

Factors Affecting Adoption of Prepaid Electronic Payment Cards in Tanzania: The Case Study of Kilimanjaro Christian Medical Centre (KCMC)

Hument Namweli
KCMC Kilimanjaro, Moshi, Tanzania

Joseph Magali
The Open University of Tanzania
josephmagali@yahoo.com

Abstract: *This paper aimed at investigating the factors affecting adoption of Electronic Payment System (EPS) at Kilimanjaro Christian Medical Centre (KCMC). The cross-sectional and descriptive correlational study designs were adopted where 150 clients at the outpatient clinics were selected for an interview. A structured questionnaire which was constructed based on the Technology Acceptance Model (TAM) was used. Data were analyzed by using descriptive, correlation and regression analysis. The study reveals that a majority of the clients (59%) preferred using EPS. Also, about 75% of clients indicated their intention to use EPS. The study further indicates that previous experience with the use of EPS and being banked were significant factors influencing both preferences of EPS and intention to use EPS. Moreover, middle-aged clients and high monthly income earners were the main users of EPS. The study also reveals that common barriers that hinder the adoption of EPS were poor internet connectivity and power fluctuations. This study recommends that in order to hasten the adoption of EPS it is important to address the identified barriers and also to encourage clients to use banks to keep their money. This study also recommends that KCMC should allow their clients to use mobile money transaction to pay for treatments charges.*

Keywords: Adoption, Prepaid Card Electronic Payment, KCMC, Tanzania

Background of the Problem

Hassan et al. (2013) define EPS as carrying of the monetary and similar transactions through the use of electronic means such as using computer networks and digitally store monetary value system. The emergence of the Information and Communication Technology (ICT) had completely changed the lives and operation of individuals and organizations respectively. Kabir et al. (2015) argued that the era of ICT and digital innovation have changed the world of business environment, where business transaction is constantly shifting from cash-based transactions to electronic-based systems. In the past, the transactions normally were done by using money (notes) but with the growth of ICT, people have started to use different

technologies for payments. Walton (2009) argued that the electronic payment system is simple since it does not involve any complicated procedures.

However, EPS in developing countries have encountered the number of problems in their execution. Various studies have been undertaken to study the adoption of new technologies both in developed and developing countries, though few studies on adoption of e-payments exist in developing countries, and specifically in the health sector. For example, Kabir et al. (2015) noted that most of developing countries are facing challenges associated with computerized systems operations. These challenges include frequent downtime, low speed, bad telecommunication system, poor internet connectivity and lack sufficient experience (Garcia and Calanton, 2002; Dehbini et al., 2015).

Tella (2012) found that perceived ease of use and enjoyment, speed and service quality are positively correlated with actual use of e-payments and the study predicted the success of e-payment system among teaching and non-teaching academic staffs at University in Nigeria. Jonsorn et al (2013) added that if the service is good, it will increase more acceptance to users. On the other hand, Soboke (2015) revealed that the factors that influenced adoption of electronic payments in hotel enterprises in Kisii Kenya were education level, age, skills and ease of use in terms of speed and convenience. Nyamiaka (2015) recommended that electronic payments system can be used in private University in Kenya to reduce misappropriation of funds, fraudulent in financial reporting and will increase transparency in transactions.

In Tanzania, Gale (2008) indicated a relatively continuous fall in revenue collected due to low experience of system operators on the new system. However, the experience itself is not the only factor which has influenced the fall of revenue collections. This implies that the electronic payment system faces other challenges that need to be investigated so as to increase their efficiency and reliability, especially in the least developing countries.

Statement of the Problem

KCMC is a consultant hospital serving over 11 million people of Northern Tanzania. The hospital is huge, complex with over 700-bed capacity and with hundreds of patients came to the centre every day and over 1200 staff are employed at the centre (KCMC annual Report, 2013). KCMC offers electronic treatment payment services in collaboration with Cooperative and Rural Development Bank (CRDB) since 2004.

Despite the benefits offered by the e-payment system for the revenue collection, patients at KCMC are complaining about inconveniences they face when using e-payment services and this makes some of the patients to run away from the service. This motivates us to find out the challenges which face the electronic treatment payment cards at KCMC. We hope that the recommendations of this study will accelerate the adoption rate of e-payment system and hence will result into increasing revenue at KCMC and the hospital sector in Tanzania.

Objectives

The general objective of the study was to assess the challenges facing the adoption of the Electronic treatment payments at KCMC. Specifically, the study aimed at determining the factors influencing clients' intention to use e-payment and to identify the challenges facing the adoption of e-payment system.

Theoretical Literature Review

Factors influencing the adoption and use of e- payment systems

Users' acceptance of any technology is central in determining the success or failure of any new information technology system (Davis, 1989). Literature suggested that user's attitude and human factors are pivotal aspects that influence the success of any information system including EPS (Davis, 1989). According to Davis (1989), the perceived advantage as illustrated by Perceived Ease of Use (PEOU) and Perceived Usefulness (PU) influences clients' decision to adopt the e-payment system. Leong et al (2003), further argued that conveniently provided by e-payment in allowing a transaction to be executed timely is an important advantage towards the adoption of e-payments. On the other hand, some of the authors had identified the correlation between operating entities and Trust and Security (Ba et al, 1999), simplicity and stakeholder benefits (Oh et al, 2006) as factors influencing adoption of e-payments.

The Technological Acceptance Model (TAM)

This model is based on the theory of reasoned action (TRA) which contends that beliefs influence intentions while intention influences action (Ajzen and Fishbein, 1972). Fred Davis devised the TAM model in 1985 when he was doing his PhD thesis but his paper was published in 1989. According to Davis (1989), the variables which influence the technology acceptance (actual use) are Perceived Usefulness (PU), Perceived Ease of Use (PEOU) and Attitude Towards Use). However, later on, Davis et al (1989) added one extra variable of Intention to Use while Venkatesh and Davis (2000) proposed an additional variable of behavioural intention to use. According to Venkatesh and Davis (2000), perceived usefulness (the degree at which a person believes that using a particular system would enhance job performance) and perceived ease of use (the degree at which a person believes that using a system would be free of effort) influence attitude towards system use which in turn influence the person's behavioral intention to use the system and determines the actual use of the technology. On the other hand, perceived ease of use predicts perceived usefulness on the premise that once one perceived ease of use of the system implies that one would perceive it to be useful. However, TAM did not take into account other factors specific to EPS such as security, trust, privacy and risk involved (Lee, et al, 2013).

Empirical Literature Review

Various studies have been undertaken to study the adoption of new technologies both in developed and developing countries, though few studies on adoption of e- payment have been done in developing countries, and specifically in the health sector. Wahid (2007) analyzed the internet adoption between men and women in Indonesia by using the technology acceptance model. The results reveal that perceived ease of use rather than perceived usefulness affected women than men, while perceived usefulness was more important for men's adoption of the internet. Jonson et al. (2013) investigated the acceptance of the electronic payment services in Thailand. The study revealed that if service is good, it will increase more acceptance of use.

Dehbin et al (2015) studied the factors influencing the adoption of an electronic payment card in micropayment in Kuwait where 384 citizens were interviewed on TAM constructs. The study hypotheses were tested using one sample t-test, Mann-Whitney U test and other demographic variables by using the Kruskal-Wallis test. The result revealed that ease of use, perceived usefulness, network externalities, and satisfaction had a positive effect on the acceptance of e-payment. Tella (2012), using TAM predicted the success of e-payment system among teaching and non-teaching academic staff at the University of Ilory in Nigeria,

using one-way Analysis of Variance (ANOVA) and multiple regression/multiple correlation analysis. The study found that perceived ease of use, perceived enjoyment, speed, and service quality were positively correlated with actual use of e-payments.

Adeyinka and Abdulmun (2015) studied the users' satisfaction with the e-payment system at the University of Ilorin, in Nigeria. The study revealed that users were mostly satisfied with perceived speed followed by system security, traceability and convenient. Moreover, there was a significant correlation among the entire e-payment and convenience. Soboke (2015) conducted a descriptive study to assess the factors influencing electronic payments by small and medium enterprises in Kisii, Kenya using Unified Theory of Acceptance and Use of Technological (UTAUT) which is a modified model of TAM, and non parametric test (Kruskal Walis mean rank test) also was used in data analysis. The study concluded that background characteristics of users (education level, age, and skills) and ease of use in terms of use and speed and convenience highly influenced the adoption of e-payments.

Nyamiaka (2015) determined the effect of e-payment on the operational risk management in the private University in Kenya, using regression analysis. The study showed that electronic payments system can be used in private University in Kenya to reduce misappropriation of funds by reducing 'ghost' payments, enhancing compliance with applicable accounting laws, reducing error in calculating change from transaction, reducing fraudulent financial reporting, and increasing transparency in transaction. Also, the institution in Kenya faced the infrastructure challenges which have led to a poor acceptance of e-payments because users were not happy with accessibility, safety and easy operation of the e-payment system.

Rumanyika (2015) assessed the obstacles towards the adoption of mobile banking in Tanzania qualitatively and descriptively and he noted that there were negative factors affecting mobile banking in Tanzania. The study revealed that poor network coverage, lack of knowledge of mobile banking user, lack of enough floats and poor security of mobile network were critical obstacles toward the adoption of mobile banking in Tanzania.

Anthony and Mutalemwa (2014), assessed the factors influenced the Use of Mobile Payment in Tanzania, focusing on Zantels' Z- Pesa services. The study noted that the rate of adoption of mobile payment services among the subscribers of Zantel (Z Pesa) was grown in a relatively low rate, due to various factors that hinder adoption of service such perceived as not so easy to use and unavailability of the service. However, the study revealed that the adoption of Z-Pesa services had the potential to be used as a means of payment if more payment options were available, such as paying utility bills, settling school fees and international money transfer.

Research Gap

The current applications of TAM include its applications in mobile banking services (Alsamydai, 2014), learning technologies (Mugo et al, 2017), mobile social gaming service popularity analysis (Chen et al, 2017). Shore et al (2018) used the TAM model to design the assistive exoskeletons for adults. Also, Wei et al (2018) applied TAM to assess the factors that drive Chinese to buy clothes online. From the reviewed empirical literature, we have noted that many studies about e-payment systems were done outside Tanzania. Also, most of these studies investigated the satisfaction with EPS in commerce; for example, Oney et al (2017), Waithaka and Mnkandla (2017), Bezhovski (2016), Kaur and Pathak (2015) and Nakhumwa (2013); to mention few. Secondly, we have noted that few studies covered the area of service industries. Thus, to the best of our knowledge, none of the studies has been done to assess the adoption of EPS in the health sector at KCMC referral hospital. Therefore,

this study was done to fulfil the gap. This study used the TAM model of Venkatesh and Davis (2000) reviewed by Lai (2017) because the model has a wide range of variables. The study assessed how the TAM model is applicable at KCMC and whether its variables influence outpatients to use e-payment system. Moreover, the study assessed whether there are other factors that influence the use of electronic prepayment cards at KCMC apart from those propagated by the TAM model.

Research Design

Cross-sectional and descriptive correlational designs were adopted for this study. Cross-sectional was used because of the financial and time resources constraints. The study used also the descriptive design to generalize the characteristics of the population. Moreover, the correlation design through correlation and regression analysis was used to describe the relationship between the independent and dependent variables.

Sampling Method and Sample Size Estimation

The required sample size was derived from the Slovin formula used by Suyono (2012) as presented below:

$$n = \frac{N}{1 + Ne^2}$$

Where:

n = Minimum sample size

N = Total number of population (N= 200; the average number of outpatients who visit KCMC per day)

e = sampling error on this research (estimated to be 5%).

By using the formula, the sample size is 134 outpatients but the approximate of **150** respondents was taken for the study.

Sampling Methods and Procedures

Systematic random sampling was employed whereby all outpatients were listed on the paper then every fifth out-patient were requested to participate in the study. KCMC records show that 200 out-patients attended the outpatients' services at KCMC in each day, but only 50 were targeted for data collection per day. This study involved patients who are not covered by the insurance services who are 50% of all patients because the patients who were covered by the insurance services do not use e-payment cards.

Data Collection Methods

The data was collected using the standardized questionnaire with structured questions adopted from previous studies which use the TAM model (Alsamydai, 2014; Abu-Dalbouh, 2013; Chen et al, 2017). The used data collection methods were interviews, questionnaire and observations. The questionnaire consisted of socio-demographic characteristic of respondents of perceive ease of use, perceived usefulness, attitude towards using, behavioral intention to use. The statements for the constructs used 5- point Likert scale with Strongly Disagree (SD = 1) Disagree (D = 2), Neutral (N = 3), Agree (A = 4) and Strongly Agree (SA = 5). The questionnaire was written in English and translated to Swahili language; a language which is well understood by the majority.

Data Reliability and Validity

Data reliability and validity were carefully considered to facilitate the proper data collection. Cooper and Schindler (2006) argued that it is better to consider the issues of validity when collecting data. The research instrument was pre-tested to 20 patients who did not participate in the main study to test the reliability of the instrument using Cronbach's alpha. The values of the Cronbach's alpha ranged from 0.83-0.94 which manifests the high reliability of the research instrument (Nunnally, 1978). Also, research assistants were trained before starting data collection with respect to questionnaire filling. To ensure validity, also a standard TAM questionnaire was adopted (Davis, 1989) and questions adapted to fit the context in which the questionnaire was administered. Furthermore, a number of professionals in the subject including the research supervisor were involved in checking the suitability and relevance of the questions.

Data Analysis, Variables and Measurement

The collected data was entered to the computer using Statistical Package for Social Sciences (SPSS) version 16). Model estimation was done by using likelihood approach and multiple regression analysis was used for hypothesis testing. Initially, socio-demographic characteristics were assessed. Adjusted R^2 was used to assess the variance explained by the model and then each construct was tested its significant at 5% level. The regression model for Actual use of e-payment as adopted by Wangpipatwong et al. (2008), which can be written as:

$$Y_i = \beta + a_1X_1 + a_2X_2 + a_3X_3 + a_4X_4 + \varepsilon$$

Where: Y_i = Actual use of e-payment
 X_1 = Clients behavioural intention to use EPS
 X_2 = Attitude toward EPS
 X_3 = Perceived ease of use of EPS
 X_4 = Perceived usefulness of EPS
 β = Y-Intercept
 ε = Random error
 a_1 - a_4 = Coefficients of X_1 - X_4

The study also used correlation and chi-square analysis for analyzing continuous and categorical variables respectively.

Ethical Issues Consideration

Since one of the authors was the Master student from the Open University of Tanzania, the research clearance letter was issued by Directorate of Postgraduate studies. However, the permission to conduct research at KCMC was obtained from the KCMC administration. Verbal consent was obtained from the prospective research participants. The collected data for research was kept confidential and respondents used identity numbers rather than their names. The researchers also avoided falsification, fabrication and plagiarism.

Results and discussion

Socio-Demographic and Economic Characteristics of Respondents

One hundred fifty clients (150) attending at Kilimanjaro Christian Medical Centre (KCMC) participated in the study. The majority were female (59.3%), aged between 20 and 40 years (56.0%), and with post-secondary education (59.3%). The study reveals that 64.7% of clients use EPS. The results also indicate that more than one-third were formal employees (36.0%) and about half (48.7%) had a monthly income ranging from Tanzania Shillings (Tshs.) 200,000 to less than 600,000. The results show the majority of clients are those with

employment and assured income. This implies that probably the charges at KCMC are of high cost in a manner that a client with a low amount of income cannot afford.

Bills Payment Methods

Respondents were asked if they have paid hospital bills using electronic payment system (EPS). The results show that 64.7% of the outpatients stated to have done so. These were further asked what mode of payment they prefer most. The result shows that 58% of patients preferred using EPS, 33% both and 9% cash payment. Our findings are not consistent with those reported by Nwaolisa and Kasie (2012) who found that 82.6% of the respondents in Nigeria preferred cash payments, giving the reason of not being used to the system.

Clients' Intention to Use EPS

About three-quarters of outpatients (74.4%) intend to use electronic payment systems. These were ones who were having experience with EPS. The chi-square test indicates that the clients who preferred using EPS for paying hospital bills over using cash were likely to continue using EPS more than 4 times (OR=4.2, 95% CI=1.9-9.1; $p < 0.001$) and clients with previous experience with EPS were significantly likely to continue using EPS for paying bills about 8 times than those without previous experience (OR=7.7, 95% CI=3.4-17.5; $p < 0.001$).

Internal Consistency and Testing the Linear Regression Assumptions

Internal consistency using Cronbach's alpha shows a high instrument's reliability with scores above 0.8. According to Gujarat and Porter (2010), the multiple regression assumptions can be tested through observing the existence of multicollinearity, autocorrelation, heteroscedasticity and normality.

Pearson's correlation analysis of variables and testing of multicollinearity

Pearson correlation coefficients were computed for the purpose of investigating the bivariate relationships (inter-correlation) among the study variables of perceived ease of use, perceived usefulness, attitude towards EPs and behavioural intention to use EPS. Table 1 shows the highest correlation coefficient (r) is 0.796 (ranging from 0.610 to 0.796), implying that there is a high correlation between attitude towards EPS and behavioural intention to use EPS. According to Field (2005), to avoid multicollinearity, the value of r , should be less than 0.8 and hence that problem is non-existent in our case. We also performed the VIF test (Table 1) for multicollinearity. Since all the VIF values lie between 1 and less 10, there is no multicollinearity. Normality assumption was tested using the Kolmogorov-Smirnov test. Since the p -values for the dependent and independent variables were not significant at 5% level of significance, normality assumption was met.

Hypothesis testing using correlation variables

Based on the model, the following hypotheses were tested to find out inter-correlations between variables and predictors of intention to use electronic payment systems.

Perceived Ease of Use (PEOU) and Attitude (AT)

H₁: Perceived ease of use (PEOU) positively influences user's attitude toward electronic payment systems

Perceived Usefulness (PU), Attitude (AT) and behavioural Intention (BI)

H₂: Perceived usefulness (PU) positively influences user's attitude toward electronic payment systems.

H₃: Perceived usefulness (PU) positively influences user's behavioural intention to use electronic payment systems

Attitude (AT) and Behavioral Intention (BI)

H₄: Attitude toward electronic payment systems positively influences user's behavioural intention to use EPS

Table 1. Pearson's Correlation Analysis of Variables

Variable (s)	Behavioural intention to use EPS	Perceived ease of use of EPS	Attitude towards EPS	Perceived usefulness of EPS	Mean (SD)	VIF	K-M test p-value
Behavioural intention to use EPS	1				3.9 (0.9)		0.11
Perceived ease of use of EPS	.659**	1			3.7 (0.8)	1.9	0.07
Attitude towards EPS	.796**	.610**	1		3.8 (0.9)	2.0	0.12
Perceived usefulness of EPS	.610**	.665**	.645**	1	3.9 (0.8)	2.1	0.32
Instrument reliability:							
Cronbach's alpha	0.94	0.83	0.94	0.94			

** . Correlation is significant at the 0.01 level (2-tailed), K-M = Kolmogorov-Smirnov test

The results show that the attitude toward EPS predicted the perceived ease of use of EPS ($\beta=0.610$; $p<0.001$) and perceived ease of use of EPS predicted attitude towards use EPS ($\beta=0.645$; $p<0.001$) and these two variables explain 47.5% of the variation ($R^2=0.475$) and hence H₁ and H₂ are supported. Behavioural intention to use EPS predicted perceived usefulness ($\beta=0.645$; $p<0.001$) and attitude toward using EPS ($\beta=0.796$; $p<0.001$) and both explain 64.9% of the variation ($R^2=0.649$); hence H₃ and H₄ are supported. Perceived usefulness predicted perceived ease of use ($\beta=0.665$; $p<0.001$) and explains 66.5% of the variation ($R^2=0.665$). Similar results were obtained in a study by Baraghani (2007) and Liu (2014) and hence consistent with the prior research of the founder of TAM (Davis, 1989).

Assumptions of autocorrelation

Gujarat and Porter (2010) asserted that autocorrelation can be tested using Durbin-Watson d tests and if your test values range between $1.5 < d < 2.5$, auto-correlation in the multiple linear regression model cannot be confirmed. The results of the Durbin-Watson test of regressions show that $d=2.15$ which signify that autocorrelation in the regression model cannot be confirmed.

Testing assumptions of heteroscedasticity

Also, Gujarat and Porter (2010) asserted that by comparing the calculated and the observed chi-square we can determine if the multiple linear regression model has a heteroscedasticity problem. The calculated value of chi-square is obtained by using the formula; NXR^2 , where N represents the number of observations and R^2 is obtained from the regression analysis. From data analysis, $R^2 = 0.675$, $N=150$. Hence calculated chi-square; $NXR^2 = 150 \times 0.675 = 101.25$ and the $\chi^2 (N)$ at 0.05 level of significance is $\chi^2 (150) = 178.485$ which is greater than the calculated value. The finding indicates that we cannot confirm the presence of heteroscedasticity problem in the regression model.

Predictors of Behavioral Intention to Use Electronic Payment Systems: Regression Analysis

Multiple linear regression results reveal that the predictors of behavioural intention to use electronic payment systems were attitude toward EPS ($\beta = 0.610$; $p < 0.001$) and ease of use of EPS ($\beta = 0.280$; $p < 0.001$). Usefulness of EPS was not a predictor of behavioural intention to use EPS (Table 2). The most significant prediction was mainly due to attitude toward EPS ($\beta = 0.610$) compared to ease of use of EPS ($\beta = 0.280$). Both variables explained 67.5% of the variation ($R^2 = 0.675$). Our findings are consistent with those reported by Tella (2012) in Nigeria and Johar and Awalluddin (2011) on adoption of e-commerce. However, in all of these studies, perceived usefulness of EPS was also a predictor, in contrast to our study findings. Thus, Tella and Olasina (2014) used the extension of the TAM model and added the variables such as enjoyment, speed, perceived benefits and user satisfaction on top of the three variables of the original TAM to predict actual use of EPS while Johar and Awalluddin included perceived enjoyment in their technology acceptance model. Also, Teoh, et al (2013) used TAM to determine factors affecting consumers' perception of electronic payment in Malaysia found that ease of use, benefits and self-efficacy were the determinants of consumers' perception toward e-payment.

Table 2. Multivariate Regression Analysis Results

Variable (s)	β	T	p-value	95.0% Confidence Interval for β	
				Lower Bound	Upper Bound
(Constant)	1.690	1.532	.028	-.490	3.869
Attitude toward EPS	.610	9.471	.000	.482	.737
Ease of use of EPS	.280	3.881	.000	.137	.422
Perceived usefulness of EPS	.042	.675	.500	-.080	.163
= Behavioral intension to use and actual system use	0.665	8.451	.0001	.373	.264
Adjusted R^2			0.675		

The final estimated model for intention to use EPS in our case would be:

$$Y_i = 1.690 + 0.610X_1 + 0.280X_2 + 0.042X_3 + \varepsilon$$

Where:

- Y_i = Clients behavioral intention to use EPS
- X_1 = Attitude toward EPS
- X_2 = Perceived ease of use of EPS
- X_3 = Perceived usefulness of EPS
- X_4 = Behavioral intension to use and actual system use
- ε = Random error

Challenges facing EPS Implementation

The patients who were not banked were complaining about inconveniences involved in e-payments. These include standing in a queue for a long time before posting their money in e-payment cards. Another noted challenge was re-depositing when the amount of money deposited in the card for the first time is not adequate. Furthermore, delay of thirty minutes to one hour before money is realized in the card was noted as one of the challenges. Due to these challenges, it was revealed that average of 3 to 4 patients escaped from using the KCMC service every day.

The results from data also revealed that other barriers towards the use of e-payment were downtime of Internet (mean (\pm SD) score = 4.2(\pm 0.8)) followed by poor Internet connectivity (mean (\pm SD) score = 4.1(\pm 0.9)) and then by power fluctuations (mean (\pm SD) score = 4.0 (\pm 0.9)). Our findings are consistent with those reported by Nwaolisa and Kasie (2011) whereby it was reported that the challenges facing electronic retail payment systems were weak technological infrastructures and inadequate power supply. Similar challenges have been reported by Taddesse and Kidan (2005) in Ethiopia and Ngereza and Iravo (2013) in Kenya. Okifo and Igbunu (2015) in Nigeria also added issues concerning the security of the e-payment system and resistance to change among clients as other challenges which hinder the adoption of e-payment system.

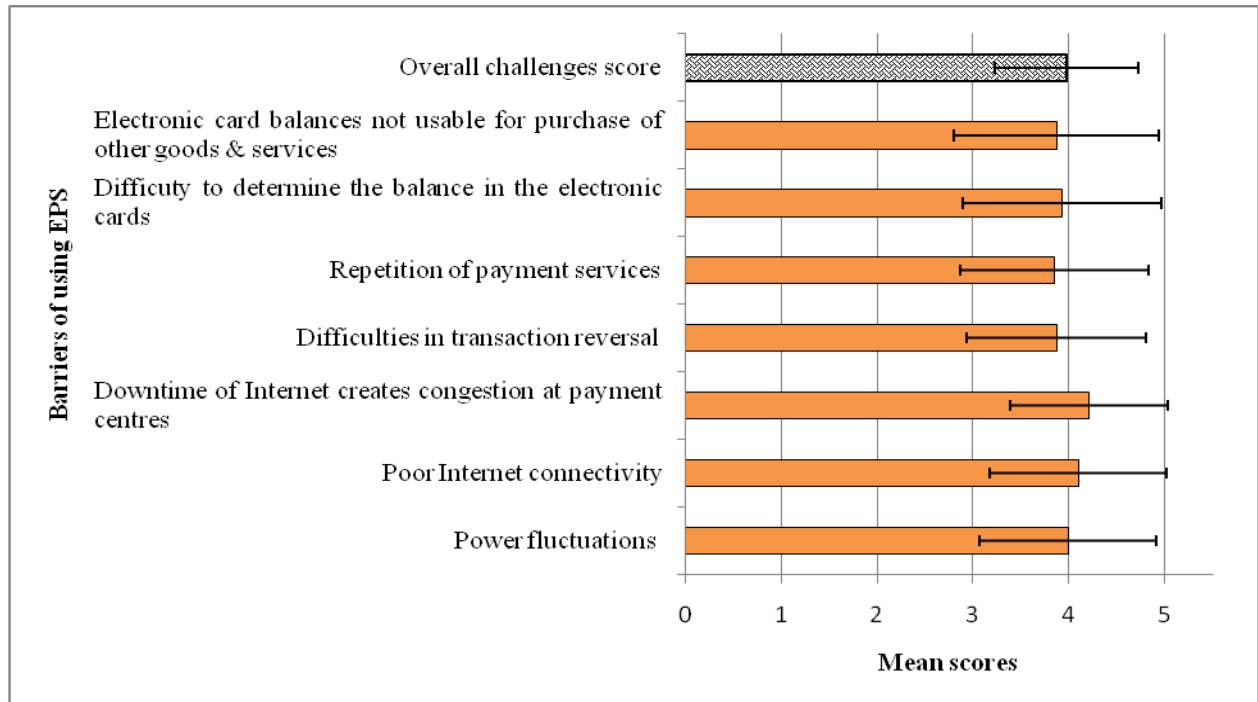


Figure 1. Barriers of Using Electronic Payment Systems

Conclusion

Majority of clients at KCMC prefer the use of an electronic payment system to make payments for the health services. However, nearly one-third of the clients still preferred both modes of payment, that is, cash and electronic payment systems. The study reveals that the significant factors influencing preference of mode of payment included being banked, previous experience of using EPS and being employed. The study further reveals that majority of clients intend to use electronic payment systems but they find that standing in the queue for a long time and re-depositing, when the amount of money deposited in the first time is not enough, are some of the challenges.

All the four hypotheses of the TAM model were supported demonstrating that perceived ease of use (PEOU), perceived usefulness (PU) and both PEOU and PU all influenced attitude toward EPS and also both PU and attitude toward EPS ultimately influenced behavioural intention to use EPS. Predictors of behavioural intention to use electronic payment systems were attitude toward EPS and ease of use of EPS. The commonly mentioned challenges facing the adoption of electronic payments systems were downtime of internet followed by

poor internet connectivity and then by power fluctuations. The study concludes that the challenges facing the adoption of e-payments at KCMC are the same as those listed in the empirical literature except waiting in the queue for a long time and re-depositing problems. However, this study is significant because only KCMC hospital in the Northern zone of Tanzania uses e-payment. Hence, the study provides the suggestions on how payments to a health centre in the Northern zone and other parts of Tanzania can effectively be done.

Recommendations

Awareness creation and education on how the electronic payments systems operate to users is important in order to foster adoption. The barriers that were mentioned by clients, that is, downtime of Internet followed by poor Internet connectivity, power fluctuations, waiting in queue for a long time and re-depositing for each health service in the same day must be addressed so as to reduce encumbrances that could deter clients from preferring the system. We also recommend that e-payments should be expanded to mobile money payments since are the most reliable mode of payments to all Tanzanians with diverse income. We know that various types of services in Tanzania such as water bills, electricity bills, school fees, transportation charges (including flight fare) and others are paid through mobile money transaction. Therefore, we believe that paying treatment charges through mobile money payment will be convenient for a majority of the clients.

Contribution of the Study to the Theories

This study reveals that Technology Acceptance Model (TAM) which was developed by Davis (1989) is applicable at KCMC because none of the clients complained about the difficulty in using e-payment except the challenge occurs when there is internet inaccessibility, system jam, waiting in the queue for long time and re-depositing of money for every service in the same day. However, the study reveals that these problems don't limit the diffusion of e-payment innovation at all but the problem which was noted is that, clients with lower income fail to pay through e-means because they are unable to save their money in a bank. Hence, a flexible means of payment such as using the mobile money transaction would help to accommodate even these clients with lower income.

Direction for Future studies

This study was carried out at a single institution and used only the quantitative approach. We recommended further studies covering several institutions in different geographical locations and using both quantitative and qualitative approaches. Also, we recommend the future studies to use the integrated models (TAM and other technology-related models).

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