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Health Informatics: An Intercultural Perspective

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Abstract

Health informatics is a significant contribution to health care. It provides health professionals with powerful technologies to enhance their performance in caring for patients. The introduction of health informatics has added a new dimension in the health discourse. However, there are also issues and problems which are associated with health informatics, particularly in relation to privacy, confidentiality and data security, which are deeply embedded in culture. As privacy and confidentiality are linguistically and culturally constructed, health workers, patients and the public may have different views and exhibit different behaviours towards health informatics. The discussion of these issues is situated in an intercultural discourse.

Keywords:

electronic health record, health care systems, data integrity, electronic medical record, health informatics.

Introduction

Computer has permeated many aspects of society. It is hard to imagine any social activities which are immune directly or indirectly from the influence of digital technology. Computer technology is one of the fastest changing technologies. Technologies which were developed several years ago can easily become out-of-date today. In health science and health care, the impact of computer technology is widespread [1-3]. The development of health informatics is indicative of the impact of computer technology in health science and health care.

Health informatics is a timely contribution to health science and health care in Australia. It is an indication of the growing power of computer technology in health science and health care. While health informatics has made many contributions [4-6], there are also problems which have been identified [7-10]. This paper focuses on the cultural dimension of health informatics.

Health informatics: a new paradigm

The impacts of computer technology in society are marked with the prefix 'e' in many areas of computer development and implementation such as e-learning, e-communication, and e-commerce. In health, the broad term 'e-health' covers a wide domain including electronic health records, health information networks, telemedicine services, health portals, etc. It is an umbrella term covering two areas: health informatics (collection, analysis and movement of health information and data to support health care), and telehealth (videoconferencing and website delivery of health information or health care to a recipient). Health informatics is the appropriate and innovative application of the concepts and technologies of the information age to improve health care and health [11].

Health informatics has much to offer in community health care. Computer networks and telecommunications provide particular support that can enhance the collaboration among clinicians, care providers and patients. Special-purpose computer tools referred to as Consumer Health Informatics (CHI) represent the application of computer and information technologies specifically to support the health information and communication needs of patients and lay persons [12]. Health informatics plays an important role in the management of health information, particularly information of patients. It enables healthcare workers and policy makers at different management levels to plan and manage services. For example, health screening planning does not function well if there are no well-kept records of individuals who have undertaken certain kinds of tests or missed them due to personal or service problems. Health informatics may also record information about patients' health care experience, treatment and financial costs.

The Danish health information network MedCom [13] is a good illustration of health informatics implementation. It handles over 80,000 messages daily. All hospitals, pharmacies and emergency doctors, 90% of general practitioners, 98% of laboratories, 55% of specialists, and 20% of municipalities are connected to it. MedCom enables hospitals to use electronic referrals, and avoid data re-entry. The professional quality of referrals has risen, and discharge letters are stored directly [14].

It is worth pointing out that while e-health is becoming powerful tool and can make a huge contribution to health care, it is still at an early developmental stage in many countries [15].

Cultural factors in health informatics

Culture has been defined as the shared products of the society, including the ideas, norms, and material objects that describe how people handle daily tasks and make

sense of their experiences. Culture is also dynamic and adaptive [16].

> The culture of an individual has a profound effect on the perspective from which they deal with health and illness. Culture has influenced peoples' convictions, attitudes, types of knowledge, and values; modes of behaviour, habits and customs; language and tradition.[17]

Acculturation is a process in which people of a different cultural and social discourse have adapted to accommodate a new discourse. It can be a process filled with confusion, resistance, and reluctance and sometimes sufferings. Health informatics is not just a technology or a simple approach which can be introduced to a human discourse without any problems. There are cultural and social issues associated with health informatics.

> We also learnt that when things go wrong – as they seem to do in more than half the cases – people tend to blame 'the technology' whereas social, behavioural, psychological, and cultural factors are the most likely culprits [18].

The development and implementation of health informatics in health care can go through an acculturation process, which may include negative and positive experiences.

The first problem can be expert-orientated. Health informatics experts and enthusiasts can contribute to the formation of negative attitudes among prospective health informatics users. The worst case is when such experts hold the assumptions that health informatics is the magic solution to heath care and do not take the social and cultural factors seriously. Secondly, the introduction of health informatics can be seen as a paradigm shift in certain discourses. According to Roberts [19] this is the rejection of one set of values and ideas and the adoption of a new set with regards to what constitutes effective implementation. This paradigm shift is occurring worldwide but faster in some parts than the others depending on the availability of resources, existing infrastructure and the stage of development reached. If health informatics is viewed as a new paradigm, strategies have to be planned carefully to facilitate acculturation of current and prospective users to a new health care discourse. Otherwise the acculturation experiences can be painful and sometimes destructive. It is important to involve users (e.g. doctors, nurses, patients, administrative staff, etc) in the decision making process in their acculturation into an unknown or less familiar territory.

Health informatics operates under key principles covering confidentiality, privacy and security. These three concepts are inter-related and are important in evaluating the success or otherwise of health informatics implementation. However, concepts and principles such as privacy, confidentiality and security which govern health informatics have different cultural meanings and values and they are perceived differently by users of different cultural backgrounds. Thus, these three fundamental concepts and principles in health informatics should be examined in terms of cultural discourse.

The cultural discourse of privacy

Humans are social beings. Individuals live together in a community. They belong to a community but this does not mean that their community owns them. They have the right to be left alone. Individuals are entitled to personal privacy which covers three domains:

- *Physical privacy*: such as bag searching, use of our DNA

- *Information privacy*: the way in which governments or organisations handle our personal information such as our age, address, sexual preference and so on.

- *Freedom from excessive surveillance*: our right to go about our daily lives without being monitored or have our actions caught on camera. [14]

Health informatics should adhere to the privacy principle to ensure that individuals' privacy is respected. We tend to take information privacy for granted or do not seriously appreciate it unless it is threatened or lost. Individuals' health information is their personal privacy which should not be 'violated' by government agencies. In special cases when individuals' health condition is a serious threat to the community, their right to privacy may be exercised differently. For example travellers contracted a highly contagious life-threatening disease are expected to reveal fully their conditions to health authorities.

According to Le [20], privacy is something which is personal, belonging to an individual and is not in the public domain. It normally refers to an individual's private life. Thus, according to this definition, an individual's life consists of private and public domains. The private domain includes his/her personal belongings such as home, relationship, thoughts and feelings. The public domain includes social belongings such as professional life, policy, social activities. The following example illustrates what information is private and what is public.

> Mr. Green is working for a company in Tasmania. He joined the Liberal party when he was a student and now he is an independent. His mother is very poor and old but Mr. Green seldom visits his mother even though they are living in the same suburb. They argue a lot when he visits her.

The text given above consists of two kinds of information: private and public. The problem is that the text does not linguistically mark the information in such a dichotomy. To a great extent, privacy is culturally determined. What is private to an Australian may not be so to a Vietnamese.

Not all cultures view privacy in the same way. In Western cultures, individuality is very important. Each person is entitled to their own privacy. Children are introduced to the concept of privacy at an early stage in their childhood. They are taught to respect other people's privacy and they also expect others to respect theirs. In Asian cultures, the division between the public domain and the privacy of individuals is not always clearly prescribed.

In a report about an intercultural experience of a group of Australian students in Australia, Harbon [21] described an

instance in which an Australian student was very upset when she discovered that her host family had searched her suitcase while she was billeted by them. To her it was a serious violation of privacy. Whereas, the host family felt it was interesting to know more about their guest, whom they treasured and cared for tremendously.

Collectivism is very strong in Asian cultures. In an Asian family, privacy is not greatly valued. Parents have 'the right' and 'the duty' to know the private life of their children. It is not a matter of privacy intrusion but a responsibility of the parents to know their children' private domain well so that they can adequately and meaningfully protect their children and ensure their wellbeing. In a Confucian society, interpersonal relationship is the foundation of social coherence. This relationship is characterised by the social roles assigned to each member in a family and in a community. While it is a social violation to ask personal questions in Western cultures, it is a common speech subject in many Asian countries to inquire about someone's age, health conditions, and personal life.

Privacy is an important factor in health informatics. However, users of health informatics may interpret this concept differently due to their social and cultural backgrounds. It is possible that migrants in Australia may violate the principle of privacy in health informatics without being aware of the seriousness.

The cultural discourse of confidentiality

Confidentiality refers to the treatment of information disclosed or provided by individuals on the basis of trust that it will not be made available or disclosed to unauthorised people or services. In health, generally the patient's consent must be sought before his information can be used for a specific purpose.

According to the Australian National Privacy Principles [22, 23], an organisation must take reasonable steps to protect the personal information it holds from misuse and loss and from unauthorised access, modification or disclosure. It must take reasonable steps to destroy or permanently de-identify personal information if it is no longer needed for any purpose for which the information may be used or disclosed.

A study conducted by Lindenthal, Thomas, and Ghali [24] compares the handling of confidentiality among American, Egyptian, and Israeli psychiatrists, and American and Israeli psychologists and internists. The study supports the view that no significant differences exist between practitioners of the same professional groups practicing in different countries while also showing significant and parallel between-group differences. According to Akhter [25], in some cultures, on one hand, sharing personal information among family members indicates a strong bond of co-existence and on the other hand the desire to keep any weaknesses, medical or otherwise, from the extended family is not uncommon. For a societal structure in which the family plays a central role, both allegiance to the family and a desire to keep its reputation strong is an understandable concept. The bond in an extended family provides

solace and support in times of need. However, it can also become oppressive and limiting individual freedom.

From the professional duty perspective, confidentiality is based on the trust between patients and health professionals. McClelland and Thomas [26] suggest that confidentiality is grounded in the principle of respect for autonomy – health professionals explicitly or implicitly indicate to their patients that they will keep confidential the information provided to them. Patients are reluctant to share their private and sensitive information if this trust is lost. McClelland and Thomas point out that the duty of confidentiality exists within a wider social context in which other moral obligations may compete. These competing appeals set limits to medical confidentiality and arise from two principal sources: the patient's best interests and public interest. Problems arise when the patients' best interests vary according to their cultural and religious backgrounds, which may not be easily detected or decided by those involved.

Tai and Lin [27] give an interesting example about the cultural concept and practice of confidentiality in a Confucian society. When a patient has been diagnosed with terminal cancer, the first person to be notified is often not the patient himself, but the head of the family, such as the father or the husband. He then will confer with other family members to see what course must be taken. After the decision is made, the patient may be advised in a disguised way, to ease his anxiety. Furthermore, when considering different treatment options, the family members, especially husband or father, are again consulted first rather than the patient himself/herself. When the patient is a father or husband, the family member who becomes the spokesperson for the family, with whom physicians consult, is usually the eldest son.

Gossiping is a good example of cultural variation in dealing with personal privacy and confidentiality. Quite contrary to the principle of confidentiality, gossiping is a sociolinguistic activity which is widespread among cultures. A gossip is a casual conversation between at least two participants about the private life of someone. Morally it is an offence to participate in gossiping. However the seriousness of this moral offence is perceived differently in various cultures. In Western societies, gossiping is condemned and it could be treated as a criminal act if it is proved to cause damage and harm to the victim. In Asian cultures, gossiping is generally discouraged but it is not treated seriously. Gossips are often mentioned in folktales and historical events. The acceptable attitude towards gossiping is a big concern to health informatics as it violates the principle of confidentiality as health workers are expected by the health authorities, patients and the public to strictly adhere to this principle and they should incorporate the spirit of Hippocratic Oath into the social contract.

The cultural discourse of security

To protect individuals' privacy and confidentiality, it is important to ensure that security measures are taken so that health data is kept safely. In health informatics, computer technology provides a range of approaches and strategies

to improve security of health data. Two main approaches include restriction of access and anonymisation of records. Security protection of data requires sound physical as well as logical access controls. Encryption is a method for anonymising electronically held patient information. It is the process by which data are converted into a sequence of alternative characters, by applying a set of rules (or keys) that both generates the encrypted material and is capable of recreating the original information. Another method for anonymising patient information is the use of separate databases in which clinical information is separated from patient-identifier information. The secondary database retains the non-identifiable patient information, which may be used for a range of purposes[28].

Security is an important factor in health informatics. The loss of or unauthorised access to personal and sensitive data can result in financial and legal costs and personal trauma. From an intercultural perspective, there are two issues involved. Firstly, health workers and patients of different cultural backgrounds may treat data security differently. Data security in health informatics needs absolute commitment from those who are privileged to have authorised access. However, such commitment can vary due to different cultural attitudes towards data security and the cultural discourse in which security is reinforced.

One of the most common computer security problems is the management of passwords. A password is a key to access a computer system or a computer file. Though technical security can be very effective, it is the user whose handling of passwords can make computer security vulnerable. It first appears that culture has nothing to do with password security. However, human errors reflect cultural influence on users' attitudes and behaviours in dealing with computer security. In a culture which emphasises collectivism, sharing is a common feature in human interaction, particularly among family members and close friends. Ownership does not belong to individuals but it can be extended to close others. Friendship and kinship are based on mutual trust. In this cultural context, sharing security passwords can occur. Health informatics should take into account this cultural phenomenon.

Implications for policy planning

According to McClelland and Thomas [26] there is a need to establish a new culture for handling health care information – a culture that recognises, understands and responds to the changing structure of health care and health care delivery systems, which depends increasingly on the ready sharing and manipulation of patient information. The digitised health communication and interaction has not only provided an innovative approach to health care but also created a new discourse of health care which requires adjustment and adaptation. Policy makers and health authorities need to introduce programs and strategies for health workers to facilitate their acculturation into the new digitised health discourse.

Australia is a land of cultural diversity. Health workers and patients come from different cultural backgrounds, which

may affect their behaviours and attitudes towards health issues and health care, particularly in relation to privacy, confidentiality and data security. As privacy and confidentiality are linguistically and culturally constructed, one would expect different views and behaviours of health workers, patients and the public in response to health policy.

The Linguistic Relativity Hypothesis [29] states that language is so intricately linked to its own culture that it is impossible to fully understand the message through a different language.

> The 'real world' is to a large extent unconsciously built on the language habits of the group. We see and hear and otherwise experience very largely as we do because the language habits of our community predispose certain choices of interpretation (p.177).

The implication for policy planning is that we should not assume that lucid translation of written and spoken health information from English to other languages or vice versa automatically leads to perfect understanding and interpretation.

Cultural diversity should be taken into account when developing and implementing health informatics programs that reflect culturally and linguistically diverse population [30]. Miscommunication or communication failure in the health discourse tends to happen to migrants whose knowledge of English is very limited or whose cultural metaphors and stereotypes influence their health behaviours and attitudes.

Conclusion

In summary, this paper has discussed some cultural issues associated with health informatics. The focus is on issues relating to privacy, confidentiality and security which are fundamental in the implementation of health informatics, particularly from an intercultural perspective.

Health informatics is a significant contribution of computer technology to health care. Metaphorically it is like a superhighway which traverses various roads and alleys of the health discourse, locally, nationally and globally. It has enabled health professionals and health services to improve their effectiveness. However, it is not all smooth. In a culturally diversified discourse, the implementation of technology in dealing with people needs to take into account the social and cultural aspects of human behaviours and attitudes. It is no exception with health informatics, particularly in Australia, which is a land of cultural diversity.

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