Interplay of Decision Styles and Attitudes Toward Privacy in a Large Patient Cohort

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About Me



- 3rd year UC San Diego undergraduate student
- Study Biology with a specialization in bioinformatics
- Worked at a Molecular Biology lab researching the effect of mutations that are associated with cancer in vitro
- Found interest in DBMI to gain dry lab experience and learn about data analysis



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Research Topic

 examine the relationship between decision styles and privacy attitudes and observe demographic variants that may affect privacy attitudes.





DSS: Decision Styles Scale

 Measures the decision making process, specifically how much of a rational decision maker one is and how much of an intuitive decision maker one is

Subscales:

 Rational: "characterized by a thorough search for and logical evaluation of alternatives" using facts and analysis

 Intuitive: "characterized by a reliance on hunches and feelings"

Katherine Hamilton, Shin-I Shih, Susan Mohammed Chulae Scale This research was supported by grant T15LM011271 The Development and Validation of the Rational and Intuitive Decision

Rational items

- I prefer to gather all the necessary information before committing to a decision
- 2. I thoroughly evaluate decision alternatives before making a final choice
- 3. In decision making, I take time to contemplate the pros/cons or risks/benefits of a situation
- 4. Investigating the facts is an important part of my decision-making process
- 5. I weigh a number of different factors when making decisions

Intuitive items

- 1. When making decisions, I rely mainly on my gut feelings
- My initial hunch about decisions is generally what I follow
- 3. I make decisions based on intuition
- 4. I rely on my first impressions when making decisions
- 5. I weigh feelings more than analysis in making decisions

IUIPC: Internet Users' Information Privacy Concerns

It measures the...

 "Individual's perceptions of fairness/justice in the context of information privacy"

Subscales:

- Control factor: measures how a person feels about how much control they have over their private data
- Awareness factor: measures how a person feels about how aware they are of how their private data is being used
- Collection factor: measures how a person feels about how and how much their private data is being collected

Naresh Malhotra, Sung Kim, James Agarwal IUIPC: The Construct, Scale, and a Causal Model

Control

- Consumer online privacy is really a matter of consumers' right to exercise control and autonomy over decision about how their information is collected, used, and shared
- 1. Consumer control of personal information lies at the heart of consumer privacy
- I believe that online privacy is invaded when control is lost or unwillingly reduced as a result of a marketing transaction

Awareness

- Companies seeking information online should disclose the way the data are collected, processed, and used
- 2. A good consumer online privacy policy should have a clear and conspicuous disclosure
- It is very important to me that I am aware and knowledgeable about how my personal information will be used

IUIPC items

Collection

- It usually bothers me when online companies ask me for personal information
- 2. When online companies ask me for personal information, I sometimes think twice before providing it
- It bothers me to give personal information to so many online companies
- 4. I'm concerned that online companies are collecting too much personal information about me.



PATIENTS CONDITIONS TREATMENTS SYMPTOMS



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PatientsLikeMe (PLM)



Results



Rational Total Score Total Score

Maan. 01 01 /0E

120

May

OF

Distribution of Rational Style Scores





Intuitive



This research was supported by grant T15LM011271





Spearman Correlation: -0.23
P-value: < 0.001

Rational Decision Making vs. Intuitive Decision Making



Spearman Correlation: 0.23
P-value: < 0.001

Rational Decision Making vs Privacy Concerns (IUIPC)



Spearman Correlation: 0.17 * P-value: < 0.001 *

- Spearman Correlation: 0.24 P-value: < 0.001 *
- *

Spearman Correlation: 0.21 P-value: < 0.001 **

Rational Decision Making vs. Control, Awareness, Collection



- Spearman Correlation: -0.035
- ✤ P-value: 0.47

Intuitive Decision Making vs. Privacy Concerns (IUIPC)



- Spearman Correlation: -0.08
- ✤ P-value: 0.09

Spearman Correlation: -0.03
 P-value: 0.54

Spearman Correlation: 0.02
 P-value: 0.72

Intuitive Decision Making vs. Control, Awareness, and Collection



Awareness Graphs for both Rational and Intuitive Decision Making





Demographics







Women: 308 | 70% Men: 123 | 28%



Other: 4 | 0.9%



Control Subscale Means by Sex

✤ P-value = 0.0026

✤ P-value = < 0.01</p>



Sex

Women: 308 | 70% Men: 123 | 28% Other: 4 | 0.9%



✤ P-value = 0.084

Sex









Income

-
-

	Income	
	Count	
	N(%)	
	Under \$25k:	116
	26%	
	\$25 - \$49,999:	94
	21%	
	\$50 - \$ 99,999:	109
	25%	
	\$100 - \$149,999:	53
	12%	
	\$150 - \$199,999:	23
	5.2%	
Under \$25K \$25	-\$4\$200 -\$249.999:	6
\$25-\$49,999	⁰ 1.4%	
\$50-\$99,999	0. \$250 - \$200 000	S
\$100-\$149,999		J
\$150-\$199,999	0. U./%	
\$200-\$249,999	^{0.} >\$300k:	7
\$250-\$299,999	0. 1 CO/ U.23	U.49
>\$300K	0. I.O ⁻ /O 0.74	0.52



9

Income



Intuitive Decision Making Style Means for Education Levels



Rational Decision Making Style Means for Education Levels





Education



Counts: 18-29 : 0 | 0% 30-39 : 24 | 5.4% 40-49: 72 | 16% 50-64: 222 | 50% >65: 115 | 26%

Age

Mean Collection Scores

IUIPC Score Means for Age Ranges



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Significant Kruskal-Wallis Tests

- 30-39 and >65 P-value: < 0.005
- 40-49 and >65 P-value: < 0.005
- o 50-64 and 30-39 P-value: < 0.005
- 50-64 and 40-49 P-value: 0.0152

Significant Kruskal-Wallis Tests

- 30-39 and >65 P-value: 0.00527
- 40-49 and >65 P-value: < 0.001
- 50-64 and 30-39 P-value: < 0.005
- 50-64 and 40-49 P-value: < 0.001



Counts: 18-29 : 0 | 0% 30-39 : 24 | 5.4% 40-49: 72 | 16% 50-64: 222 | 50% >65: 115 | 26%



Significant Kruskal-Wallis Test:

• 40-49 and >65 P-value 0.027



Rational Decision Making Style Score Means for Age Ranges

Significant Kruskal-Wallis Test o 50-64 and 40-49 P-value 0.028





Count: Alaskan Native/Native American: 7 | 1.6% Asian: 3 | 0.7% Black: 8 | 1.8% Native Hawaiian/Pacific Islander: 0 White: 387 | 88% More than One Race: 21 | 4.8%



Collection Total Score Means for Race/Ethnicity



Significant Kruskal-Wallis Test:

• Asian and White P-value: 0.018

Significant Kruskal-Wallis Test:

• Asian and White P-value: 0.036

Race/Ethnicity



How does this help explain privacy attitudes as a whole?



Decision Making and Privacy Concerns (IUIPC)



PATIENTS CONDITIONS TREATMENTS SYMPTOMS



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Skills Learned

- ✤ R programming language
- SPSS (Statistical Package for Social Sciences)
- Data Analysis using R and SPSS
- Data Visualization techniques
- Statistics
- ✤ Communicating my results
- Working Collaboratively
- Initial research on a topic
- Analyzing data and interpreting results
- Thinking big-picture significance
- Problem-solving/Troubleshooting

Questions?

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