

Preliminary Development of a Scale for the Measurement of Information Avoidance

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Abstract

Purpose: The purpose of this study is a preliminary study to develop a comprehensive information avoidance scale that includes various search contexts. **Research design, data and methodology:** This study is a part of exploratory sequential design of mixed method for the development of information avoidance scale. Based on the themes derived from the analysis of the in-depth interview data collected in the qualitative research of the first stage of the study, 45 preliminary items on information search and avoidance were constructed. The factors related to information searching included information recognition, information seeking purpose, and information search expectations. Individual, information, time, and system factors were related to information avoidance. Pearson's correlation analysis was performed for the correlation between factor items, and Cronbach's alpha analysis was performed for the reliability analysis of the items. Exploratory factor analysis was applied to examine the construct validity of 35 items of information avoidance. **Results:** Among the information avoidance items, one of the less relevant among information purpose items, two information factor items, and one time factor item were excluded. **Conclusions:** A secondary survey should be conducted to confirm the validity and reliability of the scale composed of adjusted items (35) based on the results of exploratory factor analysis. The strength of this preliminary scale is that it was developed based on vivid qualitative data of ordinary people who had experiences of search and avoidance in various search contexts.

Keywords: Information Behavior, Information Avoidance, Scale, Wellness

JEL Classification Codes: E44, F31, F37, G15

1. Introduction

Wellness means overall health and happiness in terms of physical, mental and social aspects. In order for people to maintain this wellness, it is very important to search for and utilize the right information. Because, if people have the right information, they can make healthy choices in various everyday situations.

However, with the rapid increase in the amount of information today, information congestion has been aggravated. Paradoxically, despite the increased amount of easily accessible information, it is a daily occurrence that people who need to make healthy decisions avoid information in order to maintain wellness.

Human information avoidance is an interdisciplinary research interest. It has been studied with different emphasis to investigate human information avoidance in

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communication sciences, psychology, health sciences, economics, and information science. Several definitions of information avoidance have been proposed by various academic fields and researchers. A widely accepted definition is "any behavior designed to prevent or delay the acquisition of available but potentially unwanted information" (Sweeny et al. 2010, 341).

Psychology or health science has mainly discussed in relation to psychological, emotional, and affective aspects. Health science considers cognitive, emotional and affective factors such as disease awareness, anxiety, self-efficacy, perceived crisis, uncertainty, coping ability, and personality characteristics as variables related to information avoidance. In particular, the information avoidance scale developed in psychology takes a hypothetical scenario method assuming a specific situation (Howell & Shepperd, 2016; Miller et al. 2011; Sexton & Dugas, 2008; Miller, 1987).

This study aims to develop a measurement tool that emphasizes the interactive aspect between the searcher and information by reflecting information characteristics based on data derived from information avoidance experiences in various contexts. In the age of information explosion, information avoidance behavior is expected to continue to increase. Therefore, in order to evolve into a human-friendly information environment, an information avoidance scale reflecting the characteristics of information is required at the personal or social level.

2. Literature Review

Information avoidance behavior has been evaluated in communication, psychology, public health, library and information, and economic studies.

Previous studies related to information avoidance have been conducted in the contexts of tasks (Anderson 2006), health information (Addison, 2017; Howell & Shepperd, 2016; Emanuel et al., 2015; Barbour et al., 2012; Miller et al., 2011; Sairanen & Savolainen, 2010; Miles, 2008; Sexton & Dugas, 2008; Mayer et al., 2007; Muris et al., 1994; Miller, 1987), disaster information (Choo, 2017; Yang. & Kahlor, 2013: Gangemi et al., 2012; Neidell, 2008), and daily life (Golman et al., 2017; Isaksson, 2014; Narayan et al., 2011).

Previous studies have used quantitative (Addison, 2017; Emanuel et al., 2015; Barbour et al., 2012; Gangemi et al., 2012; Miles et al., 2008; Mayer et al., 2007; Muris et al., 1994), qualitative (Isaksson, 2014; Narayan et al., 2011; Sairanen & Savolainen, 2010; Anderson, 2006), and mixed (Addison, 2017; Isaksson, 2014) methodologies to explore information avoidance in a specific context or to develop measurement scales (Howell & Shepperd, 2016; Miller et al., 2011; Sexton & Dugas, 2008; Miller, 1987). In addition, literature analyses have been conducted to explore the

theoretical background of information avoidance (Golman et al., 2017; Choo, 2017; Sweeny et al., 2010; Case et al., 2005).

Information overload, lack of information literacy, time, and interest, indolence, and excessive options may lead to information avoidance (Isaksson, 2014). Information avoidance has been evaluated mainly in health studies using psycho-emotional factors, such as disease awareness, anxiety, self-efficacy, perceived crisis, uncertainty, and coping ability (Kim, 2021). Recent studies have also evaluated situational factors, information literacy, and informational aspects.

Previous studies have improved our understanding of information avoidance in specific contexts. However, such studies have only been conducted in certain contexts or have evaluated only theoretical factors. In addition, tools to measure information avoidance have mainly been developed for use in the field of psychology. As a result, such tools are based on psychological factors and measure health information avoidance.

This study aims to develop a universal information avoidance scale in various contexts while overcoming the limitations of previous studies.

3. Research Methods

3.1. Study Design

This study was designed in two stages, qualitative and quantitative, using "exploratory sequential design of mixed method" for scale development (Creswell & Clark 2011, 124). This study investigated the validity of preliminary scales as part of the second stage quantitative research.

In the first stage of research, qualitative data were collected and analyzed for scale development. By using the grounded theory method (Strauss & Corbin, 1990; 1998), information avoidance experiences of various contexts and different levels were collected and analyzed to derive themes that constitute information avoidance experiences. In other words, it analyzed information avoidance experience among various participants and in various contexts, including the seeking of information on tasks (researchers, students, and professionals), health (general public and patients), purchases (consumers), disasters (general public), and social opinions (general public) (Kim, 2022). In the second research stage, a scale was developed and statistical validity is demonstrated. Develop scale items based on themes derived from the 1st stage study, design scales, and verify statistical validity through evaluation process. This study was a preliminary study for scale development in the second stage.

3.2. Preliminary Items

45 preliminary items on information search and avoidance were constructed. The factors related to information searching included information recognition (3

items), information seeking purpose (4 items), and information search expectations (3 items). Individual (10 items), information (17 items), time (4 items), and system factors (4 items) were related to information avoidance (Kim 2022) (table 1).

Table 1: Preliminary Items of information Avoidance

Information Search				
Category	Subcategories	Items		
	Information Awareness	to take the lead in my area of interest to adapt and grow in my life to communicate with others		
Information Searching	Purpose of Seeking Information	to expand my knowledge. to grow my point of view. to find the basis for my actions for simple interest		
	Information Search Expectations	1.Expectations Regarding Confidence in searching 2.Expectations of search results 3.Expectations about the future that solving search problems will bring		
Information Avo	oidance			
	Basic Ability	Linguistic limitations Lack of prior or background knowledge		
Individual	Information literacy	3. Unknown information location (website or book) 4. Difficulty selecting search terms (keywords) 5. Difficulty selecting quality information 6. Difficulty judging subject suitability		
	Situation	7. No time for search 8. Lack of psychological motivation to search 9. Tired 10.Burden of payment		
	Quantity of Information	Repeated content in search results Large number of search results Few search results		
	Quality of Information	4. Lack of Accuracy Information 5. Lack of Currency Information 6. Lack of Novelty Information 7. Lack of Practicality 8. Lack of reliability Information		
Information	Subjective Perceptions of Information	9. Information unsuitable for the situation and level 10. Information contradicts opinions and beliefs 11. Causes anxiety or fear 12. Conflicting content 13. Contents that cause prejudice		
	Form of Information	14. Non-specific information (statistics and video information)15. Poorly structured information16. No summary of main points17. Sloppy sentence description		
Timo	Time Taken	Excessive time spent in search Lack of time for reading and understanding search results		
Time	Change in Situation	Search no longer needed Information not necessary immediately		
System	Use of System	Excessive advertisements Demand of excessive personal information Complicated registration and use Non-working link		

3.3. Preliminary Scale Evaluation

3.3.1. Data Collection

The study protocol was approved by the Institutional Review Board of JWU. The study respondents were selected based on their demographic characteristics, including education, occupation, location and gender. The sample size required for validation of the measurement tool was 5- to 10-fold higher than the number of questions (i.e., approximately 100-200 respondents) (Devellis 2017).

3.3.2. Data Analysis

SPSS (version 21.0; IBM Corp., Armonk, NY, USA) and AMOS (version 21.0) software were used to determine the reliability and validity of the developed tool. The demographic characteristics of the participants are presented as frequencies with percentages or means with standard deviations.

Pearson's correlation analysis was performed for the correlation between factor items, and Cronbach's alpha analysis was performed for the reliability analysis of the items. Exploratory factor analysis was applied to examine the construct validity of 35 items of information avoidance.

4. Results

4.1. Respondents

For this preliminary test, a survey was conducted by requesting an online specialized survey agency, and the data from a total of 179 respondents who participated in the survey were analyzed. Table 1 shows the demographic characteristics of the respondents included in the preliminary test analysis. The respondents were aged ≥ 27 years with a college education or higher degree who had experience with avoiding information (table 2).

Table 2: Demographic Characteristics of the Respondents (n=179)

Variable	Category	Frequency(%)	
Gender	Male	88(49.2)	
Gender	Female	91(50.8)	
	27-29	43(24.0)	
	30-39	45(25.1)	
Age	40-49	44(24.6)	
7.95	Male Female 27-29 30-39 40-49 50-59 60-69 Bachelor	23(12.8)	
		24(13.4)	
Education	Bachelor	148(82.7)	
Eddodilon	Master	27(15.1)	

	Doctorate	4(2.2)
	Office worker	118(65.9)
	Professional	17(9.5)
Job	Houswife	23(12.8)
300	Student	2(1.1)
	No Job	10(5.6)
	etc	9(5.0)
	1-3 times/week	65(36.3)
Frequency of IA	4-6 times/week	38(21.2)
	Every day	76(42.5)
	Task Information	22(12.3)
	Health Information	10(5.6)
Seeking information	Purchase Information	71(39.7)
type	Society/Opinion Information	47(26.3)
	Disaster Information	2(1.1)
	Other Interests	27(15.1)

4.2. The Descriptive Analysis of Items

The descriptive analysis of responses to scale items are presented in Table 3.

Table 3: Descriptive Analysis of Responses to Items

Item	Mean	SD	Skewness	Kurtosis
Awareness 1	3.66	.867	807	.865
Awareness 2	4.15	.601	224	.374
Awareness 3	3.96	.729	730	1.428
Purpose 1	4.06	.751	987	1.939
Purpose 2	3.94	.728	347	008
Purpose 3	4.06	.762	710	.982
Purpose 4	3.43	.861	155	442
Expectation 1	4.01	.640	394	.729
Expectation 2	3.82	.780	394	075
Expectation 3	3.91	.717	414	.781
Individual 1	3.41	.946	295	518
Individual 2	3.16	.898	126	330
Individual 3	2.94	.972	024	893
Individual 4	2.78	.969	.200	689
Individual 5	3.09	.987	051	694
Individual 6	2.78	1.003	.124	516
Individual 7	2.47	.973	.457	140
Individual 8	2.54	.961	.548	212
Individual 9	2.84	.959	068	622
Individual 10	3.36	1.021	329	327
Information 1	3.59	.676	264	065
Information 2	3.71	.817	291	342
Information 3	2.95	.901	.239	152
Information 4	3.06	.853	.332	420
Information 5	3.01	.887	.076	388
Information 6	3.15	.883	053	115
Information 7	2.93	.881	.193	179
Information 8	2.91	.837	.345	195
Information 9	2.88	.859	.401	616

2.71	.796	.571	.193
2.55	.855	.514	.031
2.98	.824	.214	758
2.91	.879	.036	465
2.96	.860	.086	627
3.04	.908	.150	498
3.11	.867	219	405
2.99	.951	.090	371
3.25	.871	089	044
3.15	.927	.037	683
2.84	.923	.143	536
3.03	.827	.299	108
3.75	.969	575	112
3.33	1.032	139	475
3.26	.991	.013	495
3.06	.894	.212	.014
	2.55 2.98 2.91 2.96 3.04 3.11 2.99 3.25 3.15 2.84 3.03 3.75 3.33 3.26	2.55	2.55 .855 .514 2.98 .824 .214 2.91 .879 .036 2.96 .860 .086 3.04 .908 .150 3.11 .867 219 2.99 .951 .090 3.25 .871 089 3.15 .927 .037 2.84 .923 .143 3.03 .827 .299 3.75 .969 575 3.33 1.032 139 3.26 .991 .013

As shown in Table 3, the mean and standard deviation were within the theoretical range. Kline (2016) suggested that absolute skewness and kurtosis values of ≤ 3 and ≤ 10 , respectively, indicated normality, whereas Curran, West, and Finch (1996) suggested that these values should not exceed 2 and 7, respectively. The skewness and kurtosis values showed that the data were normally distributed based on the criteria of Kline (2016) and Curran, West, and Finch (1996).

4.3. Correlation Coefficients for the Scale Items

The correlation coefficients for the scale items are as follows. A correlation coefficient of 0.2–0.6 is appropriate.

The correlation between information recognition items ranged from a minimum of 0.343 to a maximum of 0.385. The correlation between information search purpose items ranged from 0.168 to 0.644, Correlation between information search expectation items ranged from 0.492 to 0.598, and correlation between personal factors related to information avoidance behavior ranged from 0.479 to 0.598. In addition, the correlation between information factors related to information avoidance behavior ranged from 0.195 to 0.697, the correlation between time factors ranged from 0.103 to 0.647, and the correlation between system factors ranged from 0.352 to 0.58.

4.4. Reliability Analysis

This study performed reliability analysis for all items. Using the Cronbach's alpha, which is the reliability of the scale, the corrected correlation coefficient was calculated between individual item and total scores. Normal and good reliability was indicated by Cronbach's alpha of \geq .6 and \geq .7, respectively (Nunnally, 1978). The correlation between the item and total score was considered acceptable and unacceptable when Cronbach's alpha was \geq .2 and < .2, respectively. An item was considered problematic if the Cronbach's alpha was increased after removal of the item.

The reliability of information recognition items was .617

(i.e., acceptable). There were no changes in the item-total score correlation coefficients and the Cronbach's alpha when the items were deleted, so all three items were considered to be good.

The reliability of seeking purpose was good (.712) (table 4). When the item was deleted, the item score-total score correlation coefficient of the fourth item was .284, which is lower than that for the other items. In addition, the Cronbach's alpha value after item deletion was .787 and the reliability increased from .712 to .787. Therefore, it was appropriate to remove this item. As shown in Table 4, this item had a relatively low correlation with other items.

Table 4: Reliability Analysis for Information Seeking Purpose

Reliability Statistics				
Cronbach's	s Alpha		No. of Items	
	.712		4	
Item Score-Total Score Statistics				
	Corrected Item Score-total Score Correlation		Cronbach's Alpha after Item Deletion	
Purpose 1		.549	.620	
Purpose 2	.644		.565	
Purpose 3	.570		.606	
Purpose 4		.284	.787	

The reliability of search expectation was good (.763). There were no differences in the item score-total score correlations or the Cronbach's alpha value when the item was deleted, so all three items were considered to be good.

The reliability of the individual factor scale was good (.884). In addition, there were no changes in the item score-total score correlations after item deletion. However, the Cronbach's alpha increased very slightly and nonsignificantly when items 1–10 were removed, so the items were good.

The information factor had very good reliability (.912) (table 5). When the item was deleted, the item score-total score correlations were relatively lower for items 1 and 2 than for the other items. Similarly, the Cronbach's alpha was slightly reduced when the item was deleted. As shown in table 8, item 1 and 2 had relatively lower correlations with other questions and thus were removed.

Table 5: Information Factor Reliability Analysis

Reliability Statistics				
Cronbach's Alpha	No. of Items			
.921				
Item Score-Total Score Statistics				

	Corrected Item Score-total Score Correlation	Cronbach's Alpha after Item Deletion
Information 1	.339	.922
Information 2	.250	.925
Information 3	.655	.915
Information 4	.712	.913
Information 5	.735	.913
Information 6	.679	.914
Information 7	.664	.915
Information 8	.730	.913
Information 9	.661	.915
Information 10	.631	.916
Information 11	.532	.918
Information 12	.489	.919
Information 13	.602	.916
Information 14	.678	.914
Information 15	.673	.914
Information 16	.660	.915
Information 17	.639	.915

The time factor had a good reliability (.770)). When the item was deleted, the item score-total score correlations and Cronbach's alpha were not changed, so the four items were considered to be good.

The system factors had a good reliability (.835). When the item was deleted, the item score-total score correlation was unchanged, whereas the Cronbach's alpha was increased to .845. Overall, the items were considered to be good.

4.5. Correlations between Subscales

Table 6 presents the correlation coefficients between the subscales (total score) of the information avoidance behavior scale. The correlation coefficients between subscales were .288 to .603, indicating significant correlations.

4.6. Exploratory Factor Analysis

Table 7 presents the exploratory factor analysis of the 35 questions of the information avoidance behavior scale. Because the scale was based on four factors, exploratory factor analysis was performed using the principal axis factor decomposition method. For the interpretation of the subfactors for each item, four-way rotation was performed using the Promax method.

Table 7: Information Avoidance Coefficient Matrix

Pattern Matrix ^a				
	Factor			
	1	2	3	4
Individual 1	.098	.532	255	.153
Individual 2	.005	.814	139	.054
Individual 3	.033	.658	.073	.005
Individual 4	274	.739	.239	.099
Individual 5	.070	.824	050	119
Individual 6	.057	.569	.276	069
Individual 7	.006	.303	.506	126
Individual 8	030	.386	.494	086
Individual 9	.042	.376	.443	121
Individual 10	.053	.467	035	.066
Information 1	.287	.165	136	.139
Information 2	.194	.036	052	.183
Information 3	.716	.089	114	.096
Information 4	.704	.002	.029	.085
Information 5	.817	001	061	.046
Information 6	.800	084	032	.030
Information 7	.698	.007	003	.091
Information 8	.641	123	.253	.002
Information 9	.646	.206	027	053
Information 10	.171	087	.583	.124
Information 11	043	002	.665	.152
Information 12	042	047	.611	.143
Information 13	.076	088	.615	.158
Information 14	.578	.105	.175	123
Information 15	.643	057	.265	203
Information 16	.680	069	.149	126
Information 17	.342	124	.561	113
Time 1	.398	.238	130	.263
Time 2	.225	.225	.031	.299
Time 3	.348	001	.252	.173
Time 4	.343	012	.214	.267
System 1	.083	.071	114	.543
System 2	135	.018	.137	.862
System 3	075	015	.157	.791
System 4	.128	072	.146	.610

Note: Extraction method: Principal axis factoring.

Rotation method: Promax with Kaiser normalization.

^aRotation converged in seven iterations.

Items with factor loadings of <.3 or .4 were considered inappropriate. For the information factor, questions 1 and 2 had a value < .3 and a poor reliability (Table 19). Therefore, information factors 1 and 2 were removed. In addition, the second item of the time factor was removed because it was not clearly related to the other factors (i.e., value < .3). The exploratory factor analysis removed three items and confirmed the usefulness of four factors (table 8).

Table 8: Exploratory Factor Analysis

Pattern Matrix ^a					
		Factor			
	1 2 3 4				
Individual 1	.074	.519	215	.139	
Individual 2	.015	.820	160	.052	
Individual 3 .042 .678 .034 .023					
Individual 4	235	.762	.172	.103	

Individual 5	.079	.828	078	115
Individual 6	.081	.590	.218	052
Individual 7	.021	.317	.465	113
Individual 8	050	.387	.503	077
Individual 9	.024	.376	.454	116
Individual 10	.030	.462	008	.068
Information 3	.739	.096	140	.089
Information 4	.740	.016	017	.072
Information 5	.811	.004	059	.047
Information 6	.817	067	064	.032
Information 7	.760	.033	090	.102
Information 8	.671	105	.204	.004
Information 9	.641	.198	018	068
Information 10	.190	063	.542	.136
Information 11	.004	.026	.593	.158
Information 12	082	067	.681	.127
Information 13	.029	107	.692	.151
Information 14	.561	.099	.192	123
Information 15	.628	062	.276	197
Information 16	.657	077	.176	130
Information 17	.323	137	.590	122
Time 1	.421	.234	135	.225
Time 3	.366	.007	.235	.157
Time 4	.358	.000	.200	.260
System 1	.077	.072	083	.533
System 2	112	.040	.132	.844
System 3	037	.022	.111	.800
System 4	.159	044	.111	.615

Note: Extraction method: Principal axis factoring.

Rotation method: Promax with Kaiser normalization.

^aRotation converged in six iterations.

Table 9: Exploratory Factor Analysis

Pattern Matrix ^a				
	Factor			
	1	2	3	
Individual 1	111	.462	.147	
Individual 2	151	.791	.060	
Individual 3	.009	.709	.028	
Individual 4	191	.850	.108	
Individual 5	028		111	
Individual 6	.184	.667	052	
Individual 7	.315	.448	117	
Individual 8	.262	.531	080	
Individual 9	.306		120	
Individual 10	014	.470	.072	
Information 3	.627	.013	.108	
Information 4	.723	039	.088	
Information 5	.764	064	.065	
Information 6	.773	137	.049	
Information 7	.688	041	.120	
Information 8	.822	103	.011	
Information 9	.618	.160	056	
Information 10	.547	.060	.135	
Information 11	.389	.174	.153	
Information 12	.368	.109	.117	
Information 13	.485	.065		
Information 14	.697	.118	123	
Information 15	.839	030	202	
Information 16	.796	074	128	
Information 17	.725	.001	121	
Time 1	.302	.167	.240	
Time 3	.518	.035	.166	

Time 4	.480	.014	.273
System 1	014	.022	.555
System 2	076	.044	.872
System 3	013	.017	.832
System 4	.200	055	.643

Note: Extraction method: Principal axis factoring.

Rotation method: Promax with Kaiser normalization.

^aRotation converged in six iterations.

All factor loadings exceeded .3. The results of the exploratory factor analysis, based on the three factors with consideration of the item content and interpretation, are presented in table 9.

The correlations among the three extracted subfactors are presented in table 10.

Table 10: Correlation between Subfactors

Factor Correlation Matrix				
Factor	1	2	3	
1	1.000	.600	.501	
2	.600	1.000	.291	
3	.501	.291	1.000	

Note: Extraction method: Principal axis factoring.

Rotation method: Promax with Kaiser normalization.

5. Discussion

This preliminary scale of information avoidance is a scale developed based on the searcher's vivid experience data, focusing on the interactive elements of information such as the properties of information.

In this study, 35 items consisting of three factors related to information avoidance: individual, information, and system were developed and verified as a preliminary scale. In addition, as factors related to information search, the searcher's information recognition, information seeking purpose, and expectations for information search were developed and presented.

This scale emphasizes the interactive aspects with information, complements the limitations of existing information avoidance scales that have focused on various emotional, affective, and perceptual aspects, and can be seen as contributing to a holistic understanding of information avoidance behavior.

As a result of the analysis of this preliminary scale, "Large number of search results", "Repeated content in search results", and "Lack of time for reading and understanding search results" items were deleted. Since these items were frequently mentioned in the qualitative experience data of research participants and were frequently pointed out as causes of avoidance in previous studies on information avoidance, it is necessary to investigate the reason.

In order for this preliminary scale to increase its usability in the actual information environment and to become a valid and reliable scale, continuous verification research will be needed. In addition, follow-up studies should be additionally conducted to identify related variables that cause information avoidance behavior. The utilization of this scale will be further increased only when follow-up studies examining the influence relationship with various mediating variables are conducted.

6. Conclusion

Wellness is an effort to improve the quality of our lives, aiming for a healthy and balanced life mentally, physically and emotionally. Information plays a vital role in achieving these wellness goals.

This preliminary study developed a multipurpose information avoidance scale that can be applied in various contexts. The scale was developed based on factors derived from qualitative data on information avoidance in various information seeking contexts. The preliminary scale is composed of personal, information, and system factors.

Existing information avoidance scales can only measure health information and are based on psychological or personality characteristics. In the present study, this preliminary scale measured information avoidance from various perspectives after taking measures to overcome the limitations of previous.

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