



Knowledge, Attitude, and Practices of E-health Among Medical Officers in Colombo South Teaching Hospital

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ABSTRACT

Introduction: The World Health Organization defines e-health as “the transfer of health resources and healthcare by electronic means.” In general, e-health refers to the use of modern information and communication technologies across various health-related domains, with the goal of digitizing healthcare systems and records. When users are introduced to new technology, several factors can affect their acceptance. This study aims to evaluate the knowledge, attitude, and practices related to e-health among doctors at Colombo South Teaching Hospital (CSTH) in Sri Lanka, which is crucial for the successful adoption and sustainability of e-health initiatives.

Methods: This hospital-based cross-sectional descriptive study was conducted at CSTH in Sri Lanka.

Results and Discussion: Fifty-seven doctors responded to the survey. Among them, the majority reported using computers; however, 3.5% were computer illiterate, 22.8% were beginners, and 17.5% were advanced users, while the majority (56.1%) were basic computer users. Most doctors (86%) used computers at home, but only 33.3% used them at work. A total of 57.9% of the doctors had undergone computer training. Of the respondents, 75.4% were able to use Microsoft Word, 54.38% could use Excel, 57.89% could use PowerPoint, 33.33% read e-journals, and 71.92% were able to use the internet and email.

Knowledge about the term “e-health” was generally good, but there were gaps in specific applications. Only 57.9% of the doctors were aware that medicine supply for patients could be controlled via electronic software, and only 33.3% believed that patient examinations could be conducted through the internet. The findings indicated that doctors had moderately positive attitudes towards e-health. However, only 38.6% believed that computers or e-health systems could assist in their work.

Conclusion: Doctors are key stakeholders in the implementation of e-health initiatives within hospitals. The current level of knowledge, attitude, and practices regarding e-health among Medical Officers at CSTH is satisfactory but could be improved. Healthcare authorities should focus on providing advanced e-health education and applications to improve doctors' knowledge and attitude, thereby facilitating the successful implementation of e-health initiatives.

Introduction

The World Health Organization describes e-health as “the transfer of health resources and health care by electronic means.” In general, e-health encompasses the application of the latest information and communication technologies in various health-related areas, including collecting, storing, retrieving, analysing, and managing information; unifying electronic health records; disseminating and sharing medical information; and providing remote healthcare services. The goal of e-health is to foster stronger and more effective communication with patients, thereby enhancing healthcare services and the entire healthcare sector. In essence, it's about digitizing healthcare systems and records.

In today's world, paper-based systems are becoming obsolete. Developed countries have already transitioned to digital governance, while many developing countries are striving to implement digital systems. Sri Lanka launched its e-Government initiative in 2005 as part of the 'e-Sri Lanka National Development Project.' Private-sector institutions have successfully implemented information systems, and some government institutions have effectively done the same, delivering excellent service to their customers in recent years.

The Department of Health is also committed to digitizing health services for physicians, medical institutions, and the general public by recording and updating each patient's health history, reports, and analyses. The Ministry of Health has announced that by 2020, an e-health card with a unique identification number would be issued to every Sri Lankan citizen.

The National e-Health Policy of Sri Lanka aims to streamline the adoption and use of ICT in the healthcare sector to improve quality, efficiency, patient safety, and cost-effectiveness, thereby contributing to the goals outlined in the National Health Policy.

The Colombo South Teaching Hospital (CSTH) in Kalubowila is a well-recognized and well-established teaching hospital in the Colombo district. With 1,249 beds, it is a multi-specialty teaching hospital. CSTH has recently initiated internal networking to implement a health information system, with the preliminary background work nearing completion. When users are introduced to new technology, several factors can influence their acceptance. Given that CSTH is also preparing to implement an e-health information system, evaluating the knowledge, attitude, and practices regarding e-health among healthcare providers at this stage is crucial for successful implementation and sustainability.

Methods

This is a hospital-based cross-sectional descriptive study conducted at Colombo South Teaching Hospital in Colombo, Sri Lanka, between January 2020 and June 2020. Data collection was performed using a self-administered questionnaire. The study population included doctors and nurses at Colombo South Teaching Hospital. The researchers were directly involved in data collection from hospital records. The data were analyzed using appropriate statistical methods with Microsoft Excel and SPSS

Results and Discussion

	Frequency	Percent %
Have you ever used a computer		
Yes	54	94.7
No	3	5.3
Computer knowledge level		
Illiterate	2	3.5
Beginner	13	22.8
Basic User	32	56.1
Advance User	10	17.5
Used computer at home		
Yes	49	86
No	8	14
Used computer at Work		
Yes	19	33.3
No	38	66.7
Used computer at Internet Cafe		
Yes	2	3.50
No	55	96.49
Underwent Computer training		
Yes	33	57.9
No	24	42.1
Used Microsoft Word		
Yes	43	75.4
No	14	24.6
Used Microsoft Excel		
Yes	31	54.38
No	26	45.61

Used Microsoft PowerPoint		
Yes	33	57.89
No	24	42.10
Used Internet and email		
Yes	41	71.92
No	16	28.07
Read e-journals		
Yes	19	33.33
No	38	66.66

Table 01 – Basic Computer Knowledge among Medical Officers Attached to Colombo South Teaching Hospital

As illustrated in Table 1, fifty-seven doctors responded to the survey. Among them, the majority used a computer to some extent. Of the respondents, 3.5% were computer illiterate, 22.8% were beginners, and 17.5% were advanced users, while the majority (56.1%) were basic computer users.

Regarding the location of computer use, most doctors (86%) used computers at home, while only 33.3% used them at the workplace.

A total of 57.9% of the doctors had undergone computer training, 75.4% could use Microsoft Word, 54.38% could use Excel, 57.89% could use PowerPoint, 33.33% read e-journals, and 71.92% could use the internet and email

		Frequency	Percent %
Health Care Online	Yes	45	78.9
	No	5	8.7
	Don't Know	7	12.
Use of the Internet and other technology to improve health	Yes	48	84.2
	No	5	8.7
	Don't Know	4	7.0
Entertainment between working hours	Yes	13	22.8
	No	37	64.9
	Don't Know	7	12.2
Shopping between working hours	Yes	12	21.1
	No	37	64.9
	Don't Know	8	14.0
Social communication between friends	Yes	15	26.3
	No	35	61.4
	Don't Know	7	12.3
Control of medicine supply for patients through electronic software	Yes	33	57.9
	No	15	26.3
	Don't Know	9	15.8
Provide medical advice to the patient through the use of the Internet	Yes	37	64.9
	No	12	21.1
	Don't Know	8	14.0

Patient examination through the use of the Internet	Yes	19	33.3
	No	27	47.4
	Don't Know	11	19.3
Provide electronic patient records.	Yes	46	80.7
	No	8	14.0
	Don't Know	2	3.5
Monitor the health of the patient through electronic technologies.	Yes	41	71.9
	No	6	10.5
	Don't Know	9	15.8
Education of health care providers through the use of electronic sources.	Yes	46	80.7
	No	4	7.0
	Don't Know	6	10.5
Exchange of medical information and medical communication between health care providers	Yes	47	82.5
	No	3	5.3
	Don't Know	6	10.5

Table 02 – Basic Knowledge about the Term "E-health" and Its Applications Among Medical Officers Attached to Colombo South Teaching Hospital

Basic knowledge about the term "e-health" and its applications among doctors is illustrated in Table 2. Overall, it is fairly good, though there are gaps in a few specific areas. For example, only 57.9% of doctors are aware that medicine supply for patients can be managed through electronic software, and only 33.3% believe that patient examinations can be conducted through the internet.

		Frequency	Percent %
Have you ever Searched about health information	Always	10	17.5
	Often	21	36.8
	Sometimes	24	42.1
	Never	2	3.5
Have you ever Used electronic medical records	Always	1	1.8
	Often	9	15.8
	Sometimes	26	45.6
	Never	21	36.8
Have you ever attended an e-health training programs	Always	1	1.8
	Often	7	12.3
	Sometimes	10	17.5
	Never	39	68.4
Have you ever Used e-health in work	Always	5	8.8
	Often	9	15.8
	Sometimes	10	17.5
	Never	33	57.9

Table-03 –e-health practices among Medical Officers attached to Colombo South Teaching Hospital

As shown in Table 3, only 5.3% of the doctors searched for information on health information systems, while 3.5% never made any attempt to learn about them. The use of electronic medical records is not satisfactory, with only 17.8% of doctors using them adequately. A majority of the doctors (68.4%) never attended any e-health training programs, and most of them do not use e-health in their work.

		Frequency	Percent %
I believe computers/e-health systems can assist me in my work	Strongly agree	3	5.3
	Agree	19	33.3
	Disagree	19	33.3
	Strongly Disagree	5	8.8
	Don't Know	11	19.3
I will be capable to use the computers/e-health systems during patient care	Strongly agree	6	10.5
	Agree	40	70.2
	Disagree	7	12.3
	Strongly Disagree	1	1.8
	Don't Know	3	5.3
I think using computers will increase workload in my duties	Strongly agree	3	5.3
	Agree	11	19.3
	Disagree	28	49.1
	Strongly Disagree	9	15.8
	Don't Know	6	10.5
I believe computers can support my clinical decision making during provision of healthcare	Strongly agree	6	10.5
	Agree	40	70.2
	Disagree	7	12.3
	Strongly Disagree	1	1.8
	Don't Know	3	5.3
I will not be capable to learn and use e-health and other computer systems	Strongly agree	3	5.3
	Agree	11	19.3
	Disagree	28	49.1
	Strongly Disagree	9	15.8
	Don't Know	6	10.5
I think use of e-health will certainly improve quality of care	Strongly agree	11	19.3
	Agree	32	56.1
	Disagree	8	14.0
	Strongly Disagree	0	0
	Don't Know	6	10.5
I do not have time to learn computers/e-health systems	Strongly agree	1	1.8
	Agree	11	19.3
	Disagree	34	59.6
	Strongly Disagree	6	10.5

	Don't Know	5	8.8
I do not have time to use e-health and other computer systems	Strongly agree	0	0
	Agree	10	17.5
	Disagree	34	59.6
	Strongly Disagree	10	17.5
	Don't Know	3	5.3
	I believe health workers in my hospital are willing to learn or use computers at their workplace	Strongly agree	4
Agree		32	56.1
Disagree		7	12.3
Strongly Disagree		1	1.8
Don't Know		13	22.8

Table 04 – Attitude toward the Term "E-health" and Its Applications among Medical Officers Attached to Colombo South Teaching Hospital

Our findings indicated that doctors had moderately positive attitudes toward e-health, as summarized in Table 4. In contrast, only 38.6% believed that computers/e-health systems could assist them in their work.

Conclusion

Doctors are fundamental to the success of e-health initiatives because they are the frontline providers of patient care, directly interfacing with technology and patients alike. As healthcare evolves with the integration of digital technologies, their willingness to embrace e-health and their ability to effectively utilize it can significantly impact the quality of patient care.

The current state of knowledge, attitudes, and practices concerning e-health among Medical Officers at Colombo South Teaching Hospital (CSTH) suggests that while there's a foundational understanding, there's also a clear need for further development. This gap can hinder the full realization of e-health's potential in improving healthcare delivery.

Healthcare authorities and hospital administrators must recognize the importance of continuous education and skill-building to bridge this gap. They should design training programs and workshops that focus on both the technical aspects of e-health and its broader applications, such as electronic health records (EHRs), telemedicine, and digital health platforms. By doing so, doctors can develop greater confidence in their ability to use these technologies, leading to increased adoption rates.

Additionally, fostering a positive attitude toward e-health among physicians is crucial. This involves demonstrating the tangible benefits that e-health can bring to their daily practice, such as reduced paperwork, quicker access to patient information, and improved communication with colleagues and patients. When physicians see the value in e-health, they're more likely to champion its use, which, in turn, promotes a culture of innovation and technology adoption within the hospital.

Ultimately, by prioritizing advanced training and reinforcing the benefits of e-health, hospitals can create a workforce that's well-equipped to embrace digital transformation. This not only leads to more efficient and streamlined healthcare services but also enhances patient outcomes through improved care coordination and data-driven decision-making. The end result is a more robust healthcare system that can meet the evolving needs of patients in a rapidly changing technological landscape.

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