Factors Affecting the Adoption of Telemedicine in Rural Areas of Bangladesh

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Abstract

Access to affordable and quality healthcare has been a public outcry in recent years across the globe. The situation is worse in some poverty-stricken developing countries. With technological advancements, such as telemedicine, some hopes and lights in darkness has begun to emerge. Many are looking into telemedicine as a promising technology for taking healthcare services to remote areas. However, there challenges, specifically lack of users’ interest has been a major setup for successful diffusion of this technology in developing countries. Existing technology-adoption literature provides little understanding of technology adoption factors in developing countries’ social structure context. This study tries to fill this void by proposing a theoretical model with factors derived from multiple theories in Information Systems discipline. We empirically tested our model using a survey study of 274 participants. We identified several promoting and impeding factors for individuals’ intention to use telemedicine services in the context of developing countries.

Keywords

Telemedicine, Healthcare Technology Adoption, HIS, Technology Adoption Factors, Rural Healthcare

Introduction

Fast advancement in information and communication technology (ICT) in recent years has prompted a great amount of change in the healthcare sector. Telemedicine is one of those advancements, and perhaps a blessing, which possesses immense prospective in solving healthcare challenges in rural areas of developing countries (Hoque and Sorwar 2017). Telemedicine enhances the quality of healthcare services while minimizing the costs, even in poverty-stricken societies. It enables patients to receive healthcare advices over the phone without having to leave their geographical vicinity, which is a major advantage for locations where physical communication is still severely under-developed. For this reason, with the vision of ‘Digital Bangladesh’, the Government of Bangladesh (GoB) has put immense importance on policy formulation for the advancement of ICT service such as telemedicine (Hoque and Sorwar 2017).

Bangladesh is a heavily populated developing country with lack of reliable communication infrastructure and safe transportation. Although many health indicators (e.g. child mortality, women health etc.) show improvement, until today, the healthcare sector of the country is left with significant accessibility and affordability challenges (Ahmed et al. 2014). The country as a whole has a severe shortage of hospitals, clinics, doctors, and nurses. According to a recent survey, the number of available doctors, nurses, and midwives is less than 2.3 and only four beds for every ten thousand people in Bangladesh (WHO 2016). This number is way below the Millennium Development Goal, which is at least 2.5 physicians per thousand people in order to deliver sufficient treatment with primary care interventions. The situation is even worse in the rural areas where people are usually deprived from proper healthcare services. Although more than 70% of the citizens reside in rural areas, 75% of the total certified physicians practice in urban areas. Only a few hundreds of physicians practice in remote places once in a week which is not even close to satiate the scarcity of healthcare service (Hasan, 2012).

Given the limited healthcare resources available in rural areas on Bangladesh, most of the rural patients, including children and elderly, travel to divisional or metropolitan city to get proper healthcare services.
Alternative and cost-effective solution is essential for providing healthcare services in the context of Bangladesh and telemedicine technology provides vast opportunities. This ICT-enabled services can be an effective solution for the countries like Bangladesh where healthcare system faces various challenges. Telemedicine technology ensures healthcare delivery outside of formal institutional settings (Bayer et al. 2007) to more ubiquitous healthcare in a cost effective way. A recent study suggests that patients can save up to 56% of time and cost through availing telemedicine services (Sorwar et al. 2016).

Despite the known benefits of telemedicine, this technology has been facing many challenges in developing countries like Bangladesh. Although the number of mobile phone users is rapidly increasing in the country, telemedicine service is not well-accepted by its citizen. Many telemedicine projects have been discontinued over the years and are not functional because of patients’ lack of interests. Considering the potential benefits of using telemedicine in rural population, it is essential to find the underlying causes of rejection and potential barriers to use this service.

A good number of studies on telemedicine services in the context of Bangladesh have emerged in recent years focusing on different aspects of the technology, such as cost benefits and time efficiency (Graham et al. 2003; Prodhan et al. 2016), feasibility and infrastructure support (Sorwar et al. 2016), legal framework (Chowdhury et al. 2009), sustainability and scalability of the technology (Mostafa et al. 2013), and implementation challenges (Hakim 2016). Most of these studies are based on technology infrastructure and service providers’ perspectives. Although Hoque and Sorwar (2017), using theoretical framework, identified that factors such as social influence, technology anxiety, and resistance to change have significant impact on users’ adoption, the study is not exclusively focused on telemedicine services. Thus, existing literature provides little to no evidence for understanding how multiple factors influence telemedicine service adoption in the social context of developing countries, specially using theory-based framework. The objective of this study is to conduct a theory-based research to identify the factors that influence the adoption and use of telemedicine by the rural citizens of Bangladesh.

The remainder of this paper is organized as follows. In the next section, we provide the background of telemedicine services in the context of Bangladesh. The subsequent sections are used for theoretical discussion and hypothesis development followed by methodology, results, and discussion of the results. We conclude with the theoretical and practical contribution of this study followed by concluding remarks.

**Telemedicine Services in Bangladesh**

The history of telemedicine services in Bangladesh dates back to 1999, when few private organization started services that were very limited in scope. In 2001, the Bangladesh Telemedicine Association (BTA) was established but due to lack of funding BTA could not expand its telemedicine operations to rural population. In 2003, a new telemedicine project, Sustainable Development Network Program (SDNP), was launched and operated over satellite due to lagging internet connections. Around the same time, Bangladesh University of Engineering & Technology (BUET) initiated a similar project but later discontinued due to many challenges. Very recently, the government of Bangladesh created a new innovative program called Access to Information (a2i) with a goal to provide basic telemedicine services to majority of the country’s rural population. Until now, it is one of the most popular telemedicine project where the doctors provide value added based medical consultancy.

There are primarily two types of telemedicine services available in Bangladesh – basic mobile phone health service and advanced telemedicine service. The mobile phone health service is available in all district hospitals across the country where there is at least one on-duty doctor to support the service continuously (Bulletin 2016). The government also introduced advanced telemedicine service which is currently being provided from 42 hospital-based centers across the country. These telemedicine centers are considered advanced because of the availability of modern technologies, such as high-speed internet connection, large monitor, HD camera, and telemedicine peripherals (tele-stethoscope, tele-ECG, tele-microscope, tele-glucometer etc.). Patients from rural areas can received specialized care using these telemedicine facilities.

Despite the continuous efforts by government and non-government agencies to promote the technology for managing rural population health, lack of patients’ participation has been a major challenge. Thus, it is essential to understand the underline reasons for lack of adoption of this technology in the context of developing countries social structure.
Theoretical Framework and Hypotheses

The ultimate success of a technology relies on the successful adoption of the technology by its users. Review of existing theories in technology adoption literature reveals some of the factors that are important for technology adoption. Given the complex environmental, cultural, and social paradigm in developing countries, we propose a theoretical model with factors derived from multiple theories from Information Systems discipline – Technology Adoption Model (TAM), Unified Theory of Acceptance and Use of Technology (UTAUT), DeLone-McLean Model, and technology trust model. Remaining of this section is used to discuss these factors. This study proposes the following hypotheses based on the existing literature to support its proposed theoretical research framework. The theoretical research framework for this study is presented in Figure 1.

Perceived Usefulness

Perceived usefulness is about how a user perceives a service as being useful regarding the performance of that service (Amoako-Gyampah 2007). It signifies how much a person believes that a specific service would enhance his working performance (Davis 1989). In the context of ICT-based service, perceived usefulness refers to as the extent an individual perceives a process would be smooth and efficient while using a new technology service. The manifestation of the influence of perceived usefulness can vary from one population to another based on environment, culture, and social structure. For example, Schnall et al. (2015) concluded in their study that perceived usefulness is more important determinant to consider while developing new technology service particularly for the highly stigmatized population. Chau and Hu (2002) and Rho et al. (2014) both reported perceived usefulness to be an important factor to determine healthcare professionals’ decisions to use telemedicine technology. Based on the findings from existing literature, we believe individuals’ intention to use telemedicine technology in developing countries will be influenced by their perceptions about the usefulness of the technology. Therefore, we propose the following hypothesis:

H1: Perceived usefulness has a significant positive impact on the intention to use telemedicine services in developing countries.

Perceived Service Quality

Service quality is defined as how consumers evaluate a service based on some key dimensions, such as performance of service received, performance of service delivery process, etc. (Lewis and Booms 1983).
The perception about service quality is built on the difference between a user’s previous expectations about a service and perception created afterward about the actual experience of that service. When dealing with technology-enabled services, a users’ willingness to use and adapt new technologies is influenced by their perceived service quality (Ganguli and Roy 2011). In the context of telemedicine, service quality is very critical, especially long-term viability of the technology. Given that individuals are very sensitive when it comes to their health, individuals’ intention to use the telemedicine technology will be influenced by the quality of services provided by the providers, even in developing countries. Therefore, we propose the following hypothesis:

H2: Perceived service quality has a significant positive impact on the intention to use telemedicine services in developing countries.

**Perceived Trust**

The influence of trust has been studied extensively in relation to technology adoption and it is known to play an important predictor of new technology adoption. In fact, placing trust by end-users is an essential prerequisite for successful adoption and application of new technology (Velsen et al. 2016). Technology trust can be termed as reliance on a technology service by its users both in the online and offline settings. Nicolaou et al. (2013) found trust to be very important when it comes to exchanging electronic data. In the case of healthcare, trust has been found to positively influence patients’ relationship outcomes with their physicians (Leisen and Hyman 2004). Because telemedicine technology specifically deals with exchanging information related to patients’ own health, we believe that trust is an essential component and very important in establishing positive relationship with this technology. In fact, Velsen et al. (2016) suggested to include trust in the domain of telemedicine technology adoption in order to improve the quality of services. Therefore, we propose the following hypothesis.

H3: Perceived trust has a significant positive impact on the intention to use telemedicine services in developing countries.

**Social Influence**

Social influence factor greatly influences and plays important role in shaping users’ behavior. Social influence is frequently referred to as the state of peer-pressure exerted by others on an individual to influence his or her decision making process (De Silva et al. 2009). The social influence in technology adoption decision is often influenced by an individual’s belief and perception of how others view and expect of a specific technology (Hamari and Koivisto 2015). Technology adoption such as mHealth adoption are often (Hoque and Sorwar 2017) significantly influenced by social influence. Study suggests that influence in users’ adoption of new technology may come from the social system instead to an individual’s decision style (Hsu and Lu 2004). For example, the theory of conformity suggests that an individual member in a group often tend to act in accordance with the group norm (Lascu and Zinkhan 1999). According to Innovation-Diffusion Theory (Yang et al. 2009), the technology adoption is greatly relies not only on an individual belief on that technology but also on social influence. Therefore, we believe that individuals’ decision to use telemedicine services will be socially influenced by their social and cultural norm in developing countries. Thus, we propose the following hypothesis.

H4: Social Influence has a significant positive impact on the intention to use telemedicine services in developing countries.

**Perceived Satisfaction**

User satisfaction is considered as a post-use evaluation of quality of any product or service given the prior expectation for that product or service (Kettinger and Lee 1994). In the domain of information system, the success of technology adoption greatly relies on user satisfaction which also in the long run increases users’ intention to continually use technology-based services (Roca et al. 2006). User satisfaction also can be considerably influenced by the perceived usefulness of the user which ultimately influence the user’s intention to use a service (Bhattacherjee 2001). The end users’ satisfaction regarding leads to more acceptance and, consequently, increased usage of a new technology. Therefore, we propose the following hypothesis.
H5: User Satisfaction has a significant positive impact on the intention to use telemedicine services in developing countries.

**Technology Anxiety**

Technology anxiety is referred to as the fear and apprehension an individual feel regarding using new technology-related tools (Meuter et al. 2003). In today’s digital world, our daily life has evolved around technologies even for very basic and routine works, such as mobile banking and online shopping. Thus, anxiety due to new technology is a big challenge in an individual’s daily life today. Studies showed that technology anxiety greatly influences the adoption of mobile payment and it may also hinder individuals in mobile shopping adoption (Yang and Forney 2013). Technology anxiety factor is even a greater concern in developing countries as modern technologies are yet to diffuse in general population and fear of unknown consequences leads to anxieties and concerns when it comes to using a new technology. Therefore, we propose the following hypothesis.

H6: Technology anxiety has a significant negative impact on the intention to use telemedicine services in developing countries.

**Resistance to Change**

Resistance to change is a known obstacle when it comes to new technology adoption in organizations. Individuals’ resistance for changing to adopt new technology can have a great impact on determining the technology’s future success. Kim and Kankanhalli (2009) reported that resistance to change is an important reason for the failure of technology adoption. They emphasized that it is very important to learn how users assess a new technological change and choose to resist it. The resistance to change can be even greater if individuals are dealing with their own health related technology. Moreover, Long & Spurlock (2008) suggested that resistance to technology adoption may manifest differently in different culture and social settings. Thus, we propose the following hypothesis:

H7: Resistance to change has a significant negative impact on the intention to use telemedicine services in developing countries.

**Gender as a Moderator**

In the male-dominated society, the difference in gender is found as an important factor that may influence the adoption of new technology (Hofstede and Minkov 2010). Sieverding and Koch (2009) studied the influence of gender and its different aspects regarding the attitude towards technology acceptance and found gender to have moderating influences on technology use intention. Vekiri and Chronaki (2008) found that males, in general, show more confidence towards technology acceptance than that of females. Anderson et al. (2008) also identified that females show lower level of positive attitude towards technology acceptance which ultimately might influence the new technology adoption. Rothschild (2015) highlighted that gender acts as a moderating factor for social influence and performance expectancy. Therefore, in the context of telemedicine adoption we believe that gender will have strong moderating effect on the use of telemedicine technology, especially in the context of developing countries where the social structure is primarily male-dominated. Thus, we propose the following hypotheses:

H8. Gender moderate the relationship between Perceived usefulness and intention to use telemedicine services in developing countries.

H9. Gender moderate the relationship between perceived service quality and intention to use telemedicine services in developing countries.

H10. Gender moderate the relationship between perceived trust and intention to use telemedicine services in developing countries.

H11. Gender moderate the relationship between social influence and intention to use telemedicine services in developing countries.

H12. Gender moderate the relationship between satisfaction and intention to use telemedicine services in developing countries.
Methodology

We used a survey-based methodology for this study. The data collection was done in a face-to-face structured interview-based survey setting because of the fact that postal, internet and telephone systems are unreliable in Bangladesh. A standardized set of questions was used to collect the relevant data required for measuring the latent constructs in the research model. Items used in the questionnaire were developed based on prior studies where the necessary modification were made to fit purpose and context of this study. To overcome the language barrier, we carefully translated the questionnaire into Bengali (official language of the land) keeping the same meaning. The 7-point Likert scale is used for each question, ranging from (1) “strongly disagree” to (7) “strongly agree” for the measurement.

The population of this study consists of service recipients in rural area of Bangladesh. About 300 participants were recruited through personal invitation of which 274 usable responses were retained. The participants were provided with consent paper with adequate information about the project.

Data Analysis and Results

The statistical analysis technique called Partial Least Squares (PLS) was applied for data analyzing using the Structural Equation Model (SEM) (Götz et al. 2010). The SEM helps to identify the relationships between the constructs in a research framework. The analysis was done using SmartPLS software package developed by Ringle et al. (2005). SEM technique allows two separate analyses – the measurement component (factor model) to ensure the validity and reliability of the data and the structural component (path model) to test the hypotheses.

Measurement Model Analysis

<table>
<thead>
<tr>
<th>Constructs</th>
<th>Cronbach’s Alpha</th>
<th>Composite Reliability</th>
<th>Average Variance Extracted (AVE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intention to use</td>
<td>0.791</td>
<td>0.882</td>
<td>0.719</td>
</tr>
<tr>
<td>Perceived Usefulness</td>
<td>0.926</td>
<td>0.949</td>
<td>0.826</td>
</tr>
<tr>
<td>Resistance to Change</td>
<td>0.785</td>
<td>0.858</td>
<td>0.605</td>
</tr>
<tr>
<td>Satisfaction</td>
<td>0.779</td>
<td>0.858</td>
<td>0.605</td>
</tr>
<tr>
<td>Service Quality</td>
<td>0.725</td>
<td>0.826</td>
<td>0.543</td>
</tr>
<tr>
<td>Social Influence</td>
<td>0.715</td>
<td>0.834</td>
<td>0.627</td>
</tr>
<tr>
<td>Technology Anxiety</td>
<td>0.872</td>
<td>0.916</td>
<td>0.734</td>
</tr>
<tr>
<td>Trust</td>
<td>0.783</td>
<td>0.835</td>
<td>0.560</td>
</tr>
</tbody>
</table>

Table 1. Measurement Model Analysis Results

While analyzing the data, the internal reliability, convergent and discriminant validity were measured. The Cronbach’s alpha and composite reliability reflect the internal reliability, whereas, the average variance extracted (AVE) and item loadings reflect the convergent validity. Table 1 provides the AVE, composite reliability and Cronbach’s alpha (α) values for each of the constructs.

The calculated Cronbach’s alpha (α) values for the factors ranged from 0.715 to 0.926 and composite reliability values ranged from 0.826 to 0.949 are greater than acceptable value of 0.70, implying strong internal reliability (Götz et al. 2010). The AVEs for the constructs ranged from 0.560 to 0.826 and all factor loading ranged from 0.563 to 0.967 that are greater than the recommended levels (Hair et al. 2012).

Therefore, the conditions for convergent validity are satisfied in this study.

The discriminant validity was assessed by evaluating the shared variance between the construct and other constructs. The square root of the AVE of a construct should be greater than its correlation with other constructs for satisfactory discriminant validity. The diagonal elements must be larger than the entries in corresponding columns and rows to satisfy discriminant validity. The results shown in Table 2 confirms the discriminant validity of all constructs in this study.
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Table 2. Fornell-Larcker Criterion Analysis for Checking Discriminant Validity

<table>
<thead>
<tr>
<th></th>
<th>IU</th>
<th>PU</th>
<th>RC</th>
<th>SA</th>
<th>SQ</th>
<th>SI</th>
<th>TA</th>
<th>TR</th>
</tr>
</thead>
<tbody>
<tr>
<td>IU</td>
<td><strong>0.848</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PU</td>
<td>0.760</td>
<td><strong>0.909</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RC</td>
<td>0.693</td>
<td>0.561</td>
<td><strong>0.778</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SA</td>
<td>0.835</td>
<td>0.749</td>
<td>0.683</td>
<td><strong>0.778</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SQ</td>
<td>0.719</td>
<td>0.536</td>
<td>0.744</td>
<td>0.767</td>
<td><strong>0.737</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SI</td>
<td>0.797</td>
<td>0.650</td>
<td>0.698</td>
<td>0.723</td>
<td>0.730</td>
<td><strong>0.792</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TA</td>
<td>0.689</td>
<td>0.797</td>
<td>0.501</td>
<td>0.668</td>
<td>0.467</td>
<td>0.575</td>
<td><strong>0.857</strong></td>
<td></td>
</tr>
<tr>
<td>TR</td>
<td>0.594</td>
<td>0.493</td>
<td>0.526</td>
<td>0.585</td>
<td>0.552</td>
<td>0.605</td>
<td>0.389</td>
<td><strong>0.748</strong></td>
</tr>
</tbody>
</table>


Path Model Analysis

Using the bootstrap technique, we tested the hypotheses. In this process, the value of path coefficient (β) and t-statistics test was used to measure the correlation between dependent and independent variables. Besides, the influence of gender as a moderating variable was also tested.

The path analysis results for the structural model are shown in Table 3. The results show that perceived usefulness has significant positive influence on intention to use with ($t = 2.378, \beta = 0.132, p < 0.05$), supporting H1. Social influence factor has significant positive relationship with intention to use with ($t = 1.969, \beta = 0.125, p < 0.05$), supporting H4. The independent variable, satisfaction, has significant positive influence on intention to use with ($t = 7.780, \beta = 0.525, p < 0.05$), supporting H5. Both technology anxiety and resistance to change have significant negative influence on intention to use with ($t = 2.112, \beta = -0.097, p < 0.05$) and ($t = 2.185, \beta = -0.079, p < 0.05$), supporting H6 and H7 respectively. No support was found for H2 and H3.

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Path</th>
<th>β</th>
<th>t-Statistics</th>
<th>P Values</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1</td>
<td>Perceived Usefulness → Intention to Use</td>
<td>0.132</td>
<td>2.378</td>
<td>0.018</td>
<td>Supported</td>
</tr>
<tr>
<td>H2</td>
<td>Service Quality → Intention to Use</td>
<td>0.007</td>
<td>0.162</td>
<td>0.872</td>
<td>Not Supported</td>
</tr>
<tr>
<td>H3</td>
<td>Trust → Intention to Use</td>
<td>0.062</td>
<td>1.850</td>
<td>0.065</td>
<td>Not Supported</td>
</tr>
<tr>
<td>H4</td>
<td>Social Influence → Intention to Use</td>
<td>0.125</td>
<td>1.969</td>
<td>0.050</td>
<td>Supported</td>
</tr>
<tr>
<td>H5</td>
<td>Satisfaction → Intention to Use</td>
<td>0.525</td>
<td>7.780</td>
<td>0.000</td>
<td>Supported</td>
</tr>
<tr>
<td>H6</td>
<td>Technology Anxiety → Intention to Use</td>
<td>-0.097</td>
<td>2.112</td>
<td>0.035</td>
<td>Supported</td>
</tr>
<tr>
<td>H7</td>
<td>Resistance to Change → Intention to Use</td>
<td>-0.079</td>
<td>2.185</td>
<td>0.029</td>
<td>Supported</td>
</tr>
</tbody>
</table>

Table 3. Structural Model Analysis Results

To understand gender effects in our study, we performed t-statistics to compare any difference in responses between men and women. As stated in Table 4, men and women responded differently in their concern about perceived usefulness, social influence, and satisfaction in the intention to use telemedicine. Thus H8, H11 and H12 were supported. In contrast, gender did not moderate the relationship of service quality and trust in their intention to use telemedicine. Thus, H9 and H10 were not supported.

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<table>
<thead>
<tr>
<th>Path</th>
<th>Comparison t-statistics</th>
<th>p-value</th>
<th>Supported</th>
</tr>
</thead>
<tbody>
<tr>
<td>H8 Perceived Usefulness → Intention to Use</td>
<td>2.778</td>
<td>0.006</td>
<td>Supported</td>
</tr>
<tr>
<td>H9 Service Quality → Intention to Use</td>
<td>0.122</td>
<td>0.903</td>
<td>Not Supported</td>
</tr>
<tr>
<td>H10 Trust → Intention to Use</td>
<td>0.378</td>
<td>0.706</td>
<td>Not Supported</td>
</tr>
<tr>
<td>H11 Social Influence → Intention to Use</td>
<td>2.300</td>
<td>0.022</td>
<td>Supported</td>
</tr>
<tr>
<td>H12 Satisfaction → Intention to Use</td>
<td>2.923</td>
<td>0.004</td>
<td>Supported</td>
</tr>
</tbody>
</table>

Table 4. Gender Moderating Effects

Discussion of Results

In this study we empirically investigated the underlying process of forming individuals’ intention to use telemedicine technology in the context of developing countries. The results of this survey-based study provide interesting insights into healthcare technology adoption behavior. Our results revealed several factors that are important in shaping an individual’s intention to use the telemedicine technology. While several factors, such as perceived usefulness, social influence, and satisfaction, positively influence the formation of individuals’ intention to use telemedicine technology, we found that other factors such as technology anxiety and resistance to change deter individuals from using the technology. Additionally, our results revealed that service quality and trust have no significant influence on the formation of technology use intention. This finding is particularly interesting because the nature of these two factors, service quality and trust, are very similar in a way that they are usually formed during post-use of a new technology. Since the formation of intention to use a particularly technology takes place prior to the actual technology use, users’ perceptions about the quality of service and trust are not expected to exist at the time. Thus, these two factors are not important for new technology adoption behavior, rather they should be considered in understanding the motivation for continuous use of a technology.

Contribution to Theory and Practice

The conceptual theoretical framework used in this study was developed based on the factors selected from different models from Information Systems discipline, namely: Technology Adoption Model (TAM), DeLone-McLean Model, and technology trust model. Since the hypotheses related to the factors of perceived usefulness, social influence, satisfaction, gender, technology anxiety and resistance to change are found to be supported, the study validates and contributes to the respective models used for selecting these factors. However, this study significantly contributes into the theoretical area in the field of Information Systems discipline by yielding exceptional finding that perceived service quality and perceived trust may not influence technology adoption, especially in telemedicine adoption by the rural citizens of Bangladesh. Therefore, such findings can be a significant contribution to scholarly literatures that examine the influencing factors in technology adoption. Finally, as the conceptual theoretical framework used in this study was developed by consolidating the current literature, and as the findings mostly support the conceptual theoretical framework, this study will significantly contribute in practice being a guideline for policy making study for the service providers.

Conclusion

Access to healthcare is one of the fundamental needs of human life. With the continuous rise in cost, affordability of healthcare has become a challenge even in the most developed countries. In the developing countries, lack of communication, education, and health awareness creates additional challenges along with the high costs. Modern technologies, such as telemedicine, provides prospects in overcoming some of the challenges in healthcare provision in rural areas in developing countries. Because technological benefits can only be realized if it is used by its intended users, it is important to understand the factors that shape users’ intention to use the technology. In this study, we proposed and empirically tested a conceptual model that identifies various factors in shaping individuals’ intention to use telemedicine technology in Bangladesh. Our study reveals several interesting findings. We found that
while perceived usefulness, social influence, and satisfaction positively influence individuals’ technology use intention, technology anxiety and resistance to change negatively influence their intention. Additionally, we found that gender play an important role in moderating the relationship between the independent and dependent variables. These findings have important practical implications for government and healthcare organizations in developing countries.

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