User's acceptance to the adoption of Health Information Technology (HIT) in Bangabandhu Sheikh Mujib Medical University: Premier Medical University in Bangladesh

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Abstract

Bangabandhu Sheikh Mujib Medical University (BSMMU) is the prime medical university in Bangaldesh. To improve the quality of services, BSMMU plans to implement health information technology (HIT); which is the most vital component of the revolution in the University. A cross sectional survey was conducted by using self-administered questionnaire to describe health IT resources, to measure current status of IT usage, to assess the basic knowledge on HIT among the staffs of BSMMU and to measure their behavioral intention towards HIT. Four hundred staffs participated in this study. The mean age of the respondents was 32 (SD±6.4) years old and most of them have computer system in their office, but not heavily used to accomplish their tasks. Computer system mainly is used for the communication purpose (mean = 3.0 out of 5). According to basic IT knowledge evaluation, the average score was 11.00 (out of 20). Regarding behavior intention to use HIT, the data showed positive (mean 4.1, out of 5) attitude among all groups and users' intention to use HIT, effort expectancy, performance expectancy and social influence are the strong influential factors. In addition facilitated condition has significant effect on use behavior. The study suggested that he staffs of the BSMMU are ready to adopt HIT, but authority needs to build up user-friendly HIT system and ensuring the facilitating support to the users in order to make success regarding adoption.

Keywords: Bangladesh, Behavior Intention, Health Information Technology, University, User Acceptance, UTAUT model.

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Background

Health information technology (HIT) is a new wave of revolution in the field of health care. Many hospitals/clinics/governments around the world are trying to implement HIT to curtail expenses and to improve quality of care in the health sector. But if the users fails to adopt a new technology, it may result in an unexpected outcome such as increase medical error, decline users performances, turn down the quality of services, even difficult to reach the desired goal of the project. Major health IT project

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implementation in many countries showed that one of the key factors of success of technology is user acceptance.[1] The main reasons for the lack of success of HIT project is the poor knowledge of the socio-technical aspect of IT, the lack of required IT expertise among health care personals, the low level of acceptance of the system to users and the fast technology, social and political changes. The knowledge on health IT among the users is the factor that positively effect on their acceptance and use. The knowledge on HIT will help to design the health information system, as well as effective application and evaluation process.[1-3] Several studies have estimated that nearly 40% of the development of information technology in different sectors, including the health sector, were counted failures or have been discarded. In addition, the number has remained unchanged for at least 30 years.[4,5]

The Bangabandhu sheikh Mujib Medical University (BSMMU) is the premier medical university in Bangladesh with more than 3,800 people working for this University, as a teacher/physician, nurse and others supporting staff. To improve health care quality and administrative efficiencies, to reduce medical error, health care expenditures & paperwork, and to expand access to reasonable health care with limited workforce & resource, HIT is an effective tool.[6,7] BSMMU is planning to implement health information technology in the year 2015; which is the most vital component of revolution in the field of health care system in the University. To assure the successfulness of the implementation, baseline assessment in terms of health IT resource, current status of IT usage, as well as, users' knowledge and acceptance to HIT is required before the implementation. Therefore, this study aimed to conduct a baseline assessment regarding the readiness to adopt HIT at the BSMMU, in terms of health IT resource and users' acceptance, as well as to identify factors influencing the intention to use HIT in the University.

Methodology

A cross sectional survey was conducted in BSMMU, during September to October 2013. All staffs were stratified (**Table 1**) as Physician/Teacher, Nurses and others Supporting staffs (Technician and Administrative staff), by their type of professional and department. Since our population size was 3,836; sample size of 400 was suggested according to Taro Yamane's formula[8] with 5% error and 10% non-respondents/ missing data. The respondents were purposively selected according to their convenience from each department. Finally, 116 physicians, 88 nurses and 196 supporting staffs participated in this study. The principle investigator and two data collectors were briefly described about the study and afterwards invited the staffs to participate in this study. After participants made decision to participate in the study, the interviewers gave the participant information sheet and informed consent form was asked to assure for participating in the study. The participants voluntary made decision to participate in the study and were asked to sign inform consent Form. Data were collected by using self-administered structured questionnaire, s/he could skip/ refuse to answer or withdraw him/herself at any time from this study. It was not required to give any reason for the withdrawal of the consent.

The questionnaire was adopted from prior studies in which this instrument had been verified and showed sufficient reliability and validity.[9,10] After a small modification in the context of Bangladesh, the entire implemented survey questionnaire was translated in Bengali language. To ensure the correctness of the questionnaire, the questionnaire was translated from English to Bengali by two experts, and then reverse translation from Bengali to English was done by two different people. Questions regarding respondents' demography, IT resources, IT usage and knowledge measures were drawn from previous studies in Thailand,[10-12] and questions based on attitudes toward IT and end-users' intention to adopt HIT were drawn from the study from which the Unified Theory of Acceptance and Use of Technology (UTAUT) model was developed.[13]The reliability analysis of the questionnaire, regarding the UTAUT model was conducted, and the reliability test showed Cronbach's Alpha more than

0.8 for all constructs in the model, indicating high reliability of the questionnaire. The study questionnaire was verified through a pilot test for consistency, simplicity and ease of accomplishment using a convenience sample of 14 individuals. The results of the pilot test suggested minor drafting changes.

To collect demographic information, the BSMMU's personnel were asked to fill out about the participants' gender, age, education, field of work, currently used computer systems, local area network availability and internet connectivity.

To measure HIT usage in BSMMU, we used nine statements with five-point scale ranging from 1 (never perform this task), to 5 (always use a computer) consisting of one question asking frequency of use, associating with jobs in BSMMU. Three of the statements measured IT use for reporting and care giving, three statements measured IT use for management and administration and another three statements measured IT used in communication. The average score of each construct was the average of the summed score from associated three statements. Mean score was the average of the summed score of the three statements. After that, the mean score usage of HIT in BSMMU was the average of this three main construct. This section also contained one question asking participants to quantify their own IT experience. Previous study done in Thailand showed that these three types of IT use constructs had acceptable reliability and reasonable internal consistency as recommended by Nunnally.[11]

A set of 20 questions relating to basic IT knowledge was used to measure "IT knowledge". These items were also drawn from previous study done in Thailand.[12] The answer options for the knowledge questions were "true," "false" and "don't know." When the knowledge score was calculated, the "Not know" responses were categorized as incorrect answers. The internal consistency reliability of the scale from previous studies was relatively high with a Cronbach's alpha of 0.80.[12,13]

The measures of attitude towards IT were drawn from several studies, after minimal modification, that developed from the UTAUT model (**Figure 1**).[14] In this study, with 5-point Likert-type answer scales extending from 1 (strongly disagree) to 5 (strongly agree), a set of 23 questions were used. Of these 23 items, four items assessed the degree to which an individual believes that using IT will support him/her to achieve improvements in job performance; the performance expectancy (PE). Four items evaluated the degree of ease associating with use of IT; the effort expectancy (EE). Another four items evaluated the degree to which an individual identifies that others believe s /he should use IT; the Social Influence (SI). There were six items for evaluating the degree to which an individual believes that an organizational and technical infrastructure exists to support the use of IT; the facilitating conditions (FC). The final three items evaluated behavioral intention to use IT that is the intention (IN).

Statistical Packages for Social Science (SPSS) version 18 was used for data descriptive statistics, correlation, regression and ANOVA analysis.

The study was approved by the Ethics Committee of Faculty of Tropical Medicine, Mahidol University, Thailand (MUTM 2013-050-01), and Institutional Review Board (I.R.B), Bangabandhu Sheikh Mujib Medical University, Bangladesh (No. BSMMU/2013/11397 Date: 26-09-2013)

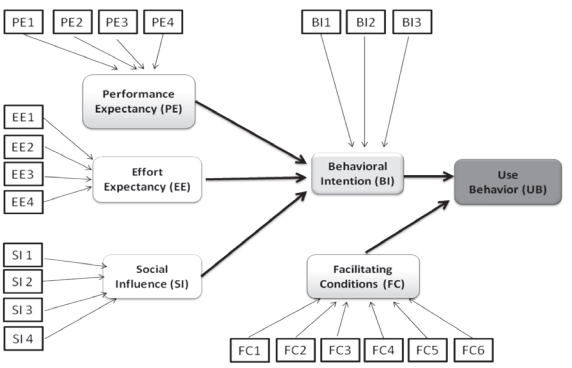


Figure 1: Conceptual framework of UTAUT model

Results

Table 2 shows that among the participants, 61% were male. The average age of the respondents was 32 years old (SD = 6.4, range: 19 - 54). The average age of physician (Mean 34.1, SD=5.4) was higher than any other groups. As well as about 61% of the participants were in 26-35 years age group. Among the respondents, most of them (39%) had a bachelor degree.

Regarding health IT resources in BSMMU (**Table 3**), 88% of the respondents reported that they have computer system and 76% reported that they have internet connection in their working place. Almost one third (29%) of the total respondents have no experiences of internet access in their daily/working life. About 60 % of the nurses had no experience to internet access. More than 80% of respondents reported using a computer, but almost 50% of the nurses never used. Along with that, it was found that half of the repondents had used a computer for more than 2 years. As well as, 50% of the respondents used computers almost everyday.

The respondents had not heavily used computer technology to help them accomplish their tasks. They had not frequently used computer in their job (total usage mean=2.6 in 5 point likert chart). Mainly, they used IT for the communication purpose (mean = 3.0). The nurses less frequently used computer (**Table 4**).

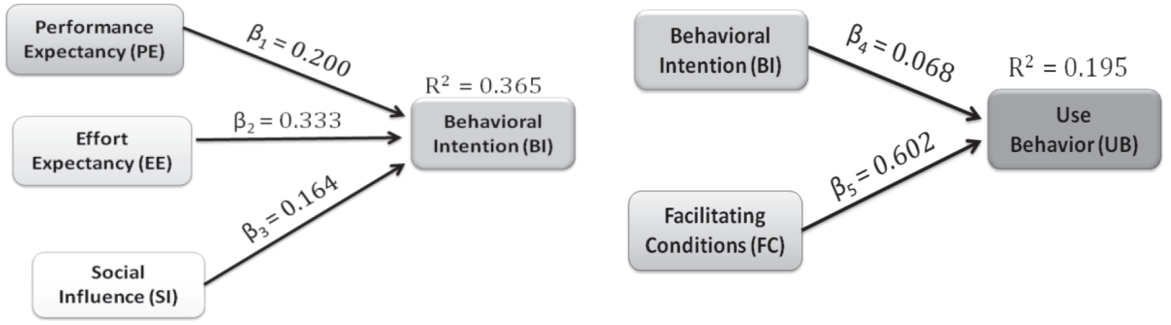
Concerning basic IT knowledge, a large number of the respondents (65%) answered at least half of the total questions correctly (**Table 5a**). The average score was 11.00 (out of 20). According to this evaluation mean knowledge score of nurse (7.1) is lower than other groups. About 9% of respondents got zero score, or they could not answer all questions correctly, only 3 respondents (out of 400) got the highest score (19 out of 20). More than 80% of respondents gave correct answer to the question no. 19 (The most common cause for data error is human errors), whereas question no.5 (USB stands for Universal Serial Bus) had the least number of those who gave correct answer (14%) (**Table 5b**).

Regarding behavior intention to use HIT, the data showed positive (mean 4.1, in 5 point likert chart) attitude among all groups. Intention to use IT was measured by three construct of UTAUT model. However, nurses showed less intention than others (**Table 6**).

This study also intended to discover whether there was a linear association between different indicators inside the model base on the 400 samples. Therefore, correlation coefficient calculated, and spearman correlation analysis had been applied to test the extent to which different dimensions inside the model associate with each other (**Table 7**). In this UTAUT model: PE, EE, SI, FC, BI and user behavior (UB) were all positively correlated to each other in the BSMMU, that had been investigated.

Among those four dimensions (PE, EE, FC, and SI) mentioned above, the correlation coefficient between PE and EE was the highest, which means the relationship between those two variables was strong. EE was strongly correlated with BI as well as UB. On the other hand, BI and UB were least correlated when comparing their correlation coefficient with others, which explains the weak relationship between those two variables. So the correlation analysis had reached the conclusion that part of the UTAUT model were correlated with each other based on the data analysis from BSMMU.

In order to test relationship between the four dimensions in UTAUT model (PE, EE, FC and SI), BI and UB, bivariate linear regression analysis was performed. Firstly, we identified the effects of independent variables (PE, EE and SI) on BI, based on linear regression models and after that we identified the effects of BI and FC on UB based on linear regression models (**Figure 2**).



a. $BI = \beta_1 PE + \beta_2 EE + \beta_3 SI$

b. $UB = \beta_4 BI + \beta_5 FC$

Figure 2: Regression analysis of UTAUT model

In our first model, the independent variables were PE, EE and SI which correspond to the dependent variable (BI). The variance (R^2) of behavioral intention was 36% which means that 36% of behavior intention can be explained by the three independent variables (PE, EE, and SI). There might be others factors that could account for BI (**Figure 2a**). Based on the survey, the independent variable was PE which corresponded to the dependent variable BI (**Figure: 2**). The β coefficient for performance expectancy showed 0.200 with p-value of 0.001, point out that PE was positively correlated with user's behavioral intention to adopt. In another part, the independent variable was EE, which corresponds to the dependent variable (BI). The B coefficient for effort expectancy was 0.333 with p-value <0.001. The EE was positively related to BI, so effort expectancy significantly predicted BI. The independent variable was SI, which corresponded to the dependent variable (BI). The B coefficient for social influence was 0.164 with p-value 0.004. The SI is positively related to BI, and SI could significantly predict BI.

In another model (**Figure 2b**), the independent variables were FC and BI which correspond to the dependent variable UB. The variance (R^2) of UB was 20 % which means that 20% of user behavior can be explained by the two independent variables (FC, BI). The β coefficient for FC was 0.602 with p-value <0.001, indicated that facilitating conditions could significantly predict user behavioral. However, behavioral intention was found to be not significantly influence to user behavior (p-value 0.33).

Table 1 Stratified Sampling

Description	Number	Staff Percentage	Sample	Sample Percentage
Physician/Teacher	1109	29	116	29
Nurse	826	22	88	22
Others Supporting staffs (Technician and Administrative staff)	1901	49	196	49
Total	3836	100	400	100

Table 2 Characteristic of respondent's

Variable	Total	Physicians	Nurses	Supporting staffs
Gender:				
Male (% of respondents)	244 (61)	82 (71)	6 (7)	156 (80)
Female (% of respondents)	156 (39)	34 (29)	82 (93)	40 (20)
Age: Mean score (SD)	**32.2 (6.4)**	**34.1 (5.4)**	**30.44 (7.8)**	**31.8 (6.1)**
≤25 years (% of respondents)	54 (14)	0 (0)	21 (24)	33 (17)
26-35 years (% of respondents)	245 (61)	81 (70)	48 (55)	116 (59)
36-45 years (% of respondents)	89 (22)	28 (24)	15 (17)	46 (23)
≥46 years (% of respondents)	12 (3)	7 (6)	4 (4)	1 (1)
Education:				
≤25 years (% of respondents)	112 (28)	2 (2)	70 (80)	40 (20)
26-35 years (% of respondents)	157 (39)	91 (78)	12 (13)	54 (28)
36-45 years (% of respondents)	67 (17)	14 (12)	0 (0)	53 (27)
≥46 years (% of respondents)	5 (1)	4 (4)	0 (0)	1 (1)
Others (% of respondents)	59 (15)	5 (4)	6 (7)	48 (24)

Table 3 Health IT resources in BSMMU

Variable	Total	Physicians	Nurses	Supporting staffs
Availability of Computer system in working place (% of respondents)	352 (88)	110 (95)	65 (74)	117 (90)
Internet connection availability in working place (% of respondents)	302 (76)	101 (87)	47 (53)	154 (78)
Access to the internet:				
Never (% of respondents)	116 (29)	3 (3)	52 (59)	61 (31)
Workplace (% of respondents)	118 (47)	64 (55)	17 (19)	107 (55)
Home (% of respondents)	183 (46)	92 (79)	26 (29)	65 (33)
Others (% of respondents)	9 (2)	5 (4)	0 (0)	4 (2)
Duration of computer use:				
Never (% of respondents)	70 (18)	0 (0)	39 (44)	31 (16)
< 1month (% of respondents)	11 (3)	2 (2)	5 (6)	4 (2)
1-6 months (% of respondents)	23 (6)	4 (3)	10 (11)	9 (5)
7-11 months (% of respondents)	42 (11)	19 (16)	4 (5)	19 (10)
1-2 years (% of respondents)	40 (10)	8 (7)	15 (17)	17 (9)
3-5 years (% of respondents)	71 (18)	18 (16)	12 (14)	41 (21)
6-10 years (% of respondents)	61 (15)	27 (23)	1 (1)	33 (17)
>10 years (% of respondents)	82 (21)	38 (33)	2 (2)	42 (21)
Frequency of Computer usage:				
Never (% of respondents)	70 (18)	0 (0)	39 (44)	31 (16)
< 1 for a week (% of respondents)	37 (9)	8 (7)	15 (17)	14 (7)
1 for a week (% of respondents)	28 (7)	7 (6)	9 (10)	12 (6)
more for a week (% of respondents)	69 (17)	26 (23)	19 (22)	24 (12)
Everyday (% of respondents)	142 (36)	44 (38)	6 (7)	92 (47)
more for a day (% of respondents)	54 (14)	31 (27)	0 (0)	23 (12)
Used type if device:				
Not used (% of respondents)	70 (18)	0 (0)	39 (44)	31 (16)
Office Desktop Computer (% of respondents)	179 (45)	36 (31)	16 (18)	126 (65)
Home Desktop Computer (% of respondents)	103 (26)	35 (30)	21 (24)	47 (24)
Office Notebook or laptop (% of respondents)	14 (4)	22 (19)	0 (0)	4 (2)
Home Notebook/ computer (% of respondents)	89 (22)	63 (54)	8 (9)	18 (9)
Tablet/Mobile Phone (% of respondents)	220 (55)	114 (98)	26 (30)	80 (41)

Table 4 Usage Behavior of IT

	Total	Physicians	Nurses	Supporting staffs	p-value*
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	
Report and Care giving:	**2.2 (1.1)**	**2.7 (1.0)**	**1.7 (0.8)**	**2.2 (1.2)**	*<0.001*
Recording patient information (e.g. history, physical exam, laboratory, procedure provided etc.)	2.2 (1.4)	2.6 (1.3)	1.9 (1.0)	2.1 (1.5)	
Retrieving previously recorded individual information for providing care	1.9 (1.1)	2.4 (1.2)	1.7 (0.8)	1.6 (1.1)	
Generating mandatory reports	2.6 (1.7)	2.9 (1.6)	1.6 (1.3)	2.9 (1.8)	
Administrative Use:	**2.5 (1.3)**	**3.2 (0.9)**	**1.4 (0.9)**	**2.5 (1.3)**	*<0.001*
Writing official letters, reports etc.	3.0 (1.7)	3.6 (1.3)	1.6 (1.1)	3.3 (1.7)	
Preparing presentation slides	2.6 (1.7)	3.9 (1.3)	1.3 (1.0)	2.3 (1.6)	
Performing statistical analysis	1.8 (1.3)	2.1 (1.4)	1.3 (1.0)	1.9 (1.4)	
Communication:	**2.5 (1.3)**	**3.2 (0.9)**	**1.4 (0.9)**	**2.5 (1.3)**	*<0.001*
Communicating with colleagues (email, etc)	3.0 (1.7)	3.6 (1.3)	1.6 (1.1)	3.3 (1.7)	
Searching for information associating with office tasks (e.g. health literature, official documents, etc.)	2.6 (1.7)	3.9 (1.3)	1.3 (1.0)	2.3 (1.6)	
Searching for information associating with personal interest.	1.8 (1.3)	2.1 (1.4)	1.3 (1.0)	1.9 (1.4)	
Total usage:	**2.6 (1.1)**	**3.3 (0.7)**	**1.7 (0.9)**	**2.6 (1.1)**	*<0.001*

*Tested by ANOVA

5-point Likert chart: 1 (never perform this task),2 (never use a computer), 3 (sometimes use a computer), 4 (often use computer) and 5 (always use a computer)

Table 5a Knowledge on HIT

Variable	Total	Physicians	Nurses	Supporting staffs	p-value*
Knowledge level:					***<0.001****
Correct answer >10 (% of respondents)	260 (65)	95 (82)	27 (31)	138 (70)	
Correct answer ≤10 (% of respondents)	140 (35)	21 (18)	61 (69)	58 (30)	
Knowledge score: Mean score (SD)	11 (5)	13.2 (3.37)	7.1 (3.4)	11.5 (4.7)	<0.001†

*Chi-square test

†ANOVA test

Table 5b Knowledge on HIT (Correctness of question on HIT)

Correctness of each question:	Total (% of respondents)	Physicians (% of respondents)	Nurses (% of respondents)	Supporting staffs (% of respondents)
1.Linux is an example of an operating system	194 (49)	71 (61)	22 (25)	101 (52)
2. Example of graphic and design software are Corel Draw, Adobe Illustrator and adobe Photoshop	230 (58)	83 (72)	28 (32)	119 (61)
3. Software is a series of instruction that make computer to do something	323 (81)	109 (94)	52 (59)	162 (83)
4. Computer virus is a software that can damage computer	320 (80)	111 (96)	55 (63)	154 (79)
5. USB stands for universal Serial Bus	56 (14)	20 (17)	8 (9)	168 (86)
6. All the information used by the processor loaded first into RAM	219 (55)	66 (57)	28 (32)	125 (64)
7. The most common use for serial or com ports is to increase processing speed.	63 (16)	20 (17)	6 (7)	37 (19)
8. Gigabyte is the unit of measurement of hard disk capacity	226 (67)	98 (84)	37 (42)	131 (67)
9. Before a new Compact Disk (CD) can be written on, it must be formatted	125 (31)	37 (32)	21 (24)	67 (34)
10.The resolution of a monitor display unit tells us the quality of this output device	238 (60)	80 (69)	33 (38)	125 (64)

Table 5b Knowledge on HIT (Correctness of question on HIT)

Correctness of each question:	Total (% of respondents)	Physicians (% of respondents)	Nurses (% of respondents)	Supporting staffs (% of respondents)
11. A function key on the keyboard to accesses help is F1	250 (63)	75 (65)	41 (47)	134 (68)
12. Scanner is an output device	102 (26)	44 (38)	12 (14)	46 (23)
13. LAN stands for Local Area Network	271 (68)	95 (82)	38 (43)	138 (70)
14. Data is transmitted using light through a fiber optic cable	204 (51)	85 (73)	25 (28)	94 (48)
15. A computer network is the term used to describe a communication system connecting two or more computers together.	296 (74)	102 (88)	44 (50)	148 (76)
16. The internet is the network of Worldwide computer networks.	262 (66)	93 (80)	39 (44)	130 (66)
17. Integrating video, voice, music, and even graphics in a presentation is called multimedia	280 (70)	103 (89)	38 (43)	139 (71)
18. An example of e-commerce on the internet is ordering a book from on-line book store.	128 (32)	44 (38)	17 (19)	67 (34)
19. The most common cause for data error is human errors.	326 (82)	105 (91)	54 (61)	167 (85)
20. A data field is a component of a record	252 (63)	87 (75)	30 (34)	135 (69)

Table 6 Behavior Intention

	Total	Physicians	Nurses	Supporting staffs	Statistics (ANOVA)
Behavioral intention (BI): Mean score (SD)	4.1 (0.8)	4.2 (0.7)	3.9 (0.7)	4.1 (0.9)	p=0.031 (df=2)

5-point Likert chart: 1=strongly disagree, 2= disagree, 3=neutral, 4= agree, 5=strongly agree

Table 7 Spearman's correlation analysis of the UTAUT model (n=400)

	Performance Expectancy	Effort Expectancy	Social Influence	Facilitating Conditions	Behavior Intentions	User Behavior
Performance Expectancy	CC=1					
Effort Expectancy	CC=0.657 p-value <0.001	CC=1				
Social Influence	CC=0.598 p-value <0.001	CC=0.650 p-value <0.001	CC=1			
Facilitating Conditions	CC=0.480 p-value <0.001	CC=0.614 p-value <0.001	CC=0.624 p-value <0.001	CC=1		
Behavior Intentions	CC=0.505 p-value <0.001	CC=0.567 p-value <0.001	CC=0.492 p-value <0.001	CC=0.506 p-value <0.001	CC=1	
User Behavior	CC=0.316 p-value <0.001	CC=0.469 p-value <0.001	CC=0.334 p-value <0.001	CC=0.439 p-value <0.001	CC=0.260 p-value <0.001	CC=1

Discussion

Results of this study exhibited that the majorities of the respondents are young with a bachelor degree and have been exposed to computer technology for years. Computer system is moderate, but internet is widely available in BSMMU but not used extensively. The availability of computer system enhanced by the Institutional and Governmental strong motivation to implement HIS through utilization of ICT and e-health systems in the country with the motto "Digital Bangladesh". The usage of IT behavior is on average level. Score of IT usage (reporting & care giving, administrative use and communication use) only 2.6 on 5-point scale supports this argument, mainly computer system usage for communication purpose (mean 3.0). An integrated health information technology (HIT) is not starting yet in BSMMU. For this reason, HIT is used in minimum level in care delivery field. Along with that, maximum of the respondent has access to use internet. Mainly they got access by using mobile phone/tablet. But almost half of the nurses have no experience to use computer system as well as internet surfing.

The study result showed that BSMMU staffs had average knowledge on IT. The questionnaire that we used may not be adequately assessed IT literacy and the ability of a person, because to do the assessment of an individual's computer literacy and skills may require a hand on test and a more wide-ranging instruments than the test we used.[15,16] However, our results can provide a rough picture of the IT knowledge level of the responding BSMMU personnel. The results recommended that the BSMMU staff had basic IT knowledge similar to the health center personals of Thailand.[17] The result advocates that IT training will be required to improve IT knowledge, if the health information technology is to be used successfully.

Regarding behavioral intention to use HIT, the staffs of BSMMU exhibits positive intention to use and accept IT in healthcare with average level of IT knowledge and moderate usage behavior. The circumstance that the larger part of the participants were young with bachelor degrees, and have been exposed to computer technology for years might be a significant contributing factor to the high IT acceptance, similar as Thailand's national survey findings.[17]

Our study results exhibited that the three construct of UTAUT model has influenced the usage of health IT, which is consistent with previous studies conducted in other countries.[9,18-20]

In our study, the result exhibited that EE is the strongest positive influential factor on BI, following by PE and SI. So, EE is the most positive influential

factor to accept health information technology in BSMMU. This result was consistent with the results of some others previous studies, showed that EE had positive influence on user intention to accept new technology.[17,21] This result indicates that HIT developers should keep developing user oriented easy-to-use and user friendly interfaces; in general the system should be easy-to-use. A probable reason of these findings is that HIT is still in its infancy in Bangladesh and the users want to accept and use the new technology (HIT) without any effort. Users of Information Systems are concerned with the easiness that is related with the use of the information system. A complex system that is difficult to use can make users uninterested in accepting the HIT.[22] But in some studies, effort expectancy did not show substantial influence for behavioral intention.[23-25]

PE and SI also exhibited a significant encouraging influence on BI to use HIT. This result indicates that BSMMU staffs intentions to use HIT services are positive and they expected that HIT will be useful for them to perform their job easily and will get maximum benefit from it. A study was done by the engineering faculty of Mahidol University in Thailand to examine the factors influencing healthcare Information Technology (IT) services. The study suggested that PE, EE and VC were the significant influencing factors. PE was found to have the strongest direct effect on BI, whereas SI was found to have no direct effect on BI.[26]

FC has significant effect on UB. However, this study failed to show any significant correlation or influence of BI on UB of HIT, due to moderate level of use behavior of HIT, as other previous study done in Indonesia to assess user acceptance toward blog technology using the UTAUT Model.[23] This study may not be able to establish the full effect of the intention to use, on usage behavior, because it was a snap-shot observation which captured a current intention and use behavior simultaneously.

In summary EE, PE and SI are the strong factors that influence the users' intention of BSMMU to use HIT. In addition, FC has significant effect on their use behavior. This study has some limitations due to the time constrain. Though the sample size in this study represented about 10% of people working in the BSSMU, this may lead to selection bias in this study. As the respondents were purposively selected according to their convenience, stratified by their health professionals and departments. As well as, only young physicians were willing to participates, this might affect the result that young people may have higher intention to use HIT.

Conclusion

To the best of our knowledge, this study was the first study regarding adoption of health information technology in BSMMU, as well as in Bangladesh. Based on the data collected and the results of the analysis, it can be concluded that staffs of BSMMU had high intention to use HIT, though their usage behavior and basic knowledge on HIT was on average. Beside this, there is an enough gap regarding experience, uses and knowledge on HIT between nurses and other groups. Before implementation of HIT in BSMMU, all staffs should undertake mandatory training and retraining on HIT program. Moreover, there is a need to ensure full organizational facilities. Furthermore, the BSMMU authority should develop ICT policies and guidelines that would support the University staffs to perform their job. The study results suggest that user acceptance and use of HIT can be predicted from the Users Behavioral intentions, which are affected significantly by Performance expectancy, effort expectancy, and social influence, and among these variables, effort expectancy was the most significant factor. Likewise, facilitating condition has positive influence to use behavior. This result indicates that the authority needs to develop user friendly and easy-to-use HIT system and ensuring the facilitating support to the users to make success regarding adoption.

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