Health Informatics in the Eyes of the Overseas-Born Health Professionals

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Abstract

Background:

With the rapid development of information technology (IT), health informatics (HI) has a firm technological basis for the development and enhancement of health care systems. Although health informatics depends heavily on the power of technology for its form and function, it is fundamentally a human discourse which deals with issues such as interpersonal communication, organisational interaction, trust, confidentiality etc.

Objective/Hypothesis:

This study investigated the views and attitudes of overseas-born health professionals about health informatics in terms of confidentiality, coordination, management, communication and technical user-friendliness.

Method:

Both qualitative and quantitative approaches were used in this study. It included a survey and interviews of overseas-born health professionals in Australia.

Results:

The results indicated that there was some confusion among health workers about the concept and principles of health informatics. Confidentiality was viewed as a significant aspect which may make or break health informatics. Concerns were also raised about possible miscommunication and mismanagement.

Keywords:

Health informatics, confidentiality, health care system.

Introduction

Digital technology has permeated many aspects of modern society. Its impacts have been seen in various day-to-day activities such as banking, communication and education. The rapid development of digital technology has reached a stage that what was once considered modern technological innovation a few years or even months ago can now become outdated. This phenomenon has increased the power of information and communication technology (ICT) in health and also poses challenges to health informatics and its users, including both health professionals and clients (Curry & Knowles 2005; France 1997; Lewis 2002; Linda 2003).

Australia is a land of cultural diversity. Its population consists of people of different cultural and linguistic backgrounds. Migrants have been introduced to certain aspects of health informatics directly and/or indirectly by health authorities, health care services, and various migrant communities. However, for some Vietnamese overseas-born health professionals, health informatics can offer many challenges. It is important for health services to be aware of the way in which Vietnamese overseas-born health professionals view health informatics conceptually and practically. This study investigated the views and attitudes of overseas-born health

professionals about health informatics in terms of confidentiality, coordination, management, communication and technical user-friendliness. Both qualitative and quantitative approaches were used in this study. It included a survey and interviews of overseas-born health workers in Australia.

Background:

Health is an essential aspect of life and the quality of life depends on the quality of health. This view is strongly endorsed by Vietnamese people in their popular proverb: 'Good health is more precious than gold'. Recently due to the rapid development of computer technology, new developments in the health area are computer-based (Jadad & Delamothe 2004). Health informatics is the appropriate and innovative application of the concepts and technologies of the information age to improve health care and health (Health Informatics Society of Australia (HISA)).

Health informatics operates under key principles covering confidentiality, privacy and security. These three concepts are interrelated and are important in evaluating the success or otherwise of the implementation of health informatics. However, concepts and principles such as privacy, confidentiality and security which govern health informatics have different meanings and values in different cultures and they are perceived differently by users of different cultural backgrounds (Le, M 2005; Lindenthal, Thomas & Ghali 1985).

Australia is a land of cultural and linguistic diversity. It is more prominent in metropolitan areas of Australia where migrants overwhelmingly choose to settle. There are many reasons why migrants prefer to reside in metropolitan areas: job opportunity, close interaction with migrants of the same cultural background, linguistic factor and family influence (Le 2007).

Migrants coming to a host country bring with them their cultural heritage and linguistic background. In their acculturation into a new cultural environment, cultural differences and linguistic problems are the main hindrance to their adaptation to the host country (Tai & Lin 2001). Some encounter cultural shocks which turn their dreams of a new life into nightmares while others respond well to the challenges and become successful in their acculturation process (Kreuter & McClure 2004). There are cultural and social issues associated with health informatics (France 1997; Lawlink NSW 2004; MacPherson 2001). In dealing with issues arising in living in a new cultural environment (Akhter 2003), Vietnamese migrants' views, attitudes and behaviours are influenced by their Vietnamese cultural background. This can be seen in their understanding and use of health care in Australia.

This paper reports on a study that investigated the views and attitudes of overseas-born health professionals about health informatics in terms of confidentiality, coordination, management, communication and technical user-friendliness. The focus was on the Vietnamese migrant health professionals. Both qualitative and quantitative approaches were used in this study. It included a survey and interviews of overseas-born Vietnamese health workers in Australia.

To find out how health informatics was perceived by Vietnamese overseas-born health professionals in Australia. The focus of the study is based on the following questions:

- What is their knowledge about health informatics?
- What are their views on the role of health informatics in health care?
- What are their views on the significance of health informatics to health professionals?
- What are their views on the cultural aspect of health informatics?

Methods:

The study adopted mixed quantitative and qualitative methods which are designed to elicit information on the range of influences, trade-offs, and relations that are involved in the participants' experiences in response to the survey. The ethics application was submitted to the Human Research Ethics Committee prior to the survey and interviews.

Survey instrument: A questionnaire was aimed at finding information about participants' backgrounds and their views on health informatics. The first component of the questionnaire requested demographic data regarding participants' backgrounds (e.g. gender, health profession, and years of working). The second component of the questionnaire consists of sixteen statements about their views on health informatics knowledge and experience; health informatics and its usefulness; and health informatics and health professionals. Respondents were instructed to indicate how strongly they agreed or disagreed with each statement on a Likert Scale of 1 (strongly disagree) to 5 (strongly agree).

Unstructured interview: An unstructured interview was conducted with four participants of different health professional backgrounds: a medical doctor, a physiotherapist, a pharmacist and a nurse. The main purpose of the interview was to seek more insights on their views and experiences about health informatics which could not be obtained from the questionnaire.

Data Analysis and Results

Questionnaire Analysis

There were 36 participants in the survey: 10 doctors, 6 dentists, 4 physiotherapists, 9 nurses and 7 pharmacists (response rate = 81%). The distribution of participants was shown in the Figure 1 below:
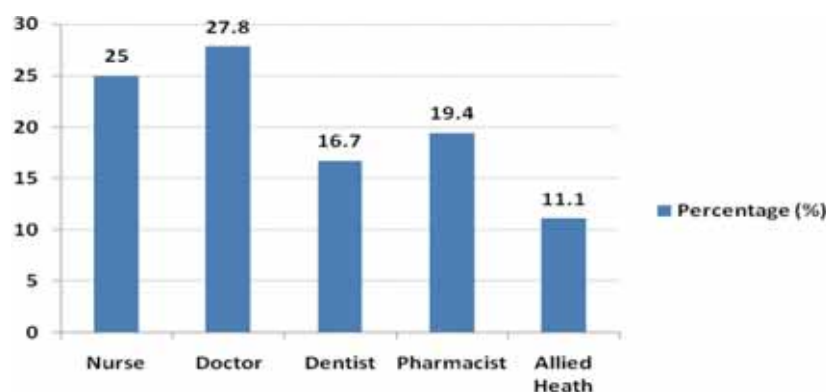

Figure 1. *The distribution of participants by health professions.*

In response to the question (Q5) "In your understanding, what is health informatics?", the participants were aware the connection between health care and Information technology (IT). Simply, health informatics is the use of IT in health care. Here are typical examples of their responses to this question:

- "Health informatics is information about health".
- "Health informatics is the use of computers in a health system".
- "Health informatics is the management of health care information with the use of modern computer technology".
- "Health informatics is about how to make use of IT in communication and management of health care".

The participants' definitions of health informatics given in the survey were generally short and simple. However, they do include important concepts such as management of health care in formation, use of computer in health system, communication in health care with the use of IT. Their responses reflect the main aspect of health informatics given in the following official definition:

Health Informatics has also been defined by WHO as "an umbrella term used to encompass the rapidly evolving discipline of using computing, networking and communications – methodology and technology – to support the health related fields, such as medicine, nursing, pharmacy and dentistry". (Standards Australia E-health)

Question items	Count (n)	Mean (M)	Standard Deviation (SD)
6- Your knowledge of health informatics	36	2.64	.961
7- In your work, health informatics is (from very important to unnecessary).	36	2.67	.862
8- Health informatics is essential in health care.	36	4.14	.593
9- Health informatics can be linguistically biased.	36	3.69	.822
10- Health informatics can be culturally biased.	36	3.83	.941
11- Health informatics should include languages other than English.	36	4.33	.717
12- Users at health centres should be provided access to computer for health informatics.	36	4.39	.645
13- Health informatics can be unreliable.	36	3.67	.828
14- Health informatics can be risky.	36	3.75	.906
15- Health informatics can be abused.	36	3.89	.820
16- Users' privacy is important in health informatics.	36	4.64	.487
17- Security is important in health informatics	36	3.94	.791
18- All health professionals should have some basic knowledge about health informatics.	36	3.89	.785
19- Health informatics is in urgent need to health professionals working in remote areas.	36	3.97	.971
20- Heath informatics should be included in professional development of health professionals.	36	4.00	.586
Total	36		

Table 1. *Summary of response results.*

According to the results shown in Table 1, participants recognised the importance of health informatics in health care (Q8, M= 4.14, SD=0.593) and they agreed that all health professionals should have some basic knowledge about health informatics (Q18, M=3.89, SD=0.785), particularly for those health workers in remote areas (Q19, M=3.97, 0.971). However, they accepted that their knowledge of health informatics was not good enough (Q.6, M=2.64, SD=0.961). This is the reason why they strongly agreed that heath informatics should be included in professional development of health professionals (Q20, M=4.00, SD=0.586).

The results also indicate some problems or weaknesses of health informatics as it can be unreliable (Q13, M=3.67, SD=0.828), risky (Q14, M=3.74, SD=0.906), and it can be abused (Q15, M=3.89, SD=0.820). Security is another concern of the participants (Q17, M=3.94, SD=0.791). The lack or break of security can lead to violation of privacy, which is the greatest concern of the participants (Q16, M=4.64, SD=0.487).

The participants also strongly agreed that users at health centres should be provided access to computer for health informatics (Q12, M=4.39, SD=0.645). This is quite understandable as one of the main functions of health informatics is to serve health users. Thus facilities for accessing health informatics should be available to users. As users have different language backgrounds in a multilingual context like Australia, health informatics should include languages other than English (Q11, M=4.33, SD=0.717); otherwise it could be seen by the participants as biased (Q9, M=3.69, SD=0.822). It should be noted that health informatics can be culturally biased (Q10, M = 3.83, SD=0.941).

Tables 2 and 3 show the results of the responses to two related questions in terms of different health professionals, mainly nurse, doctor, dentist, pharmacist, and allied health:

- Q8: Health informatics is essential in health care (M=4.14, SD=0.593).
- Q18: All health professions should have some basic knowledge about health informatics (M=3.89, SD=0.785).

Heath Profession		Question 8			Total
		Neutral	Agree	Strongly Agree	
Nurse	n	2	5	2	9
	%	5.6%	13.9%	5.6%	25.0%
Doctor	n	0	6	4	10
	%	.0%	16.7%	11.1%	27.8%
Dentist	n	0	3	3	6
	%	.0%	8.3%	8.3%	16.7%
Pharmacist	n	1	6	0	7
	%	2.8%	16.7%	.0%	19.4%
Allied Health	n	1	3	0	4
	%	2.8%	8.3%	.0%	11.1%
Total	N	4	23	9	36
	%	11.1%	63.9%	25.0%	100.0%

Table 2. *Responses to Question 8 by Health Professions..*

Table 2 shows that doctors were the strongest support to the view that health informatics is essential in health care (27.8% Agree and Strongly Agree combined). This is followed by Nurse (19.5%), Pharmacist (16.7%), Dentist (16.6%) and Allied Health (8.3%).

Heath Profession		Question 18					Total
		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	
Nurse	n	1	0	1	6	1	9
	%	2.8	.0%	2.8%	16.7%	2.8%	25.0%
Doctor	n	0	1	0	8	1	10
	%	.0%	2.8%	.0%	22.2%	2.8%	27.8%
Dentist	n	0	0	2	4	0	6
	%	.0%	.0%	5.6%	11.1%	.0%	16.7%
Pharmacist	n	0	0	1	5	1	7
	%	.0%	.0%	2.8%	13.9%	2.8%	19.4%
Allied Health	n	0	0	0	2	2	4
	%	.0%	.0%	.0%	5.6%	5.6%	11.1%
Total	N	1	1	4	25	5	36
	%I	2.8%	2.8%	11.1%	69.4%	13.9%	100.0%

Table 3. *Responses to Question 18 by Health Professions.*

Table 3 shows that doctors were the strongest support to the view that all health professionals should have some basic knowledge about health informatics (25% Agree and Strongly Agree combined). This is followed by Nurse (19.5%), Pharmacist (16.7%), Allied Health (11.2%) and Dentist (11.1%).

Interview analysis and results:

Different from the lack of flexibility of the questionnaire, interview can provide interesting insights which reflect strongly and meaningfully individuals' views and experiences. The interview data were analysed in terms of themes which emerged from the data. Initially in the analysis, the oral texts of the Interviews were transcribed and turned into documents for analysis. Coding was conducted by identifying words and expressions which represented issues and concepts relevant to the aim of the study. The next important step was to group these concepts and issues thematically. As a result, the following themes emerged:

To know and not to know: Most interviewees were not sure about 'how much do they know or do not know' about health informatics. They had a feeling that computer was used to store health data for use by health professionals. They expected that personal files of individuals were kept electronically but did not know exactly how it worked.

I think health informatics is something about using computer technology to manage health information. But I must admit this is what I know. I'm sure there are a lot of things about health informatics that I don't know. I think it's the hospital admin staff who should know all this as it is their jobs. (Participant)

Security and privacy: One of the main concerns about health informatics expressed by interviewees was the issue of security. For them, computer security depends heavily on users, and less on the technology. Human errors are a big risk to security in health informatics. Information sharing in health is important but there is a strong possibility that individuals' health information can be misused.

It's good to store health information electronically. It saves time. While it takes ages to find a particular piece of information through paper records, it takes a few minutes if the information is stored electronically. Doctors can promptly access the information. The worst fear is that personal files of patients are not kept safely. It would be terrible if someone else knows about our health conditions. (Participant)

Misinformation: Another important theme emerging from the data is about the quality of information about health informatics. Three areas if concerns were:

- The information about health services was out of date.
- Personal information about individuals was inconsistent.
- The information provided was not exactly the information stored

People don't always communicate successfully. Sometimes people may make up information as they don't treat it seriously, or they may not remember well. When a person is given a form to fill in about his health, we don't expect that what he gives is exactly correct. (Participant)

Cultural values and health informatics: The data analysis showed that cultural value was an important issue in health informatics. People come from a cultural background in which face-to-face communication in health care is the norm could find health informatics 'very impersonal'. In one culture, individual privacy is treated seriously whereas it may be treated unimportantly in another culture.

I know some people don't think it's a crime for health workers to reveal someone's personal health information. It easily happens in Vietnam. I think privacy is very much culturally determined. (Participant)

Implications:

The results of the study can provide some practical implications for health care in Australia. These include:

- While there is a strong recognition of the role of health informatics in health care, there are issues and problems which need attention. Security and privacy are the great concerns. Health informatics can be very useful but it can be harmful if security is not maintained.
- As Australia is a country of linguistic and cultural diversity. Health informatics should take into account the use of different languages in health informatics and the information should be culturally appropriate.
- Health professionals have some awareness of health informatics and they need to be given opportunities for professional development in this area.

Conclusion:

Health informatics is a manifestation of one of the most innovative developments regarding the use of computer technology in health care. Its role in health care is multidimensional. The rapid development of computer technology will undoubtedly lead to great improvement of health informatics and its effectiveness. However, there are problems regarding the use of health informatics from the eyes of overseas born Vietnamese health professionals. This study provides some insights about health informatics in relation to Vietnamese migrants in Australia. Health informatics can be useful to health professionals and health services. However, the cultural and linguistic aspects of health informatics need to be taken into consideration as well, since Australia is a land of cultural diversity.

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