a challenge	3.330	0.933	
	PEOU4	Interacting with a smartwatch would not confuse me	3.370	0.877	
	PEOU5	Becoming a skillful smartwatch user would be easy	3.273	0.994	
Perceived Usefulness (PU)	PU1	Smartwatch could make my life more effective	3.173	1.017	Hsiao (2013)
	PU2	Smartwatch could help me organize my life better	3.177	0.932	
	PU3	Smartwatch could increase my productivity	3.300	0.923	
	PU4	I found the smartwatch to be useful for completing the task	3.223	0.950	Kim (2016)
Perceived Enjoyment (PE)	PE1	Using smartwatch is truly fun	3.437	0.842	Yang et al. (2016)
	PE2	I know using a smartwatch to be enjoyable	3.587	0.823	
	PE3	The use of smartwatch gives me pleasure	3.540	0.768	
	PE4	The use of smartwatches makes me feel good	3.620	0.827	
Attitude (ATT)	ATT1	I have a positive impression of using a smartwatch	3.720	0.773	Wu et al. (2016)
	ATT2	I would feel excited to purchase a smartwatch	3.780	0.804	
	ATT3	I would be happy to use a smartwatch	3.677	0.775	
	ATT4	Using a smartwatch would be a smart decision to make	3.823	0.788	
Behavioral Intention (BI)	BI1	I would be willing to let a smartwatch help me to perform different kinds of tasks	3.733	0.777	Wu et al. (2016)
	BI2	I intend to buy a smartwatch in the near future	3.710	0.780	Chuah et al. (2016)
	BI3	Using smartwatch is worthwhile	3.793	0.752	Yang et al. (2016)
	BI4	I recommend others to use a smartwatch	3.717	0.799	

Note: *SD* = Standard Deviation

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