

## **A Study of Factors Influencing Elderly People Information-acquisition Behaviors**

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**Abstract:** The research object for this study was the population aged 60 and above. The theoretical model was developed using the Theory of Health Action Process Approach, Theory of Maslow's Hierarchy of Needs, the Bystrom & Jarvelin Model, and Theory of Use and Satisfaction. The study found that information acquisition intentions are strongly influenced by social identity, knowledge acquisition and self-realization, and self-efficacy; information access intentions have a considerable favorable impact on both information acquisition behaviors and action plans. Action plans has a mediating effect between information acquisition intentions and information acquisition behaviors.

**Keywords:** Elderly People; Information Acquisition Behavior; Structure Equation Modeling; Theory of Health Action Process Approach

### **1. Introduction**

Population aging is an important trend in the development of our society. As of the end of 2022, the proportion of the population aged 60 and above in China is 19.8%; the number of people aged 65 and above accounts for 14.9%; it is expected that China will enter a severe aging population around 2035. Information acquisition refers to the process of collecting relevant information extensively from information sources through various channels and methods according to information needs. Currently, China is vigorously promoting the development of informationization, and as an important part of China's economic and social development, it is of great significance to improve the ability of the elderly to acquire information and to meet their basic information needs in order to maintain and promote the health and stability of the

elderly's lives and to promote the harmonious, stable, and healthy development of society.

There is already considerable research on information acquisition behavior both domestically and internationally. In terms of information acquisition behavior characteristics, a number of scholars have explored the process of information acquisition behavior in different groups. Chang Ying<sup>[1]</sup> Constructs a Model of Migrant Workers' Online Information Acquisition Behavior Based on Information Needs Hierarchy Theory; Hou Xiaoni<sup>[2]</sup> and others found that the information behavior of elderly people caused by existing health problems is repetitive; Shenton<sup>[3]</sup> analyzed the failure model of adolescent information acquisition and pointed out that from the generation of information needs to the process of obtaining information, information acquisition behavior may end at any time and new behaviors may begin. In terms of factors influencing information acquisition behavior, Fan Zhenjia<sup>[4]</sup> et al. pointed out that the lack of awareness of information acquisition, the living environment and cultural limitations, and the individual's rejection of external information are important factors affecting the information acquisition of rural left behind women; Ebrahimzadeh<sup>[5]</sup> et al. found that the usefulness of information and the availability of information sources positively affect researchers' collaborative information acquisition behavior; and Kim Su Hyun<sup>[6]</sup> et al. found that health literacy and information-seeking desires affect the health information acquisition behavior of Korean older adults. In terms of theoretical research, Schwarzer's<sup>[7]</sup> Theory of Health Action Process Approach regards planning as a mediating variable from intention to behavior, which suggests that intention does not necessarily produce behavior and that there is

a large discrepancy between intention and behavior. Bystrom & Jarvelin <sup>[8]</sup> pointed out that information search behavior is repetitive. If the information meets the requirements, the information search behavior ends. If it cannot be met, the information search behavior will be repeated to evaluate the information search results from three aspects.

In summary, few studies in the field of information acquisition behavior have paid attention to the issue of possible variables between intention and the occurrence of behavior, and fewer studies have paid attention to the assessment of information acquisition outcomes after information acquisition behavior. Therefore, this study will comprehensively explore the influencing factors of elderly people's information acquisition behavior based on the Theory of Health Action Process Approach, the Bystrom & Jarvelin model, and other related theories, combined with SEM structural equation modeling.

## **2. Research Model and Research Hypothesis**

Based on the theory of Health Action Process Approach and the Bystrom & Jarvelin model, this study introduces information acquisition outcome assessment variables, constructs a research model, identifies relevant research variables, and proposes research hypotheses by combining the theory of Maslow's Hierarchy of Needs and the theory of Use and Satisfaction.

(1) Self-efficacy refers to the attitude and perceived ability of the elderly to effectively obtain the necessary information. Yuan Suizhuo<sup>[9]</sup> pointed out that self-efficacy and attitude positively affect the willingness to access online health information and information acquisition behavior of middle-aged and elderly people. Based on this, the research hypothesis is proposed:

H1: Self-efficacy has a significant positive effect on information acquisition intention.

(2) Outcome expectation refers to the subjective expectations of the elderly for the information they obtain. In this study, it mainly refers to the estimation of the effectiveness and practical value of the information. Before performing a task, people usually estimate the possible outcomes and

predict the good or bad results, which has a significant impact on the generation of behavior. Based on this, the research hypothesis is proposed:

H2: Outcome expectation has a significant positive effect on information acquisition intention.

(3) Based on Maslow's hierarchy of needs theory, including the need for safety, emotional belonging, and respect, this study proposes that information acquisition awareness refers to the elderly's self-judgment on the necessity of information acquisition behavior. When a person realizes that not obtaining information may have an impact on their own life, and even the risk of being isolated from society and being isolated by society, the greater the possibility of generating information acquisition intentions. Based on this, the research hypothesis is proposed:

H3: Information acquisition awareness has a significant positive effect on information acquisition intention.

(4) Guo Ying et al. <sup>[10]</sup> Pointed out that there are still some elderly people who have a high degree of concern for their own development after reaching retirement age, and they are focused on learning and acquiring new knowledge, skills, and cultivating personal interests. This study combines the need for knowledge acquisition with the need for self-realization, and believes that the higher the need for knowledge acquisition and self-realization, the more likely it is that people will have information acquisition intentions and the greater the possibility of information acquisition behavior. Based on this, the research hypothesis is proposed:

H4: Knowledge acquisition and self-realization has a significant positive effect on information acquisition intention.

(5) Social identity refers to the degree of approval of recognition that one or others have for the act of obtaining information. With good social support and the view that information acquisition can bring positive effects to oneself or others, that is, a high degree of recognition of the behavior of information acquisition, will strengthen the emergence of the intention to acquire information. Based on this, the research hypothesis is proposed:

H5: Social approval has a significant positive effect on information acquisition intention.

(6) Information acquisition intention refers to the presence or absence of the intention to carry out information acquisition. In the Theory of Planned Behavior, individual behavioral intentions are a direct influence on the production of behavior. Theory of Health Action Process Approach states that having good intentions does not necessarily result in information behavior. If information acquisition behaviors are to be generated, information acquisition intentions must be translated into a specific information acquisition course of action. Based on this, the research hypothesis is proposed:

H6: Information acquisition intention has a significant positive effect on action plans.

H7: Information acquisition intention has a significant positive effect on information acquisition behavior.

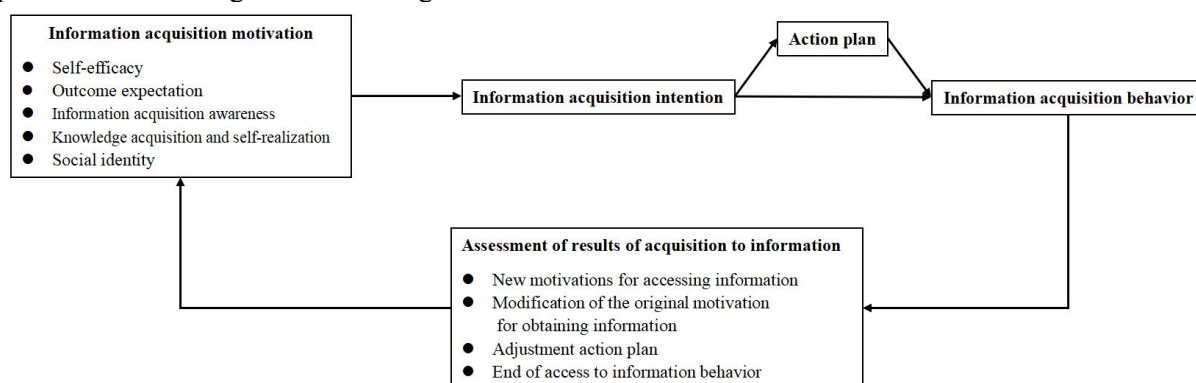
(7) The expression "action plan" describes the process of turning behavioral goals into

concrete actions. This study proposes that action plan refers to by selecting the right information acquisition channels and methods, elderly people may transform their intentions to acquire information into real information acquisition behaviors. The key to successful information acquisition is selecting the right routes and methods. The function that action plans play as a mediator between intentions and actions is highlighted by the theory of Health Action Process Approach. Based on this, the research hypothesis is proposed:

H8: Information acquisition behavior has a significant positive effect on action plans.

H9: Action plan has a mediating effect between information acquisition intention and information acquisition behavior.

A study model on the elderly's acquisition of information behavior was created based on the aforementioned hypotheses, as Figure 1 illustrates.



**Figure 1. Research Model of Information Acquisition Behavior Process of the Elderly**

### 3. Questionnaire Design

To guarantee both the questionnaire's accuracy and scientific validity in terms of content. In order to create the questionnaire, the author used field trips, in-person conversations, and other methods to gather information and document any pertinent topics. The author then consulted established scales from both domestic and international relevant literature. Prior to the official questionnaire distribution, a pre-survey was carried out, and 67 research questionnaires were gathered. After the study results were examined, irrational questions were removed and revised to create a comprehensive questionnaire consisting of 41 questions.

The elderly in Liaoning Province who were aged 60 and above were chosen to participate in the survey for this study. This study used

both online and offline methods to distribute the questionnaires, taking into account the specificity of the survey respondents. The questionnaires were distributed online using the Questionnaire Star platform, with snowball sampling used to increase the sample's coverage. The questionnaires were completed offline using paper versions. In the end, 511 questionnaires were gathered. Following completion, assessment, and screening, 467 surveys were found to be valid, yielding a 92.8% validity rate.

The survey's findings show that the proportion of male (48.0%) respondents is not significantly different from that of female (52.0%) respondents. In terms of age, the proportion of respondents who are 60–64, 65–69, and 70–74 years old is 31.0%, 29.1%, and 20.1%, respectively. These figures are essentially similar to those of the elderly

population in Liaoning Province from the seventh census. In terms of education, the majority of elderly people have only completed elementary school (33.6%), followed by junior high school (26.3%), and the overall education level of the elderly is not high. Regarding residence mode, 56.5% of the elderly do not live with their children. Most older persons polled (42.4%) said they feel their present financial condition is more or less enough, meaning they can afford basic daily needs.

#### 4. Analysis of Structural Equation Modeling

**Table 1. Confirmatory Factor Analysis Results**

| Variant                                         | KMO value | Cronbach's $\alpha$ | AVE    | CR     |
|-------------------------------------------------|-----------|---------------------|--------|--------|
| Self-efficacy (SE)                              | 0.705     | 0.797               | 0.5686 | 0.7981 |
| Outcome expectation (OE)                        | 0.713     | 0.806               | 0.5813 | 0.8063 |
| Information acquisition awareness (AC)          | 0.723     | 0.83                | 0.6206 | 0.8307 |
| Knowledge acquisition and self-realization (LS) | 0.718     | 0.82                | 0.6023 | 0.8195 |
| Social identity (VA)                            | 0.719     | 0.819               | 0.6023 | 0.8196 |
| Information acquisition intention (IAN)         | 0.726     | 0.836               | 0.629  | 0.8357 |
| Action plan (AP)                                | 0.717     | 0.819               | 0.6028 | 0.8199 |
| Information acquisition behavior (IAB)          | 0.718     | 0.819               | 0.6028 | 0.8199 |
|                                                 | 0.921     | 0.929               |        |        |

As can be seen in Table 1, the questionnaire's overall and each dimension's Cronbach's alpha coefficients are all greater than 0.7, indicating good reliability; similarly, the standardized loading coefficients are all greater than 0.7, the AVE values are all greater than 0.5 and the CR values are all greater than 0.7, indicating good

#### 4.1 Testing for Reliability and Validity

This study was examined for validity and reliability using AMOS 24.0 and SPSS 26.0. Table 1 shows that the KMO values for the measurement scale as a whole and for individual variable were more than 0.7, and the Bartlett's test of sphericity was significant. Principal component analysis shows that the cumulative explained total variance is 70.221%, which is larger than 50%. It is demonstrated that factor analysis is appropriate for the Information Acquisition Behavior Scale for elderly people.

combinatorial reliability and convergent validity.

Table 2 displays the differentiated validity test findings. Good discriminant validity is shown by all of the correlation coefficients between the variables being smaller than the square root of the AVE value.

**Table 2. Differential Validity Test**

| Variant | SE            | OE            | AC            | LS            | VA            | IAN           | AP            | IAB           |
|---------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| SE      | <b>0.7541</b> |               |               |               |               |               |               |               |
| OE      | 0.5400        | <b>0.7624</b> |               |               |               |               |               |               |
| AC      | 0.5210        | 0.5410        | <b>0.7878</b> |               |               |               |               |               |
| LS      | 0.5580        | 0.6000        | 0.5550        | <b>0.7761</b> |               |               |               |               |
| VA      | 0.6080        | 0.5530        | 0.5140        | 0.5450        | <b>0.7761</b> |               |               |               |
| IAN     | 0.6220        | 0.5250        | 0.4780        | 0.6420        | 0.6310        | <b>0.7931</b> |               |               |
| AP      | 0.5640        | 0.5870        | 0.4900        | 0.6150        | 0.5860        | 0.5910        | <b>0.7764</b> |               |
| IAB     | 0.4760        | 0.4650        | 0.4780        | 0.4980        | 0.5030        | 0.5440        | 0.5560        | <b>0.7764</b> |

Note: The diagonal data is the square root of the AVE value for each variable.

#### 4.2 Normality Test and Correlation Analysis

According to the findings of the normality test, which that the absolute values of the skewness and kurtosis coefficients for each variable were less than two and seven, respectively, the

data from the questionnaire scale roughly followed a normal distribution. The Pearson correlation coefficient was utilized to analyze correlations between variables. All of the dimensions had Pearson correlation coefficients (r) higher than 0 and at the  $P <$

0.01 significance level, meaning that each pair of variables had a correlation.

#### 4.3 Model Checking

Table 3 displays the results of the model fitness. It is evident that there is good model fit and that all of the model fitness metrics satisfy the ideal requirement.

**Table 3. Model Fit Test Results**

| Norm        | Standard of judgment | Test results |
|-------------|----------------------|--------------|
| $\chi^2/df$ | < 3                  | 1.733        |
| GFI         | > 0.9                | 0.933        |
| NFI         | > 0.9                | 0.927        |
| IFI         | > 0.9                | 0.968        |
| TLI         | > 0.9                | 0.962        |
| CFI         | > 0.9                | 0.968        |
| RMSEA       | < 0.05               | 0.040        |
| PGFI        | > 0.5                | 0.728        |
| PNFI        | > 0.5                | 0.786        |

Using AMOS 24.0 software, structural equation modeling was done to confirm the validity of the hypotheses. Table 4 displays the test results. Figure 2 displays the model route

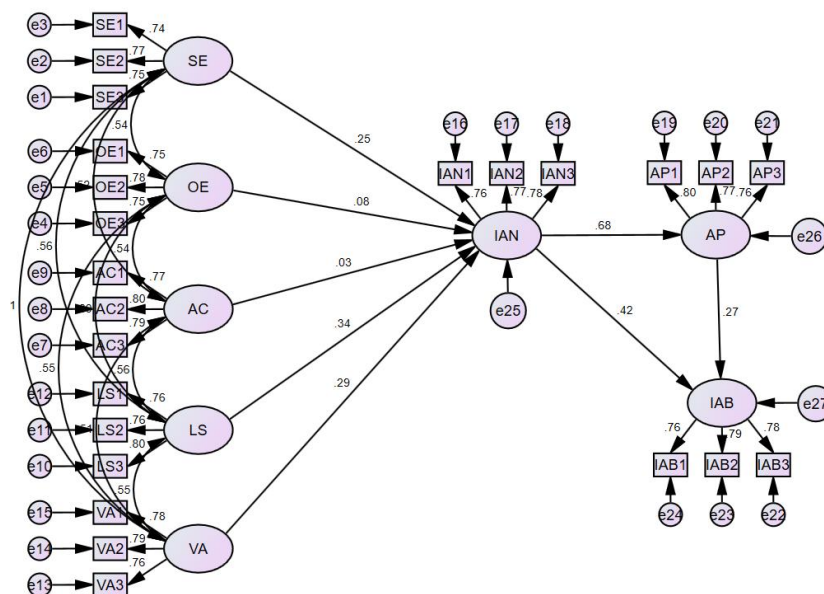
coefficient diagram.

Table 4 and Figure 2 demonstrate that all of the hypotheses are supported, with the exception of H2 and H3, which are not.

**Table 4. Model Path Coefficient and Hypothesis Testing**

| Pathway relationship |      |     | Estimate | S.E.  | C.R.   | P     |
|----------------------|------|-----|----------|-------|--------|-------|
| IAN                  | <--- | SE  | 0.248    | 0.069 | 3.901  | ***   |
| IAN                  | <--- | OE  | 0.076    | 0.067 | 1.245  | 0.213 |
| IAN                  | <--- | AC  | 0.027    | 0.058 | 0.474  | 0.636 |
| IAN                  | <--- | LS  | 0.336    | 0.063 | 5.226  | ***   |
| IAN                  | <--- | VA  | 0.291    | 0.064 | 4.639  | ***   |
| AP                   | <--- | IAN | 0.677    | 0.06  | 11.726 | ***   |
| IAB                  | <--- | AP  | 0.27     | 0.07  | 3.652  | ***   |
| IAB                  | <--- | IAN | 0.422    | 0.074 | 5.628  | ***   |

Note: \*\*\* indicates  $P < 0.001$ .



**Figure2. Model Path Analysis**

#### 4.4 Mediation Effect Test

With the use of the Bootstrap methodology in AMOS 24.0, the mediating function of action plans in the model was examined. Table 5 shows that the relationship between the information acquisition intention and the information acquisition behavior was partially

mediated by the action plan. The indirect, direct, and aggregate effects did not contain zero in the Bias-corrected 95% CI and Percentile 95% CI confidence intervals. Hypothesis H9 was established.

In conclusion, Table 6 displays the findings of the study's hypothesis testing.

**Table 5. Bootstrap Intermediate Effect Test**

| Parameter        | SE    | Efficiency value | Bias-corrected 95%CI |       |       | Percentile 95%CI |       |       |
|------------------|-------|------------------|----------------------|-------|-------|------------------|-------|-------|
|                  |       |                  | Lower                | Upper | P     | Lower            | Upper | P     |
| Indirect effect  | 0.041 | 0.193            | 0.12                 | 0.285 | 0.001 | 0.116            | 0.276 | 0.001 |
| Direct effect    | 0.066 | 0.299            | 0.17                 | 0.429 | 0.001 | 0.171            | 0.43  | 0.001 |
| Aggregate effect | 0.053 | 0.492            | 0.388                | 0.605 | 0.001 | 0.385            | 0.601 | 0.001 |

**Table 6. Hypothesis Test Results**

| Research hypothesis | Element                                                                                                             | Test results    |
|---------------------|---------------------------------------------------------------------------------------------------------------------|-----------------|
| H1                  | Self-efficacy has a significant positive effect on information acquisition intention                                | Established     |
| H2                  | Outcome expectation has a significant positive effect on information acquisition intention                          | Not established |
| H3                  | Information acquisition awareness has a significant positive effect on information acquisition intention.           | Not established |
| H4                  | Knowledge acquisition and self-realization has a significant positive effect on information acquisition intention.  | Established     |
| H5                  | Social identity has a significant positive effect on information acquisition intention.                             | Established     |
| H6                  | Information acquisition intention has a significant positive effect on action plan.                                 | Established     |
| H7                  | Information acquisition intention has a significant positive effect on information acquisition behavior.            | Established     |
| H8                  | Action plan has a significant positive effect on information acquisition behavior.                                  | Established     |
| H9                  | Action plan have a mediating effect between information acquisition intention and information acquisition behavior. | Established     |

#### 5. Conclusions of the Study

First, through structural equation modeling analysis, in addition to outcome expectations and information acquisition awareness, information acquisition intentions were found to be significantly and positively impacted by self-efficacy ( $\beta = 0.248$ ,  $P < 0.001$ ), knowledge acquisition and self-realization ( $\beta = 0.336$ ,  $P < 0.001$ ), and social identity ( $\beta = 0.291$ ,  $P < 0.001$ ). Furthermore, there was a partial mediating function for action plans in the relationship between information acquisition behaviors and intents. Action plans are positively impacted by information acquisition intention ( $\beta = 0.677$ ,  $P < 0.001$ ), and information acquisition behavior in older persons is positively impacted by both

information acquisition intention ( $\beta = 0.422$ ,  $P < 0.001$ ) and action plans ( $\beta = 0.27$ ,  $P < 0.001$ ).

Second, an assessment of the outcomes of the elderly's information acquisition revealed that the majority of the elderly will continue to acquire information if they are dissatisfied with the information they have already accessed; the majority of the elderly will decide to acquire information once more by altering the method or means of acquiring information, etc. And the majority of the elderly will continue to acquire information in response to new needs or questions that arise after they initially acquire information.

#### 6. Countermeasure and Suggestion

Firstly, social recognition needs to be

improved. The government, society, and families should actively publicize and promote the benefits of information acquisition, actively encourage, support, assist, and mentor older people in obtaining information on their own, increase their initiative in doing so, and fully recognize the role that family and friends play in boosting older people's willingness to obtain information. Secondly, to promote the transformation of older persons' information acquisition intentions, action plans, and acquisition behaviors. On the one hand, establishing, strengthening, and ensuring the construction of community public information infrastructures and community grassroots information service systems, all while preserving the traditional information service model that the majority of older adults are most accustomed to and knowledgeable about, To provide unimpeded access to information for the elderly, offline channels have been established through the creation of windows or platforms for counseling services. On the other hand, strengthening the institutional mechanism and human resources for work on the elderly, encouraging college students, volunteers, and interns in related fields to get involved in the community, offering advice and support on the needs of the elderly, and promptly recognizing and resolving issues that arise when the elderly are trying to find information in the course of their daily lives; to improve information awareness and information acquisition capacity, offer senior citizens more information acquisition abilities and a range of channels and methods for obtaining information.

### 7. Insufficient Studies

There are still certain shortcomings with this study. On the one hand, more comprehensive coverage of the population under study and larger sample sizes should be goals of future research. On the other hand, in terms of model construction, future research can extract the main conceptual elements in the form of rooted theoretical coding through interviews to supplement or adjust the constructed behavioral conceptual model.

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