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An Assessment of e-Health Readiness in the Public Health Sector of Mauritius

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Abstract

e-Health has emerged as a fundamental tool to improve the efficiency and effectiveness of health delivery systems. However, evidence suggests that the success of e-health implementation needs a comprehensive e-health readiness assessment of the different stakeholders. e-Health readiness assessment represents a significant step to analyse the existing settings and provide appropriate approaches to successful e-health transformation. The objectives of this study are to provide an assessment of the e-health readiness in the public health sector of Mauritius and to gauge the perceptions of different cadres about the critical factors for e-health implementation. A cross-sectional approach was adopted to elicit relevant data among different cadres randomly chosen from the five regional hospitals in Mauritius. One of the main findings of this study is that the staff in the public health sector of Mauritius are ready to adopt e-health and provide full support for its implementation. Identified attributes were categorised based on the literature to develop a conceptual framework. The result has shown significant contribution of different constructs included in the framework. The results also provide an understanding and the need to focus on the right strategy to introduce e-health in Mauritius. Hence, the model may practically be used by health practitioners and researchers in the e-health readiness assessment status when there is a plan to implement an e-health system.

Keywords: e-Health Readiness Assessment; Health Care; Public Sector.

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1. Introduction

Information and Communication Technologies (ICTs) holds great promise in the health arena. Significant advancement has been made to improve the quality of public health services. The integration of ICTs within the health sector has been referred to as Electronic Health and termed as e-health [1]. It has been defined as the combined use of information and communications technologies for health [2]. In contemporary times, e-health plays an important role in addressing challenges that are faced by health institutions since its strategies worldwide aim to promote quality, safety and efficiency by underpinning shared healthcare provision with technology. Healy [3] reported that there is a high need of improving access to health care services in developing countries through ICTs as the progress in ICT and e-health solutions offer various options to meet the change and enable integration and networking [4]. Moreover, according to the Bulletin of the World Health Organization 2012, Lewis T. and his colleagues [5] stated that the use of e-health technologies is spreading rapidly in low- and medium-income countries as well around the world.

Literature shows that e-health has brought many benefits and is achieving a steady change from the traditional health care delivery system to appropriate electronic health care delivery systems. The benefits of e-health, such as improved operational efficiency, higher quality of care, and positive return on investments have been well documented in the literature [6]. e-Health facilitates healthcare organizations through several benefits such as improved information availability, interoperability, efficient healthcare delivery and overall health promotion. e-Health enhances flexibility, allowing integrated care centers [7] and it permits the transfer of different kinds of health data and information management data, provision or confirmation of diagnosis, and epidemiological monitoring. For healthcare providers, it results in easier access and use of evidence-based guidelines with the potential to improve adherence and subsequently decrease medication errors [8]. However, it is important to note that e-health requires huge ICT investment and failure to its successful implementation could result in great losses in terms of time, money and effort [9]. These failures do not usually represent technological problems, but rather human and organisational factors relating to the implementation and adoption. As a result, successfully integrating IT solutions into the healthcare workflow is crucially dependant on engagement of health professionals right from the start of the development and ongoing evaluation of these applications. The health professionals may require training using IT-applications to bring real improvements in patient care. Policymakers may need to be persuaded that initial expenditures in the new technology will bring the benefits assured. All these contradictory beliefs and points need to be addressed while starting any e-health project [10] and thus, organizations need to assess their readiness for technological innovations [11].

Moreover, developing countries have also realized that if they fail to provide an adequate infrastructure and knowledge base, then they risk falling behind both economically and socially in the emerging networked world. In this line, Ministries of Health are approving computer software in order to get better health data collection, stretch, storage, analysis and distribution in their Health Information Systems [12]. As in many developing countries, the Ministry of Health of Mauritius has recognised the importance of ICT for quality improvement in healthcare provision and the setting up of the e-health system has been planned since 2012 but unfortunately it has not yet been executed. There are various factors which could have hampered the execution of e-health initiatives. However, no appropriate studies investigating e-health readiness related to Mauritius has been

carried out so far. Therefore, it is of paramount importance to assess e-health readiness among different stakeholders to reduce the risk of e-health implementation failure.

The main objective of the study is thus to determine how e-health readiness has been evaluated in developing countries and to adopt a suitable framework to assess e-health readiness in the public health sector of Mauritius in order to come up with viable recommendations for successful implementation and effective use of e-health. Hence, this study expected to contribute new information to the body of knowledge in this field, specifically in Mauritius.

2. Literature Review and Conceptual Framework

E-readiness assessments have emerged as opportunities to collect, organize, share and manage ICTs related data [13]. They are designed to evaluate organizational capabilities, access and opportunities offered through e-government initiatives. Various definitions of e-readiness and different tools of assessment are used depending on their goals and results. The Economist Intelligence Unit [14] defines e-readiness as a measure of the quality of a country's ICT infrastructure and the ability of its consumers, businesses and governments to use ICT to their benefit. According to Musa [15], e-readiness provides the diversity to offer different uses in different manners. Ojo and his colleagues [16] stated that e-health readiness could be looked at as the degree to which a community is ready to participate and succeed in e-health implementation. Various e-readiness assessment frameworks are currently available, each having its own strengths and limitations that may yield varying outcomes under different contexts. Consequently, from the literature, this study examined the different factors that are relevant for e-health readiness assessment.

Campbell and his colleagues [17] developed a readiness framework including six themes such as turf, efficacy, practice context, apprehension, time to learn and ownership. These six themes embrace the framework to understand three categorised organisational settings, i.e., “fertile soil, somewhat fertile soil, and barren soil” [17]. The framework provided a mechanism for determining and then dealing with three different levels of readiness for implementing e-health applications. However, the framework has not been tested.

Another readiness evaluation study developed by Demiris and his colleagues [18], involves staff profiles, staff exposure to technology and institutional resources. Nevertheless, its main focus was solely on the assessment of practitioner readiness rather than organisational readiness. Jennett and his colleagues [19, 20] further developed a readiness framework which is relatively comprehensive in terms of the evaluation scope including four types of readiness; Core readiness, Engagement readiness, Structural readiness and Concern of non-readiness. Later Jennett and his colleagues [21] identified six common factors; Core readiness, Structural, Projection of benefits, Assessment of Practitioners’ awareness and education, and Intra-group and inter-group dynamics. The framework determines overall readiness categorisation and it lays emphasis on the essence of end-users’ ownership of innovation adoption by investigating organisational, health provider, public and patient readiness for e-health. However, tool reliability has not been assessed and little information has been provided regarding demographics or current technological practices.

Wickramasinghe and his colleagues [22] proposed another framework which is concerned with three constructs relevant to e-health readiness – practitioner, organisation and public highlighting key elements and allowing analysis of the four main prerequisites; Information communication technology (ICT) architecture/infrastructure; Standardisation policies, protocols and procedures; User access and accessibility policies; and Governmental regulation and control. Afterwards, Overhage and his colleagues [23] developed a framework which explored seven dimensions such as clinical component, demonstration of community commitment and leadership, matching funds, overall technical readiness, plans for sustainable business model, use of data standards, use of replicable and scalable tools. However, the objective of Overhage and his colleagues's study was not explicitly stated and the tool reliability or validity was not assessed nor a scoring mechanism was provided to determine readiness.

Furthermore, Khoja and his colleagues [24] aimed to evaluate e-health readiness tools for both Managers and healthcare providers and identified five readiness constructs that include core readiness, learning readiness, technological readiness, societal readiness and policy readiness. Later, Khoja and his colleagues [24] grouped these sets of statements into two tool sets. The first tool set is targeted at managers and includes core readiness, technological readiness, societal readiness and policy readiness, but excludes learning readiness. The second tool set is targeted at healthcare providers and includes core readiness, learning readiness, societal readiness and policy readiness, but not technological readiness. Several authors have used the tool set by Khoja and his colleagues [24] as a reference in the development of other telehealth and e-health assessment frameworks [25, 26, 27]. On the other hand, Li and his colleagues [28] extended the work of previous researchers and their work integrated four constructs of core, engagement, technological and societal readiness. Later, Ojo and his colleagues [16] study alluded to the integration of the change, need change readiness and acceptance and use readiness theories. Their work identified four constructs of need-change readiness and engagement readiness from the change theories, structural readiness from the perceived behavioral control element of the theory of planned behavior, and the acceptance and use of readiness based on the adaptation, acceptance and use of technology theories [29]. Legare and his colleagues [30] identified six different assessment tools to measure e-readiness within a certain healthcare context as well as home-based telehealth applications.

Subsequently, several studies have been conducted to improve the health situations by suggesting frameworks taking into account their adoption, acceptance and use. Li & Seale [11] addressed a wide perspective of readiness constructs and their work identified five constructs that included motivational, engagement, technological, resource and societal readiness bringing the healthcare institutions or communities to the changes that are brought by ICT innovations. Rezai-Rad and his colleagues [31] demonstrated an improvement in the methodology of validating e-health readiness assessment model. However, their study showed little improvement from the work of Khoja and his colleagues [24] as it only used the four constructs of technological, engagement, societal and core readiness.

A recent study done by Kgasi and Kalema [32] in South Africa, have integrated other technology acceptance models like the technology acceptance model (TAM) [33] and the unified theory of acceptance and use of technology (UTAUT) [29] to come up with their frameworks. Five constructs of e-health readiness assessment were identified to formulate the framework and they are core readiness, structural readiness, societal readiness,

engagement readiness and acceptance and use readiness.

Several studies [11, 16, 21, 24, 31] recommended the importance of considering the context, while developing a model for e-health assessment in developing countries. Kgasi and Kalema [32] stated that developing a model for e-health assessment should contextualize those aspects that reflect factors which are specific to developing countries. Moreover, government policies also play a crucial role to maximize the probability of success in implementing information systems. Shaqrah [34] stated that the government e-health policies make an environment where the likelihood of using resources effectively is increased, the professionals find their suitable places and exercise faithfully and the future of IT application in healthcare becomes clearly identifiable.

Therefore, from the reviewed literature of e-health readiness frameworks, this study identified six relevant constructs to assess e-health readiness in the public health sector in Mauritius. The constructs are core readiness, technological readiness, societal readiness, policy readiness, engagement readiness and acceptance and use readiness.

- Core Readiness construct refers to the identification of the core attributes of the target population that leads to the need for change [31]. It will therefore examine the following attributes identifying needs for future changes, dissatisfaction with status quo, awareness about e-health, comfort with technology, trust on the use of ICT, planning for e-health project, overall satisfaction and willingness, integration of technology [24, 16].
- Technological Readiness construct considers the attributes related to institutional and human resource structures [16]. The attributes include ICT regulations and policies, work ethics and organizational culture, training and availability of resources like, speed and quality of network; hardware and software; compatibility; capability of the ICT support team; availability of the internet; reliability of the network; training of users; internet accessibility.
- Societal readiness construct aims at understanding communication links and collaboration of healthcare organizations with other institutions [24]. In the context of this study the attributes include; collaboration with other health institutions; sharing of information, provision of care to patients and communities in collaboration with other healthcare institutions; socio-cultural factors among staff; socio-economic position and socio-cultural factors among clients and communities.
- Policy readiness construct deals with policies, at the government and institutional level, which are in place to address common issues [24]. This will examine the polices put in place for the promotion, support and management of e-health utilization in the health care institutions.
- Engagement readiness construct assesses the healthcare providers' exposure to e-health readiness systems and willingness to participate in the Networking world [11]. In this study, this will apply to knowledge, benefits of e-health and the willingness of the medical practitioners to engage actively in training.
- Acceptance and Use Readiness construct assesses the medical personnel's effort expectancy, performance expectance and the readiness by the government or administration to facilitate them while using the e-health system [29]. This construct assesses the personnel's effort expectancy and performance expectance and the attributes include; personal factors like; age, academic qualification and experience with networking technology; ability to use technology and its newness; quality of services provided, satisfaction with

technology, organizational awareness and expected benefits.

Hence, the conceptual framework derived for e-health readiness assessment in Mauritius is demonstrated in Figure 1.

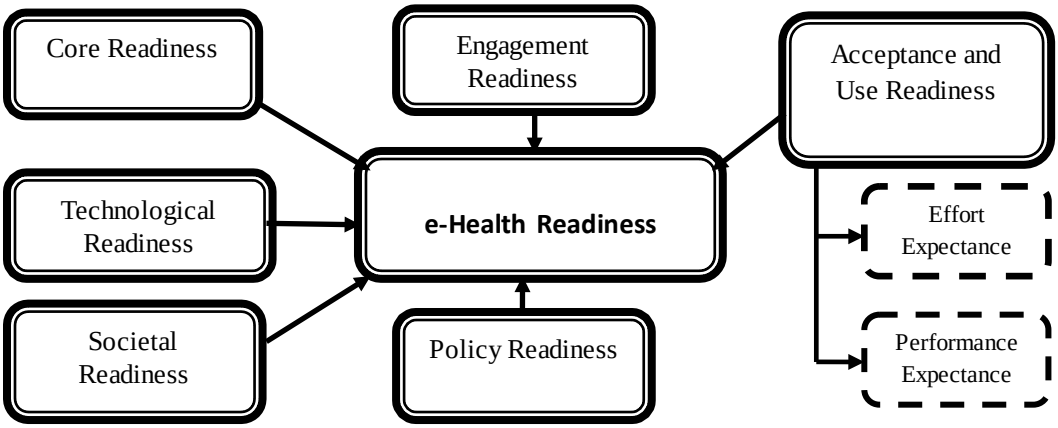


Figure 1: Conceptual framework

3. Methodology

3.1. Study and sample design

A cross-sectional quantitative study was carried out to assess the readiness of healthcare providers working in the public health sector of Mauritius. The targeted population for this study was comprised of four groups including the physicians, nursing personnel, Health records officers and pharmacy personnel from the five regional hospitals namely Abdool Gaffoor Jeetoo Hospital (AGJH), Jawaharlal Nehru Hospital (JNH), Sir Seewoosagur Ramgoolam National Hospital (SSRNH), Victoria Hospital (VH), and Flacq Hospital (FH).

The study population was estimated to be 2363 healthcare providers. The sample size was calculated using a confidence level of 95 % and a margin of error of 10 %. It was therefore determined that the sample size should be 96 participants. Accounting for a desired response rate of at least 60 %, the final number of participants to be included in the study in order to ensure statistical significance as calculated, was estimated at 120. The sample was selected using a proportional stratified sampling ensuring that the particular categories of individuals including physicians, nursing officers, health record officers and pharmacy personnel are represented.

3.2. Data collection

A survey method was employed and a structured questionnaire was distributed to the participants and collected after two weeks to elicit specific information with respect to the objectives of the study. However, before the questionnaire was administered for data, pilot testing was carried to check for the validity of the questionnaire and reliability analysis was performed to check for the reliability of the survey instrument.

All procedures involved in the study were approved by the Ethics Committee of the Ministry of Health and

Quality of Life of Mauritius. Moreover, the objective of the study was clearly explained to the participants and anonymity of the respondents was assured as well as confidentiality throughout the survey was observed.

3.3. Instrument

The study instrument comprised a structured questionnaire to assess the e-health readiness for employees within the five regional hospitals. The questionnaire touches on a number of the factors previously identified from the literature that impact the readiness of primary healthcare providers to use e-health applications.

The questionnaire consisted of three sections. The first section assessed the participants' awareness of the concept of e-health, computer use, computer literacy, existing computer facilities and perception of participants with respect to computerization of the department and readiness to e-health applications. The second section of the questionnaire included several statements based on the constructs of the conceptual framework and was based on a five point Likert scale (1 = Not important, 2 = Less important, 3 = Not sure, 4 = Important and 5 = Very important) which assess healthcare providers' readiness for implementation of the e-health system. The final section included questions related to the participants' demographics (gender, age group, occupation, hospital placement, level of education and experience).

3.4. Data Analysis

The questionnaires were then coded and transcribed into the Statistical Package for Social Sciences (SPSS) Statistics v 21.0 for analysis. Frequency tables and crosstabs were used for the descriptive analysis. Associations among variables were seen using regression analysis and factor analysis through principal component analysis (PCA) was used to rank the attributes in their order of importance and relevancy to e-health readiness.

3.5. Limitations

This study was assessed only on four cadres of health professionals and thus the perceptions of users from the other cadres of the health sector were not analysed. Moreover, this study was carried out only in the public health sector and thus the outcome could not be compared with the private health sector.

4. Results

4.1. Demographic Characteristics of Respondents

Of the 120 questionnaires that were distributed, 101 were completed, rendering a response rate of 84.2% which was considered acceptable for analysis. The majority of participants were nurses (46.9%), followed by physicians (26.8 %), health record officers (14.9%) and pharmacy staff (24.9%) as shown in table 1. This is in line with the actual distribution of healthcare providers in Mauritius which usually employ more nurses than physicians and other health providers. With respect to gender, the male (50.5%) and female staff (49.5%) were relative equally distributed and the results also show that the higher group of respondents (64.4%) belonged to the younger age population of under the age of 30. Moreover, the placements of the participants were equally

distributed between the hospitals. Regarding the level of education, 62.4% of the sample possessed a secondary qualification, 18.8% had a university diploma while the rest possessed either a degree or post graduate degree qualification. It is also important to point out that the majority of the participants (66.3%) had less than 10 years of experience.

Table 1: Demographic Characteristics of respondents

Demographic Variable	Frequency (n=101)	Sample (%)
Gender:		
Male	51	50.5
Female	50	49.5
Age Group Distribution:		
18-24	34	33.7
25-29	31	30.7
30-34	10	9.9
35-39	16	15.8
>40	10	9.9
Level of Experience:		
<10	67	66.3
10-20	27	26.7
21-30	7	6.9
Level of Education:		
SC	20	19.8
HSC	43	42.6
Diploma	19	18.8
Degree	4	4.0
Post Graduate	15	14.9
Hospital placement:		
Victoria hospital	20	19.8
Dr Jeetoo Hospital	25	24.8
SSRN Hospital	21	20.8
Flacq Hospital	14	13.9
Jawaharlal Nehru Hospital	21	20.8
Occupation:		
Physician	15	28.7
Nursing Officer	35	34.7
Health Record Officer	29	14.9
Pharmacy personnel	22	21.8

4.2. Awareness of e-health concept and computer usage

The results of table 2 show that 80.2% of the sample stated that they were aware of the e-health concept since most of them (90.1%) were aware of the mission and vision of the Ministry of Health. This implies that the introduction of e-health will meet little or no resistance from the users. In relation to the computer usage and internet access, 62.4% of the respondents reported using a computer regularly and 80.2% of the respondents reported that they have internet access at work. This shows that computer knowledge may not constitute a barrier in the effective usage of the e-health applications.

Table 2: Awareness of e-health and computer usage

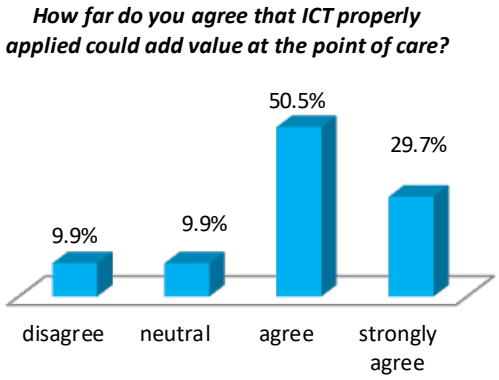
	Frequency (n=101)	**Sample (%)**
Awareness of the Mission and Vision of the Ministry		
Yes	91	90.1
No	10	9.9
Awareness of the e-health concept		
Yes	81	80.2
No	20	19.8
Regular use of computers		
Yes	63	62.4
No	38	37.6
Do you have internet access at work?		
Yes	81	80.2
No	20	19.8

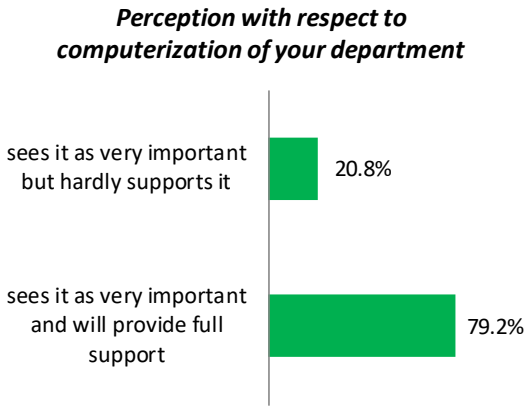
4.3. Perceptions on application of ICT in healthcare and readiness to adopt e-health

With respect to application of ICT in the health sector, 80.2% of the respondents agreed that ICT could add value to healthcare delivery. 79.2% of the participants see it as very important and will provide full support while 20.8% might hardly support it. Additionally, mean scores of overall perception towards the five constructs are illustrated in figure 1. Most respondents perceived that the performance to be the most important with a mean of 3.80 followed by effort (3.72) and engagement (3.70) and empathy (3.42).

Regarding perceptions on readiness to adopt e-health, the mean score was 4.27 with a standard deviation of 0.786 on a scale of 1 to 5 where 1 represents least readiness score and 5 indicates the highest readiness score. However, the results revealed significant difference ($p<0.001$) among age of healthcare providers and their readiness for adopting e-health system. The younger groups are seen to have more positive attitudes regarding the adoption of e-health than older age groups. Also, this study did not find a significant difference ($p=0.931$) between the gender of healthcare professionals and their readiness for adopting e-health system. Similarly, no significant difference ($p=0.771$) was observed among the occupation of the health professionals and their

readiness for adopting e-health system





Perception scores of the constructs (n=101)

Constructs	Mean	Std. Deviation
Performance Expectance	3.80	.29497
Effort Expectance	3.72	.45401
Engagement Readiness	3.70	.44057
Technological Readiness	3.62	.40162
Policy Readiness	3.40	.53861
Core Readiness	3.26	.29284
Societal Readiness	3.26	.36568

Readiness to adopt e-health (n=101)

	Mean	Std. Deviation
Readiness to adopt e-health	4.27	.786

Figure 1: Perception on ICT in healthcare and mean readiness to adopt e-health

4.4. Reliability Analysis

Reliability analysis using cronbach's coefficient alpha values were chosen to examine the internal consistency of data of the constructs and that of the questionnaire. The overall reliability for the measuring instrument was 0.896, a value greater than the recommend threshold of 0.7 (Field, 2013). It was also noted that the reliability of the Societal Readiness (0.657) and Policy Readiness (0.674) were below the threshold of 0.7. However, these two values were close to the threshold value when rounded off. Hence, these two constructs were accepted in the final analysis. All the other constructs showed good reliability (table 3).

4.5. FactorAnalysis

A factor analysis was conducted through "Principal component (PCA)" and Rotated Component Matrix technique with "Varimax Rotation". The PCA was employed to determine whether the seven identified

independent variables were principal components for this study. According to Coakes [35] and Pallant [36], the Kaiser-Meyer-Olkin (KMO) and Bartlett's test (table 4) of sphericity are generally applied to determine the factorability of the output matrix. The KMO value was 0.683 that exceeded the cutoff point of 0.6 confirming that the presented PCA values are relevant [37]. Additionally, Bartlett's test of sphericity was (chi-square = 710.635), which was highly significant at ($p<0.001$) indicating that there were adequate relationships between the variables included in the analysis [38]. Therefore, it can be concluded that the data is appropriate for factor analysis.

Table 3: Reliability of the constructs

Construct	Cronbach's Alpha (α)	No. of items
Core Readiness	0.882	8
Technological Readiness	0.797	5
Societal Readiness	0.657	5
Policy Readiness	0.674	3
Engagement Readiness	0.709	5
Effort Expectance	0.801	4
Performance Expectance	0.728	4

Table 4: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.683
Bartlett's Test of Sphericity	Approx. Chi-Square	710.635
	df	21
	Sig.	.000

From the correlation matrix (table 5), it was observed that no correlation among independent variables was higher than 0.9, signifying that all the composite variables have uniquely contributed to the dependent variable. Moreover, determinant of the matrix was 0.001 which was greater than the necessary value of 0.00001 indicated that multicollinearity was not a problem for these data.

Table 6 shows the initial commonalities before rotation and provides information about the extent of the variance that was found in each item. All the components showed communality values that are above 0.3 as shown in table 8. Therefore, the construct validity of the survey instrument for e-health readiness was sufficient.

The Total Variance Explained in table 7 shows how the variance is divided among the 7 constructs. The results revealed the presence of two components with Eigenvalues exceeding 1, explaining 59.7% and 21.8% of the variance respectively contributing to a total of 81.5%. A scree plot (figure 2) was also plotted to reveal a clear break after the second component.

Table 5: Correlation Matrix[a]

	Core	Technological	Societal	Policy	Engagement	Effort	Performance
Core	1.000						
Technological	.719	1.000					
Societal	.211	.145	1.000				
Policy	.733	.621	.447	1.000			
Engagement	.826	.742	.043	.716	1.000		
Effort	.657	.849	.200	.653	.614	1.000	
Performance	.309	.223	.658	.664	.458	.095	1.000

a. Determinant = .001

Table 6: Communalities

Constructs	**Initial**	**Extraction**
Core Readiness	1.000	.800
Technological Readiness	1.000	.840
Societal Readiness	1.000	.774
Policy Readiness	1.000	.857
Engagement Readiness	1.000	.799
Effort Readiness	1.000	.766
Performance Readiness	1.000	.868

Extraction Method: Principal Component Analysis.

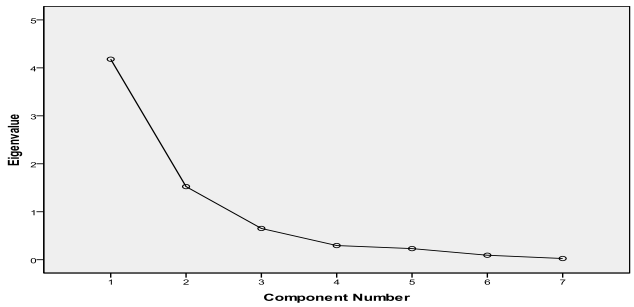


Figure 2: Scree plot

Table 7: Total Variance Explained

Component	Initial Eigenvalues			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
dimension0 1	4.180	59.715	59.715	3.687	52.676	52.676
2	1.524	21.776	81.491	2.017	28.816	81.491
3	.651	9.306	90.797			
4	.295	4.215	95.013			
5	.231	3.306	98.319			
6	.093	1.329	99.648			
7	.025	.352	100.000			

Extraction Method: Principal Component Analysis.

Table 8 shows the rotated component matrix which is a matrix of the factor loadings for each variable onto each factor and a factor loading of 0.45 or higher is considered significant [39]. So, the factor loadings less than 0.45 were omitted to improve clarity.

The constructs were clustered into two factors defined by the highest loading on each construct. After rotation, the first factor accounted for 52.7% of the variance and the second factor accounted for 28.8%.

These two rotated factors are just as good as the initial factors in explaining and reproducing the observed correlation matrix. In the rotated factors, core readiness, effort expectance, policy readiness, engagement readiness and technological readiness all have high positive loadings on the first factor, whereas performance expectance and societal readiness all have high positive loadings on the second factor.

4.6. Regression analysis

A regression analysis was performed with readiness to adopt e-health as the dependent variable and the two factors emerged from the factor analysis. Based on the output (table 9), the result revealed a significant model emerged ($F(7, 100) = 54.697$, $p < 0.001$) with the adjusted R square being 0.518.

The results also showed strong positive correlation ($R=0.726$) between the dependent and independent variables.

The value of r-square (0.527) indicated that the independent variables accounts for 52.7% of the variation in the readiness to adopt e-health and the Durbin-Watson value of 1.689 assumed residual independence.

The results also revealed that both factors were significant ($p<0.001$) for readiness to adopt e-health and thus it indicated that the emerged factors have a significant role in the model.

Table 8: Rotated Component Matrix[a]

	Component	
	1	2
Core	.871	
Technological	.915	
Societal		.879
Policy	.725	.576
Engagement	.874	
Effort	.875	
Performance		.912

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 3 iterations.

Table 9: Regression Analysis Results

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	32.588	2	16.294	54.697	.000[a]
	Residual	29.194	98	0.298		
	Total	61.782	100			

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0.726[a]	0.527	0.518	0.546	1.689

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	4.267	.054		78.575	.000
	REGR factor score 1 for analysis 1	.378	.055	.481	6.924	.000
	REGR factor score 2 for analysis 1	-.428	.055	-.544	-7.839	.000

a. Predictors: (Constant), REGR factor score 2 for analysis 1, REGR factor score 1 for analysis 1

b. Dependent Variable: Readiness to adopt e-health

5. Discussion

The present study examined the e-health readiness among health professionals across the five regional hospitals

that were in the frontline to implement e-health in the coming years in Mauritius. In this assessment, the overall mean readiness score of those health professionals included in the survey was 4.27 on a scale of 1 to 5 where 1 represented the least readiness score and 5 indicated the readiness score and it can be regarded as high. The possible reason for this could be that most of the health professionals are well aware of the e-health concept and familiar to the use of computers. Therefore, this clearly indicates that the health professionals tend to have more motive, interest, and readiness to accept new technology developments and innovations. Moreover, the healthcare professionals included in the study perceived the computerisation of their department as very important and they are ready to provide full support for implementation. The findings of this study revealed significant difference among age of healthcare providers and their readiness for adopting e-health system. The younger groups are likely to have more positive attitudes regarding the adoption of e-health than older age groups. This is in contrast to the findings of a study that found that older age groups have more positive attitudes regarding the usefulness of technologies than younger age groups [40]. Also, this study did not find a significant difference between the gender of healthcare professionals and their readiness for adopting e-health system. This is in line with the findings of a study that identified that the degree of perceived usefulness among participants differed depending on gender [40]. Similarly, no significant difference was observed among the occupation of the health professionals and their readiness for adopting e-health system. As reported by Rezai-Rad and his colleagues [31] and Li & Seale [11], the framework for e-health readiness could embrace some aspects from other frameworks though other aspects may not be embraced. Additionally, it is also notable that the governments with well-structured and documented e-Health policies are more likely to adopt the technology than those who do not [41]. Therefore, the identified attributes in this study were categorized based on the literature to develop the final framework (Figure 1) for e-health readiness assessment in the public health sector of Mauritius. Additionally, the results of the study demonstrated in table 3 indicate that all the suggested constructs proved relevant for e-health readiness assessment. Even though the Ministry of Health has taken initial steps towards an e-health implementation, there are still many things to improve to reach readiness for e-health adoption. Other factors that influence e-health adoption, as identified by Li and his colleagues [42], include performance expectancy, effort expectancy and other facilitating or inhibiting conditions. With respect to performance expectancy and effort expectance variables, it was observed that the mean perception scores of the two constructs were relatively higher than the other counterparts. It is therefore apparent that the healthcare professionals consider the perceived usefulness and ease of use of the system important in the adoption of e-health. The findings also revealed two rotated factors that emerged were as good as the initial factors in explaining and reproducing the observed correlation matrix and both factors were significant for readiness to adopt e-health.

6. Conclusion

This study was conducted in light of the need to examine e-health readiness in order to identify the potential causes of failure to technological innovations before implementation. From the literature, it is evident that implementation of technological innovation starts with the readiness assessment which prepares the organizations to join the networked community. This study found that the majority of healthcare professionals in the public health sector of Mauritius are ready for e-health adoption. Although the initiatives for adoption of e-health in Mauritius started back in 2012, the e-health system is not yet a reality. The findings of this study can

therefore be considered by decision makers to enhance and scale-up the use of e-health nationally. Furthermore, the findings from this study can serve as a stepping-stone to a serious discussion among policy makers and practitioners on approaches to adopt e-health into care delivery models in deciding on the way forward.

7. Recommendations

The main recommendations emanated from the findings of this study suggest that it is necessary to determine the level of readiness of healthcare professionals, organizations, and other stakeholders prior to any e-health implementation. It is also important to provide the healthcare units with the necessary infrastructure to allow them to organize their work environment and flexible plans should be developed to consider unexpected challenges in the process of change.

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