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Consumer Digital Behavior and Security Awareness : Based on the Media Panel Data

Seoung Lim Lee, Sungkyunkwan University
Jeong Hoon Kim, Wonkwang University
Min-Jeong Kim, Sookmyung Women`s University

Contents

Introduction

- Purpose of this study
  - Identifying the digital behavior of consumers as the use of smart devices becomes more common, in particular, when using smart devices
  - Identifying security awareness related to cybersecurity and personal information protection.
- Data for research
  - The 2021 data of the Korea media panel survey, which can obtain information on consumers' media usage behavior, is used.
    - The Korea media panel survey has been conducted annually by the Korea information society development institute(KISDI) since 2010 to track the impact of changes in the media environment on individual media usage behavior
    - Personal data in 2021 was conducted on 10,154 individuals in 17 cities nationwide.

Research Backgroud

- Korea Internet & Security Agency(KISA) “We checked the security of the people's PCs for free ... Insufficient management of 20% of the people"″ (e-daily, 2021.8.2)
  - The average security level of users is 83.2 points
  - Significantly lower level, especially in account management, at 59 points
    - ✓ 35.3% of users did not set a login password
    - ✓ 40.7% of users do not change their passwords periodically
  - 20% of users lack security update management of key software
  - More than 10% of users do not install vaccines or use real-time monitoring

→ Accordingly, we would like to understand security awareness related to cybersecurity and personal information protection

Research Contents

- Research contents
  1. This study analyzes consumers' usage behavior of online services using smart devices
  2. This study identifies the level of security awareness when consumers use smart devices.
  3. This study identifies the factors that affect the use of e-commerce services that are most related to security issues.

Research Contents

- Data Source
  - The 2021 data of the Korea Media Panel Survey (Total 10,154 people)

Category		No. of people	Category		No. of people
Gender	Male	4671	Income level	No income	3519
	Female	5483		~ 0.5 million won	709
Age group	~10s	104		~ 1 million won	612
	10s	1003		~ 2 million won	1422
	20s	1274		~ 3 million won	2046
	30s	845		~ 4 million won	1114
	40s	1741		~ 5 million won	398
	50s	1976		5 million won ~	334
	60s	1480			
	70s~	1731			10154

https://stat.kisdi.re.kr/main.html

Research Results

- Online service usage status(13 services)

Category	Use	Do no use
Smart device application	94.7%	5.3%
Instant messenger	82.2%	17.8%
OTT service over the past 3 months	77.4%	22.6%
Email account	65.3%	34.7%
Social Networking Service	51.4%	48.6%
Digital content (music)	36.0%	64.0%
Digital content (online news/magazine/ebook)	35.4%	64.6%
Digital content (game)	26.0%	74.0%
Digital content (education videos)	12.0%	88.0%
Cloud services	16.0%	84.0%
Internet club/café/club member	17.7%	82.3%
Internet club/café/club operation	3.6%	96.4%
Blog operation	6.5%	93.5%

Research Results

- Online service usage status (8 services)

Category	Use	Do no use
E-commerce experience	67.0%	33.0%
TV home shopping purchase	47.5%	52.5%
Online shopping malls in Korea purchase	84.5%	15.5%
Online shopping mall (direct overseas purchase) purchase	13.9%	86.1%
Online shopping mall (person-to-person transaction) purchase	15.7%	84.3%
Internet-only bank	31.7%	68.3%
Mobile easy transfer service	36.2%	63.8%
Mobile easy payment service	30.7%	69.3%

- 67.0% of the total respondents answered that e-commerce is used, and it was found that more than 30% of internet-only banks, mobile easy remittance services, and mobile simple payment services all use it.

Research Results

- We consider security awareness when using smart devices. The five questions related to security awareness are as follows:
  - ① Awareness of how to protect personal information and privacy,
  - ② Awareness of how to respond when personal information is leaked
  - ③ Malicious code inspection and remediation capabilities of the device
  - ④ Awareness of how to classify and block dangerous text messages such as spam or phishing text messages
  - ⑤ Awareness of how to distinguish and report dangerous text messages such as spam or phishing text messages.

Research Results

- Descriptive statistics

	Average	Standard Deviation	Min,Max
Awareness of how to protect personal information and privacy	3.07	1.532	1,5
Awareness of how to respond when personal information is leaked	2.99	1.522	1,5
Malicious code inspection and remediation capabilities of the device	2.76	1.515	1,5
Awareness of how to classify and block dangerous text messages such as spam or phishing text messages	2.8	1.513	1,5
Awareness of how to distinguish and report dangerous text messages such as spam or phishing text messages	2.75	1.509	1,5

Research Results

- To do identify the level of security awareness when consumers use smart devices, we analyze whether there are differences in security awareness by gender, generation, and income.
- For this analysis, t-test and ANOVA were performed.

Research Results

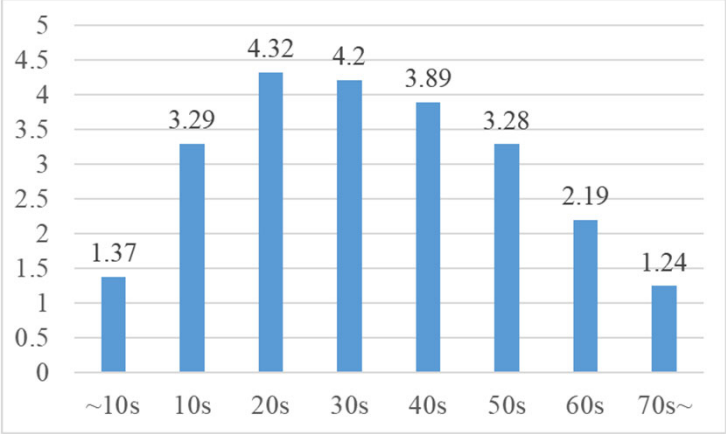
- Test for differences in security awareness by gender

	Male	Female	T-value
Awareness of how to protect personal information and privacy	3.24	2.92	10.738***
Awareness of how to respond when personal information is leaked	3.18	2.83	11.496***
Malicious code inspection and remediation capabilities of the device	2.98	2.57	14.000***
Awareness of how to classify and block dangerous text messages such as spam or phishing text messages	2.99	2.64	11.722***
Awareness of how to distinguish and report dangerous text messages such as spam or phishing text messages	2.95	2.58	12.507***

*** $p < 0.001$

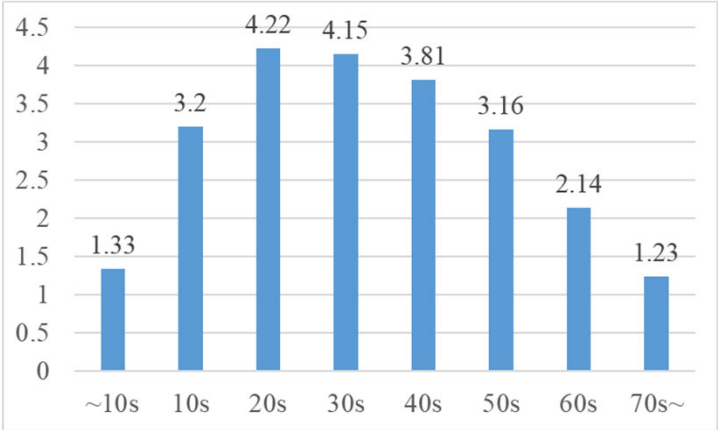
Research Results

- Security awareness by age group
  - Awareness of how to protect personal information and privacy



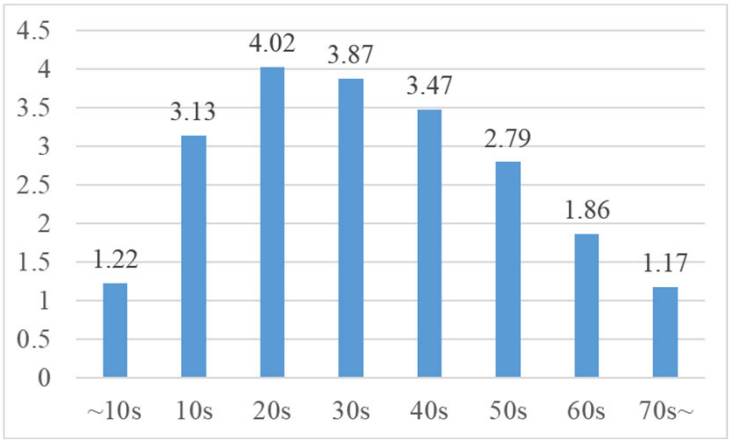
Research Results

- Security awareness by age group
  - Awareness of how to respond when personal information is leaked



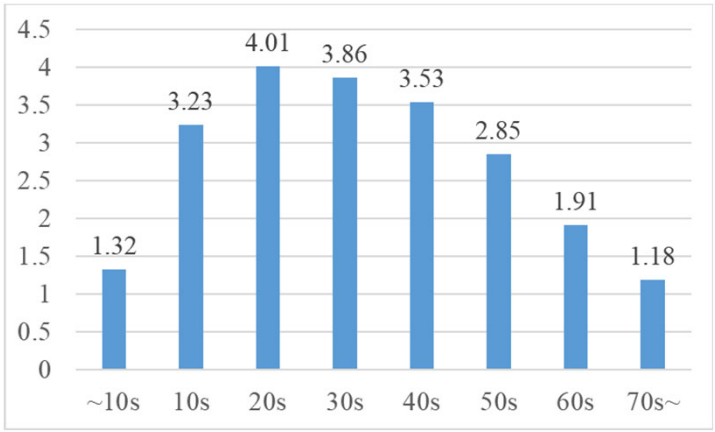
Research Results

- Security awareness by age group
  - Malicious code inspection and remediation capabilities of the device



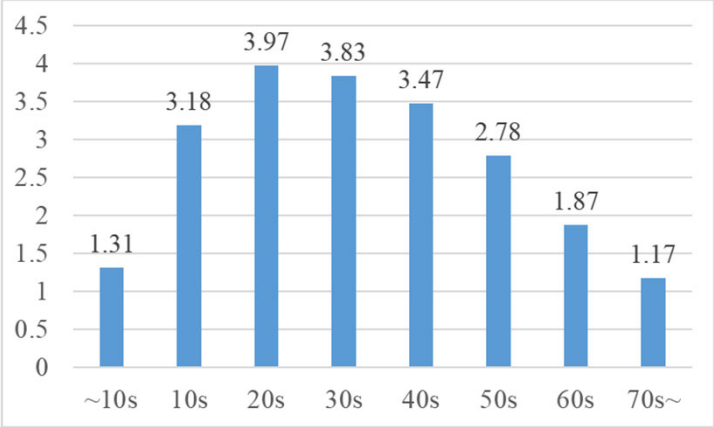
Research Results

- Security awareness by age group
  - Awareness of how to classify and block dangerous text messages such as spam or phishing text messages



Research Results

- Security awareness by age group
  - Awareness of how to distinguish and report dangerous text messages such as spam or phishing text messages



Research Results

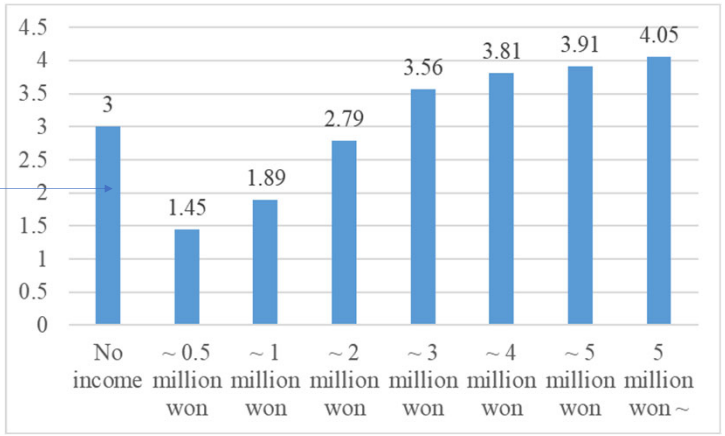
- Test for differences in security awareness by age group

	F-value	P-value
Awareness of how to protect personal information and privacy	1376.117	0.000
Awareness of how to respond when personal information is leaked	1288.563	0.000
Malicious code inspection and remediation capabilities of the device	1069.009	0.000
Awareness of how to classify and block dangerous text messages such as spam or phishing text messages	1069.120	0.000
Awareness of how to distinguish and report dangerous text messages such as spam or phishing text messages	1036.413	0.000

Research Results

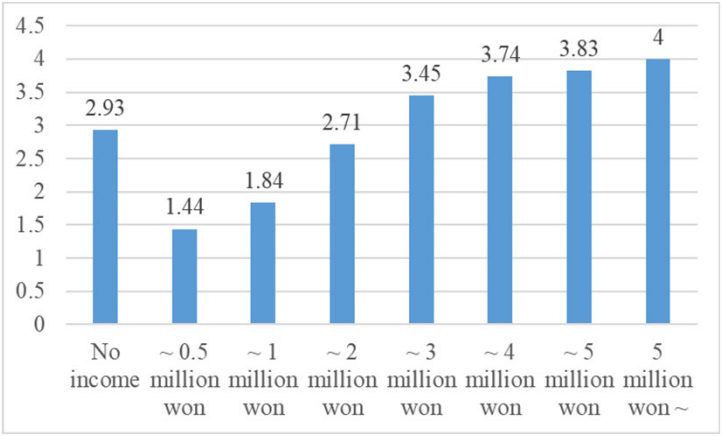
- Security awareness by income level
  - Awareness of how to protect personal information and privacy

Teenagers accounted for 28.1% of 'No income' respondents



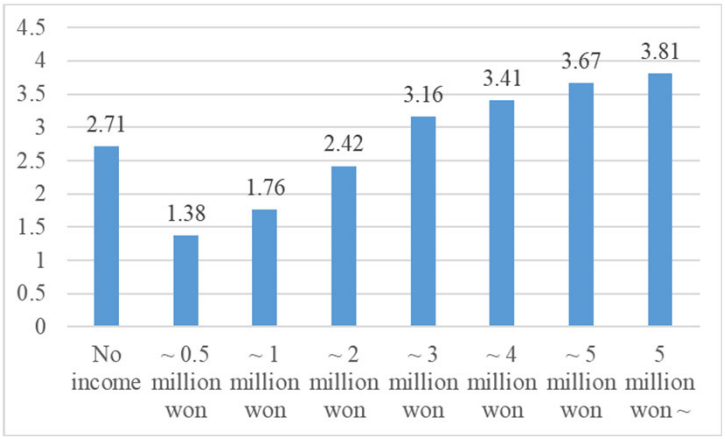
Research Results

- Security awareness by income level
  - Awareness of how to respond when personal information is leaked



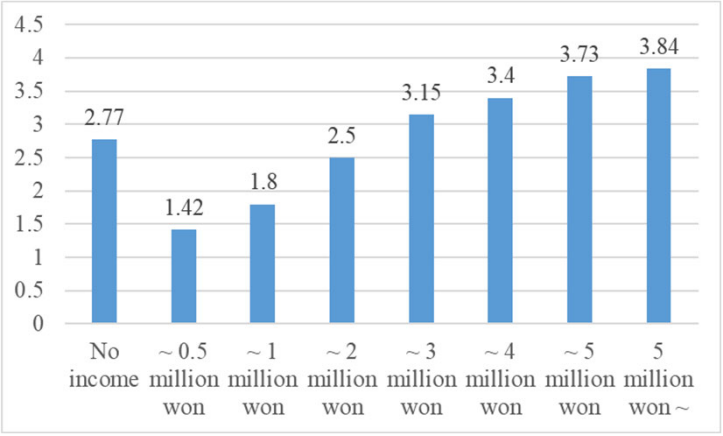
Research Results

- Security awareness by income level
  - Malicious code inspection and remediation capabilities of the device



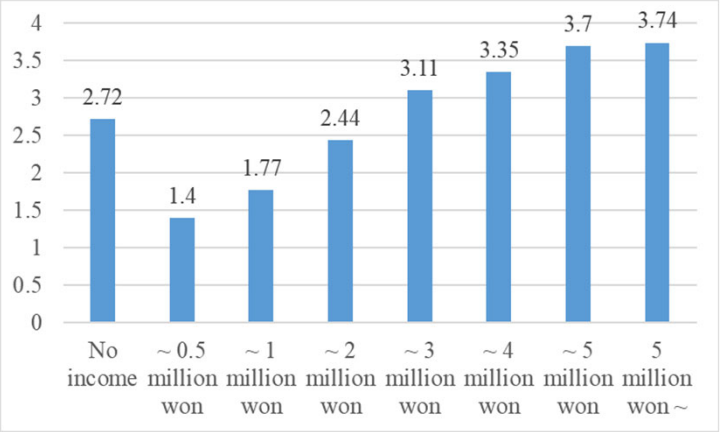
Research Results

- Security awareness by income level
  - Awareness of how to classify and block dangerous text messages such as spam or phishing text messages



Research Results

- Security awareness by income level
  - Awareness of how to distinguish and report dangerous text messages such as spam or phishing text messages



Research Results

- Test for differences in security awareness by income level

	F-value	P-value
Awareness of how to protect personal information and privacy	341.741	0.000
Awareness of how to respond when personal information is leaked	325.516	0.000
Malicious code inspection and remediation capabilities of the device	266.855	0.000
Awareness of how to classify and block dangerous text messages such as spam or phishing text messages	252.277	0.000
Awareness of how to distinguish and report dangerous text messages such as spam or phishing text messages	247.398	0.000

Research Results

- Finally, it identifies the factors that affect the use of e-commerce services that are most related to security issues.
- We consider demographic variables and security awareness-related variables as independent variables.
- For this analysis, logistic regression analysis was performed.

Research Results

- Logistic regression results for the use of e-commerce

	B	S.E.	Wald	df	P-value	Exp(B)
Gender(female)	1.83	0.074	604.4	1	<.001	6.232
Age group	-0.16	0.021	56.257	1	<.001	0.852
Education level	1.097	0.041	714.707	1	<.001	2.996
Income level	0.155	0.018	76.218	1	<.001	1.168
How to protect personal information and privacy	0.398	0.056	50.6	1	<.001	1.489
How to respond when personal information is leaked	0.127	0.058	4.717	1	0.03	1.135
Malicious code inspection and remediation capabilities of the device	0.093	0.05	3.436	1	0.064	1.098
How to classify and block dangerous text messages such as spam or phishing text messages	0.172	0.07	5.976	1	0.015	1.188
How to distinguish and report dangerous text messages such as spam or phishing text messages	-0.242	0.073	10.9	1	<.001	0.785
Constant	-5.705	0.230	613.979	1	<.001	0.003

Implications

- Online services using smart devices are used by most consumers
- The level of security awareness is average or below average, which means that the level of awareness is low.
  - For all of these questions, women, the elderly, and the low-income groups were found to have relatively lower levels of awareness.
- As a result of analyzing factors influencing whether or not to use e-commerce, it was found that all demographic variables had an effect, and variables except for one of the variables related to security awareness had an effect.
  - It was found that women had more e-commerce experience, but it seems that women need to be careful because they have a weaker security awareness than men.

Conclusions

- Although consumers know some security rules to keep in mind when online activities occur, measures to cope with actual security problems have been found to be insufficient.
- In addition, it was found that there were differences in security awareness depending on the demographic and social characteristics of consumers.
- It was also found that the more women, the younger they are, the higher the income, and the higher the security awareness, the more affected the experience of using e-commerce.

→ Therefore, in order to better inform users of various security features for user protection, customized training on digital literacy for each class is required.