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Original Research Article

Exploring the Privacy and Rights of Healthcare Systems - A Healthcare System Based in Taiwan

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Abstract

Taiwan's medical system has the function of connecting the whole Taiwan on the construction, so doctors can observe and seek medical treatment immediately. Such a process can be helpful for real-time information of patients. The main concern behind this system is that hackers may leak patients' personal information, leading to patients' personal privacy rights. In the case of COVID-19 in 2020, Taiwan began to introduce a medical tracking system, which includes the patient's medical records and data uploaded to the health insurance system database; so that doctors can visit the patient's medical records related to the patient's medical treatment and the relevant prescription records. Is this a good system for patient rights? Is there a problem with the patient's right to privacy? Our study found a positive correlation between health system privacy, information sharing, physician prescribing decisions, and consumer satisfaction. The number of samples investigated in this paper was N=270, and the main responses were 253, with a recovery rate of 97%.

Keywords: Privacy of medical system, information sharing, right to privacy, doctors' decision of prescribing medicine, consumer satisfaction.

INTRODUCTION

Privacy right is one of the important factors for consumers' rights and interests. Consumers will consider privacy right as a risk mode, which will affect consumers' satisfaction. In this paper, privacy is included into the factors, mainly to observe and establish an effective privacy mechanism, so that consumers can constantly use the online system of the health insurance system, so that consumers can take the trust of this set of system. This paper combines interdisciplinary, including marketing, psychology, medical management, information management and other related disciplines. The main purpose is to combine the fields of different disciplines to create different perspectives and innovative viewpoints. Milne and Gordon [1] mentioned that consumers have obvious reactions to the adoption of equitable information and privacy rights. Acquisti *et al.* [2] mentioned the complex dynamic pathways that attempt to unravel privacy rights. Will consumers choose the Health care system in Taiwan from an economic and marketing perspective? *Johnson et al.* [3] pointed out that consumers' response to information system has certain reactivity. Especially in the medical system, the privacy of consumers' needs to be paid attention to, because the prescription or medical treatment record written by consumers can only be seen by doctors and hospitals, and cannot be disclosed to some non-related medical units outside, which will be of great help to the privacy of consumers' medical treatment record. In recent years, many consumers have put a high value on their privacy records and do not want to give them away. Jetten, Haslam, and Alexander [4] mentioned that privacy is rarely discussed in medical papers, because it belongs to the category of privacy and belongs to the part of personal privacy. Privacy right has a great relationship of information sharing for medical database. How can important information of consumers be protected and applied in the whole medical system? Such an issue is worthy of our consideration and discussion.

Consumer satisfaction is one of the key factors for Taiwan's health care system. In order to survive, hospitals need to serve consumers well. In addition, they need a good medical and health insurance system and system in Taiwan. Barger and Grandey [5] mentioned that customer satisfaction involves incorporating the emotional perspective of the customer. Jacobson and Mizik [6]; Lehmannand Reibstein [7] mentioned that consumer satisfaction would influence the overall performance of a company.

Customer satisfaction may indirectly affect a company's performance. We can get a very clear picture of what consumers think and what they think is one of the key factors in the overall health care system.

Doctors and hospitals have the data of this medical system, which can help consumers prescribe medicines more accurately. Hospitals need a large amount of data, and such a system of data sharing requires government policies to be established and implemented. The establishment of Taiwan's medical system can help consumers to ask doctors to prescribe drugs for analysis and use when they are ill, which is of great help to doctors in diagnosis.

DISCUSSTION

Confidentiality

Privacy is a very important concept for medical care, especially the health care system in Taiwan, which has a significant impact on information privacy for consumers. B elanger and Crossler [8]; Fu *et al*. [9]; Williams, Nurse, and Creese [10] investigated consumers' views on privacy and mentioned that the disclosure of meeting information posed a threat to consumers. Privacy is highly controversial for consumers' medical records in Taiwan society. When the government builds this system, it needs to consider how to design a privacy system that is consistent with that between hospitals and consumers, and establish an ecological system for the overall health care system.

Research Data

Information sharing is of great help to doctors in the process of seeing a doctor between hospitals. Because sometimes it is the first time for consumers to come to the hospital for consultation, doctors do not have a great understanding of consumers' information. Taiwan's health care system has a database connection and consumers go to other hospitals to see a doctor, who can see the customer's medical records and the prescription records of previous visits. Such database information sharing can help doctor’s judge information among themselves. Keifer [11] pointed out that if companies are willing to provide Shared information, the privacy problem can be solved. The most important thing about the Taiwan health care system is that it initiates information trust and information sharing between each other. Cook *et al*. [12] proposed that trust can be established from interpersonal network relations. Social capital theory mentions some concepts, including (1) internalization, (2) the sense of identity and belonging among individuals, and (3) the overall social interaction and communication sharing. Information sharing is one of the most important and critical factors among hospitals. Information sharing can help hospitals keep a consistent medical record of consumers. If consumers change hospitals to see a doctor, the hospital can avoid the process and cost of seeing a doctor again. This will contribute to both hospitals and consumers, and there is no need to waste medical treatment and medical costs. Information and information in the health care system has a relationship of trust between the establishment, how to use such a platform between hospitals and consumers to trust cooperation? This requires a very important concept of trust relationships. The establishment of the medical system in Taiwan requires a government to establish the information sharing relationship between hospitals, which contributes greatly to the establishment of the overall medical information by establishing a set of partnerships between hospitals and between hospitals and consumers.

Doctors prescribe drugs

Is there consistency in decision making mainly for doctors? Decision making is a very important thing for doctors; after all, it is for patients to make effective and correct decisions. Lin *et al*. [13] put forward the model and method of optimal decision-making. Our medical article is to observe whether the hospital with this Taiwan health insurance system can help doctors to be more accurate in prescribing medicine decisions. This case system is related to the delicate relationship between doctors, hospitals and consumers, so doctors will take the cases of past consumers as reference in the process of prescribing drugs. Such a system can provide doctors with a more accurate prescription process.

Doctors need to have a history of the patient's medical records when they use the drug. Through the data of cases, doctors have a data to refer to and apply in terms of medication.

Consumer satisfaction

This paper mainly investigates consumers' satisfaction with data sharing in Taiwan's health insurance system. Macneil [14] proposes a privacy agreement, including the system between relationship and specification. Kaufman &Stern [15] mentioned that few studies have measured the relationship between enterprises and consumers. Szymanski and Henard [16] pointed out that risk reduction is mainly to make consumer experience satisfied, and whether consumers can experience convenience and comfort when they use this medical system. Customer satisfaction for the whole development of Taiwan's health care system, have great influence, including the medical treatment unit for hospitals, government can do it from customer satisfaction to the improvement of the overall health care system, such a market-oriented goal and application, for the future of Taiwan's health care system and database links, has a certain influence and play a role.

Consumers are an important factor for hospitals, and good service and medical treatment will be of great help to the operation of hospitals in the future. Consumer satisfaction can be of great help to hospital management and doctors' decision-making in the future. Therefore, consumer satisfaction is very

important to the whole medical system. This system should be designed and applied from the perspective of consumers, so that this medical system will create great value.

RESEARCH DATA AND RESEARCH METHOD

This paper mainly designs and deduces the research hypothesis through the research method design. We design three hypotheses to explain, respectively: (1) H1: privacy of medical system has a positive correlation with consumer satisfaction; (2)H2: information sharing has a positive correlation with consumer satisfaction; (3) physician prescribing decision has a positive correlation with consumer satisfaction. We do the overall design and hypothesis derivation through factor analysis, mainly observe the causal relationship between the two sides, and further verify and analyze it.

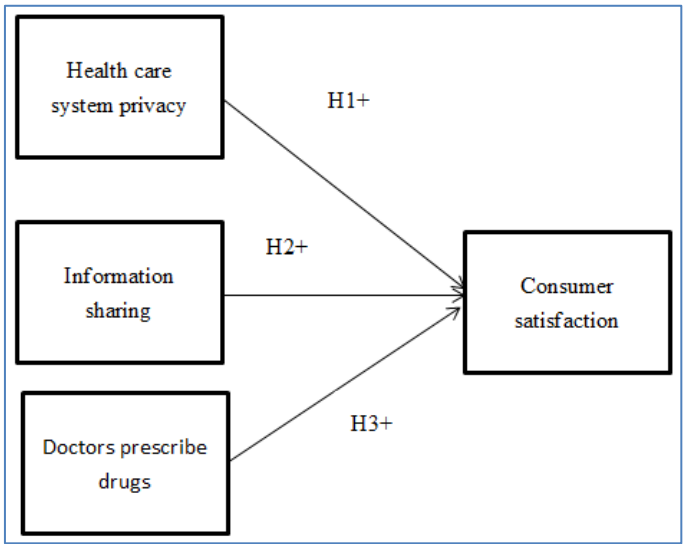

Fig-1: Research hypothesis diagram

EMPIRICAL ANALYSIS

We collected the data sources of this paper, and referred to some scales, including consumer satisfaction, privacy, information sharing, decision-making and other related scales for design. We mainly observed the significance of the relationship between various factors and the correlation coefficient between them. Through empirical analysis of AMOS, this study mainly analyzed the data of statistics, including the age, gender, and income and education level of consumers to make an overall descriptive statistical analysis. We can observe and analyze the overall relationship and application through descriptive statistical analysis of samples in Figure 1-1.

Descriptive statistical analysis

Table-1: Sample description analysis

		frequency	percentage
Gender	Male	121	48%
	Female	132	52%
Age	Below 10	25	10%
	10-19	54	21%
	20-39	78	31%
	More than 40	96	38%
Education	Junior	9	3%
	High school	102	40%
	University	105	42%
	Graduate school	37	15%
Average yearly income	Less than 10,000	38	15%
	10,000 to 29,999	63	25%
	30,000 to 59,999	77	30%
	6 0,000 and above	75	30%

Variable analysis

We mainly observed the relationship between each other based on the overall factors, including significant relationship and collinearity. We can clearly understand the overall relationship and significance through Table 1 and Table 2.Grnholdt Martensen [17] mentioned the research and application of driver correlation. In the empirical analysis, we ran on the data of factor analysis, total variance, matrix and other related empirical methods to verify. We can see from Table 1 that the significance test, the overall fitness is more than 0.9, and the overall design conforms to the statistical test analysis. Table 2 and Table 3 are included to analyze and verify the total variation. It can be seen that most of the data in the overall factor analysis exceed 0.7, which conforms to the analysis of structural equation model method. Our study is consistent with the combination of the structure and measurement of the structural equation, and its correlation can be seen in the overall application and running data. Based on the overall analysis, it can be seen that the privacy of medical system, information sharing and doctors' prescribing decisions have a positive relationship with consumer satisfaction. In empirical analysis, our research mainly applies statistical methods to solve the problem of overall research hypothesis. Such a method and method can solve the whole data problem.

We can verify the whole structure square city model through statistical analysis, and can verify the combination of the whole structure mode and measurement.

Table-2: KMO test

Kaiser-Meyer-Olkin	**Number of sampling appropriateness**	**.917**
Bartlett Spherical verification	Approximately chi-square distribution	12133.941
	df	1653
	significant	.000

Table-3: Common-- Explain the total variation

	initial	**extraction**
RES1	1.000	.791
RES2	1.000	.819
RES3	1.000	.776
RES4	1.000	.706
SCQM1	1.000	.682
SCQM2	1.000	.699
SCQM3	1.000	.715
SCQM4	1.000	.634
SCQM5	1.000	.682
SCQM6	1.000	.630
SCQM7	1.000	.625
SCQM9	1.000	.659
SCQM10	1.000	.748
SCQM11	1.000	.797
SCQM12	1.000	.785
SCQM13	1.000	.696
SCQM19	1.000	.748
SCQM20	1.000	.753
SCQM24	1.000	.751
SCQM25	1.000	.748
SCQM26	1.000	.696
SCQM27	1.000	.758
SCQM29	1.000	.792
SCQM30	1.000	.806
SCQM32	1.000	.682
SCQM34	1.000	.688
SCQM35	1.000	.686
SCQM36	1.000	.720
SCQM37	1.000	.620
SCQM38	1.000	.747
SCQM39	1.000	.761
TRA1	1.000	.844
TRA2	1.000	.913
TRA3	1.000	.832
Eff1	1.000	.681
Eff2	1.000	.788
Eff3	1.000	.746

Table-4: Explain the total variation

element	The initial value						
	Total						
1	14.207	32.290	32.290	14.207	32.290	32.290	6.473
2	4.081	9.274	41.564	4.081	9.274	41.564	4.751
3	3.143	7.144	48.708	3.143	7.144	48.708	4.491
4	2.784	6.327	55.035	2.784	6.327	55.035	3.378
5	2.183	4.961	59.996	2.183	4.961	59.996	3.245
6	1.475	3.353	63.349	1.475	3.353	63.349	2.889
7	1.356	3.083	66.432	1.356	3.083	66.432	2.649
8	1.189	2.703	69.134	1.189	2.703	69.134	1.709
9	1.050	2.386	71.520	1.050	2.386	71.520	1.550
10	1.002	2.276	73.796	1.002	2.276	73.796	1.335
11	.848	1.927	75.124				
12	.801	1.821	77.544				
13	.695	1.580	79.124				
14	.639	1.453	80.577				
15	.624	1.418	81.995				
16	.546	1.240	83.235				
17	.520	1.182	83.417				
18	.469	1.067	85.483				
19	.457	1.038	86.521				
20	.434	.986	87.507				
21	.426	.968	88.474				
22	.384	.874	89.348				
23	.361	.821	90.169				
24	.256	.810	90.979				
25	.339	.770	91.749				
26	.307	.698	92.447				
27	.294	.669	93.116				
28	.275	.625	93.741				
29	.271	.615	94.357				
30	.253	.575	94.931				
31	.241	.547	95.479				
32	.221	.503	95.982				
33	.206	.469	96.450				
34	.192	.437	96.887				
35	.179	.406	97.293				
36	.175	.399	97.692				

Table-5: Component transformation matrix

	1	2	3	4	5	6	7	8	9	10
1	.503	.456	.404	.326	.243	.320	.173	.184	.159	.140
2	-.819	.339	.172	.184	.363	.051	-.051	.079	.055	.062
3	.042	-.117	-.372	.315	.392	-.316	.674	-.177	-.050	.068
4	.025	-.475	.680	-.244	.357	-.280	.099	.129	-.118	-.074
5	.021	.310	-.267	-.573	.606	-.015	-.238	-.179	-.029	1.085
6	-.149	.264	.195	-.553	-.326	.074	.593	-.213	.205	.114
7	-.100	-.378	-.247	-.187	.177	.696	.218	.428	-.042	.060
8	-.005	-.303	-.018	0.57	.131	.043	-.142	-.224	.902	.043
9	-.003	-.175	.106	.039	.060	.222	-.151	-.515	-.266	.738
10	.035	.078	-.158	-.163	-.045	-.420	-.068	.580	.163	.629

Extraction method: Principal component analysis

CONCLUSION

In this study, we mainly observe the relationship between the whole medical system and hospitals, doctors and consumers. First of all, we can observe consumers see attaches great importance to their own data and related to privacy, and Taiwan's health insurance system for the overall relationship between the three parties, to do analysis and discussion, we can find that privacy is the system for the medical

system, information sharing, doctors prescribing decisions for customer satisfaction has a positive relationship.In the process of research, we found that consumers attach great importance to privacy. Consumers are using this medical system of The Taiwan government, and we believe that this system will not leak out their medical records.

The biggest limitation of this research lies in the collection of consumer data in Taiwan. If the sample size is not enough, big data can be created. We suggest that follow-up researchers could add to other countries' health insurance schemes, including comparisons between the United States and Europe, to make the study more comprehensive. In addition to analyzing from the perspective of consumers, our research can also add some different variables, such as medical data security, medical big data exploration, and medical data mining. For subsequent researchers, these Suggestions can be considered and analyzed from different data perspectives.

Our study provides Suggestions for hospitals and the government's medical system. Hospitals can combine this database to make the overall illness and medication situation of consumers, and study the overall health status of local people in Taiwan, which will be of great help to the government in the follow-up medical public policy. In addition, this system enables doctors to make more accurate decisions on remedication without causing overall medication errors or decision-making errors.Such a series of methods can contribute to the overall medical progress and progress in Taiwan.

This paper can provide reference value for future researchers, especially such concepts and factors can make subsequent researchers think about what kind of design should be emphasized? After all, every country has different cultures and ideas.

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