



## EXPLORING PRIVACY CONCERN AND INTENTION OF DISCLOSING HEALTH INFORMATION ONLINE IN MALAYSIA

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### ABSTRACT

Privacy concerns may come from different perspectives such as data violation or invasion via communication tools. Therefore, policy has been built to improve people trust and reduce privacy concern. Research shows privacy concern could impact the decision in revealing personal health information via the web. The aim of this research is to assess the level of privacy concerns and intention in disclosing health information online in Malaysia. The scope of the study focuses on privacy concern and its association with intention to reveal or disclose health relevant information to one identified e-government health website in Malaysia among Malaysian citizen. The research used a mix-method approach. Sample of 300 respondents have been gathered for the quantitative approach and five key informants were used in the qualitative approach. The descriptive result shows that there are different levels of privacy concerns exist among Malaysian. In addition, the intention to disclose health information also varies among Malaysian. Qualitative results provide qualitative data on pertinent matters related to data privacy concerns. Future research includes investigating other factors such as culture that may influence the privacy concern among Malaysian.

**Keywords:** privacy, health information online

### INTRODUCTION

Participation and support from citizen is critical in ensuring the success of healthcare service. In the event if users have concern on how their health information is safeguarded, it will impede the success of the healthcare service itself. There had been many studies being conducted to investigate privacy awareness among citizens [1-2].

E-health website may create privacy risks as it requires various levels of private information disclosure [3]. However, there are societal, national and global needs that provide justifications for the privacy risks need to be mitigated. In addition, comparing the research on privacy concern between Malaysia and other countries, research pertaining to privacy awareness in Malaysia is still minimal.

Thus, there is a need to conduct research concerning privacy concern among Malaysian citizen despite the privacy protection process in Malaysia is still relatively new[4]. For Malaysia to become a developed country by the year 2020, there are needs to address issues relevant to the citizens. With the intention to upgrade and improve services such as Telehealth, Telemedicine, online medical services and consultancies in Malaysia, health data among Malaysian citizens will be eventually being shared, distributed and integrated effortlessly.

**Table-1.** Studies of privacy concern related to health information from various countries.

Country	Description	Reference
United States	Antecedents of information withholding & truthful disclosure (e-health communication)	[3]
	Personal medical information (Collection & usage) (Consumer Concern)	[5]
Australia	Privacy in health care (Views and Attitude of the public)	[6]
Canada	Electronic health data sharing (Perceived advantages & disadvantages)	[7]
United Kingdom	Authenticity and quality of health information	[8]
Malaysia	Personal Data Protect Act 2010 (Impact to genetic & bioinformatics privacy)	[9]

Healthcare users face conflicting needs between information withholding or information falsification in privacy protection [3]. Thus, the rapid design, development and usage of electronic healthcare service in Malaysia by different organizations or institutions may also trigger privacy awareness among Malaysian citizens. Table-1 shows several studies of privacy concern related to health or medical information from various countries.



The technological advancement has brought new challenges to personal privacy because the technology enables personal data to be shared, read, and may be used by other parties. This also raises another issue of the privacy that should be owned by individuals and certain parties. Awareness of privacy concern among Malaysian consumers has caused the government to approve Personal Data Protection Act 2010 which protects the personal data of individuals. However, the level of awareness of privacy in Malaysia is yet to be known.

## RESEARCH METHOD

The survey questionnaire (adapted from [1]) was distributed to sample of 300 respondents. Respondents were asked to provide information about their demographic profile and other information pertaining to their personality and personal concern on disclosing their health information to one identified e-government health website in Malaysia. The online survey was conducted from December 2011 to April 2012. In addition, five respondents from the survey with more than 5 years computing and internet experience were selected for interview sessions to provide qualitative data.

## QUANTITATIVE ANALYSIS

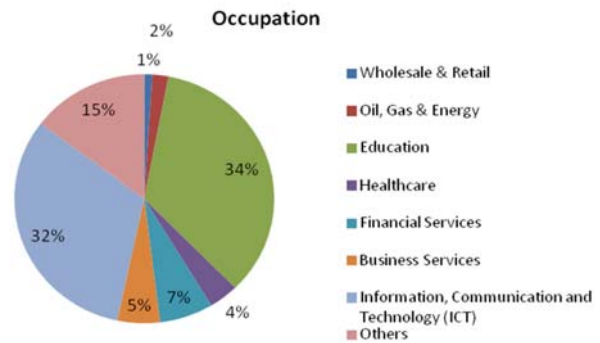
### Demographic profiling

**Table-2.** Percentage distribution of demographic characteristics of the respondents.

Criteria	Groups	Frequency	Percent (%)
Gender	Male	145	48.3
	Female	155	51.7
Age	≤ 26 years	18	6
	27 – 37	213	71
	38 – 48	66	22
	≥ 49 years	3	1
Race	Malay	263	87.7
	Chinese	25	8.3
	Indian	7	2.3
	Others	5	1.7
Religion	Islam	266	88.7
	Buddhism	17	5.7
	Christianity	7	2.3
	Hinduism	10	3.3

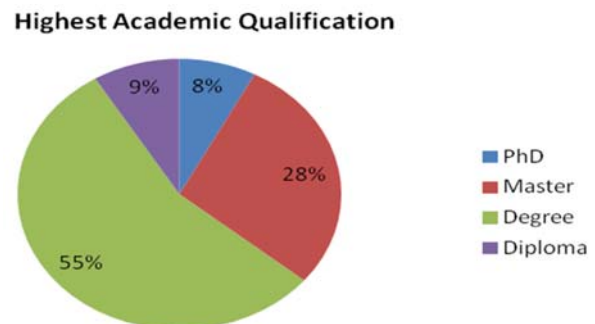
The respondent characteristics are based on gender, age, race, religion, occupation field and academic qualification. Based on Table-2, most respondents were female (51.7 percent) and male (48.3 percent). Many respondents came from the age group between 27 to 37 years old age category (71 percent). Majority of the respondents are Malay ethnic and Muslim (87.7 percent).

There are eight categories of employment in the Figure-1. The largest distribution of occupation category is 'education' which represents 34 percent of total respondents. The next category is 'Information, Technology and Communication' which represents 32 percent. This is followed by 'other category' which represents 15 percent. A total of 19 percent from total respondents represents five other occupational categories; (i) Wholesale and Retail, (ii) Oil, Gas and Energy, (iii) Healthcare, (iv) Financial Service and (v) Business Service.



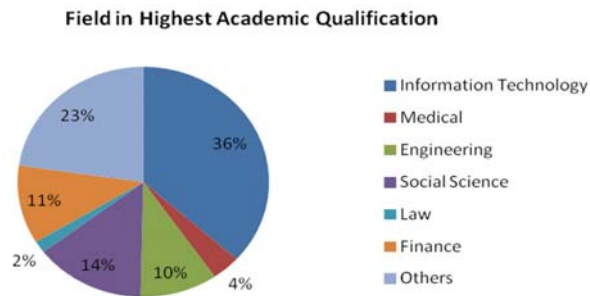
**Figure-1.** The percentage of respondent's occupation.

As showed in Figure-2, most respondents have a degree which represents 55 percent from the total respondents. This is followed with 'Master' qualification with 28 percent. Two other academic qualifications are Diploma and PhD with 9 percent and 8 percent.



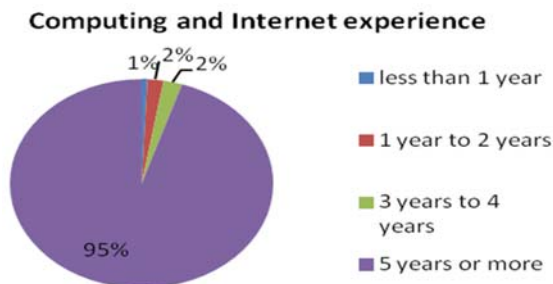
**Figure-2.** The percentage of the respondent's highest academic qualification.

There are seven categories in academic qualification field (Figure-3). The highest field category is Information Technology that is 36 percent. The 'Medical', 'Engineering', 'Law' and 'Finance' field represents 27 percent from the academic qualification field distribution.



**Figure-3.** The percentage of the respondent's field of highest academic qualification.

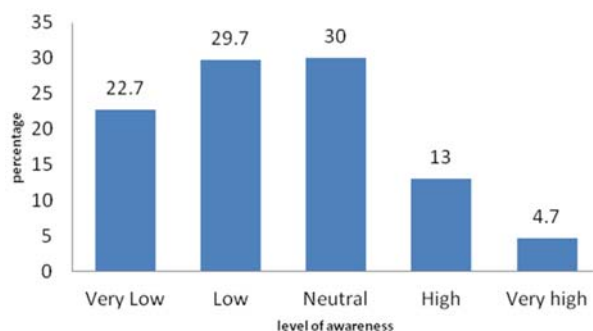
In terms of computing experience, most respondents have been using computers for more than five years (Figure-4). They represent 95 percent of the total respondents. There are only four percent respondents who used the computer between one to four years, while one percent only used a computer for less than a year.



**Figure-4.** The percentage of the respondent's computing and internet experience.

#### Awareness of personal data protection 2010 existence

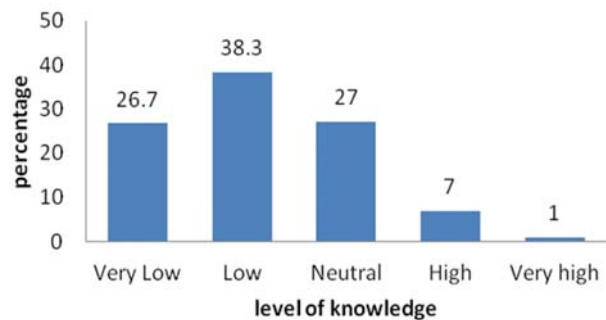
Figure-5 shows the distribution of respondents who are aware of the Personal Data Protection Act 2010. There are 30 percent of the respondents have a neutral level of awareness. A total of 29.7 percent of respondents have a low level of awareness while 22.7 percent has a very low level of awareness. Only 13 percent of the respondents have a high level of awareness while the remaining (4.7 percent) of respondents have a high level of awareness.



**Figure-5.** The Percentage of the awareness of personal data protection act 2010 existence among respondents.

#### Level of knowledge towards personal data protection act 2010

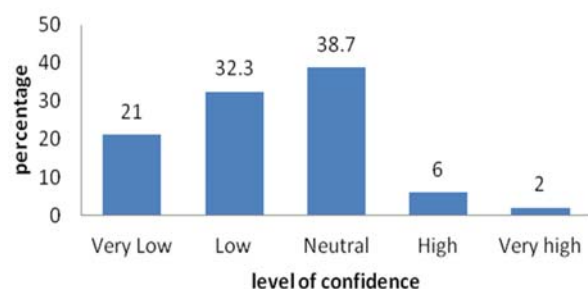
Figure-6 shows the level of knowledge towards Personal Data Protection Act 2010. Most of the respondents have low knowledge Personal Data Protection Act 2010 (38.3 percent). A total of 26.7 percent of respondents have a low level of knowledge. A total of 27 respondents expressed neutral about the Act. Only 7 percent of the respondents have a high level of knowledge and only 1 percent who have very high level of knowledge about Personal Data Protection Act 2010.



**Figure-6.** The percentage of the level knowledge of personal data protection act 2010 among respondents.

#### Level of confidence about personal data protection act 2010

As showed in Figure-7, the majority (38.7 percent) of the respondents showed a neutral level of confidence toward the Act. Many of the respondents have a low level of confidence (32.3 percent). Respondents who have a very low confidence level were recorded at 21 percent. Only two percent of respondents have a high degree of confidence toward the Act.



**Figure-7.** The percentage of the level of confidence among respondents.

#### Intention and privacy concern

Table-3 shows the descriptive statistics for the intention and privacy concern. Most of the items for intention and privacy concern for the items were between 3 to 4 ("neither agree or disagree" to "agree").

**Table-3.** Analysis for the intention and privacy concern.

Items		Mean	Std. Deviation
Intention	I would unlikely reveal my health information to this health website	3.30	1.000
	I would not probably reveal my health information to this health website	3.38	0.966
	I would unwillingly reveal my health information to this health website	3.17	1.014
Privacy concern	I believe that submitting health information on the Internet is not advisable at all	3.40	1.008
	Health information on the Internet, once submitted will definitely be abused	3.28	0.938
	Health information on the Internet, once submitted could be shared or sold to others	3.61	0.990

## QUALITATIVE ANALYSIS

### Key informants profile

Table-4 shows the brief profile of the key informants interviewed in this study. Table-5 shows the summary of qualitative responses by the key informants.

**Table-4.** Key informants profile.

Key informants	Education	Occupation field	Computing & internet experience (Years)
Key Informant 1	Degree	Education	> 5 years
Key Informant 2	Degree	Education	> 5 years
Key Informant 3	Degree	Banking	> 5 years
Key Informant 4	Degree	Banking	> 5 years
Key Informant 5	Degree	Oil & Gas	> 5 years

**Table-5.** Summary of qualitative responses.

Questions (Summary)	Key Informant 1 (Education)	Key Informant 2 (Education)	Key Informant 3 (Banking)	Key Informant 4 (Banking)	Key Informant 5 (Oil and Gas)
Awareness of existence of Personal Data Protection	Not aware on existence	Low level of awareness as there was no exposure from media	Low level of awareness	Neutral level of awareness	High level of awareness as the current employer
Level of knowledge of Personal Data Protection	Not aware on existence	Low knowledge as no campaign from government	Low knowledge	Very low knowledge due to lack of information from media.	Neutral as currently being exposed by the current employer
Level of confidence that Personal Data Protection Act 2010 protects data privacy	Low level of confidence that the Act protects data privacy	Low level of confidence that the Act protects data privacy	Not sure how this Act will protect the data privacy	Low level of confidence as there was still lack of enforcement	Very low level of confidence as there was no enforcement
Intention to disclose health information online	May reveal the information	Willing to reveal the information	Not willing to reveal information	Not willing to reveal information	May reveal the information
Privacy concern on revealing information on the internet	Neutral level privacy concern	Neutral privacy concern	Neutral privacy concern	High privacy concern	Very high privacy concern



## CONCLUSIONS

This research provides informative overview on privacy concern and intention to disclose health information online in Malaysia. This research can assist future research pertaining privacy concern in Malaysia. This research has its own scope and limitation. This is because the exploratory research mainly focuses on the Malaysia context only. In addition, the privacy concern is only investigated via its association with one identified e-government health website in Malaysia. Future research should include other health websites as well and considering to conduct it with different methodology and approach.

The descriptive result shows that there are different levels of privacy concerns exist among Malaysian. In addition, the intention to disclose health information also varies among Malaysian. Qualitative results provide qualitative data on pertinent matters related to data privacy concerns. Future research includes investigating other factors such as culture that may influence the privacy concern among Malaysian

For Malaysia to become a developed country by the year 2020, there are needs to address issues relevant to the citizens. With the intention to upgrade and improve services such as Telehealth, Telemedicine, online medical services and consultancies in Malaysia, health data among Malaysian citizens will be eventually being shared, distributed and integrated effortlessly. Malaysia is moving constantly towards improving the quality of ICT based system for managing and sharing of health information. Thus, greater and better understanding about personal data management especially in the e-health sector is crucial and essential for governance and sustenance.

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