

# Research on the Domestic Service of the Urban Middle-old Empty-nest Elderly in China

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## Abstract

Under the mainstream model of 'home-based care for the aged' in China, the urban empty-nest elderly family is a very important family type. In order to improve the domestic service system of the empty-nest elderly and promote the diversified development of the aging service industry, this study focuses on the important group of middle-aged empty-nest elderly to explore the types of tangible or intangible service experiences and physiological or psychological demand characteristics and combined with a questionnaire to analyze their relationship. The differences and influencing factors of different demand characteristics under the two types of 'self-based service' and 'other-based service' are derived. Finally, it is concluded that middle-aged empty-nest elderly have a higher demand for 'other-based service', but they lack sufficient guarantees in terms of physiological safety, so it is necessary to strengthen the experience design of domestic health and safety.

Keyword : Domestic service, Urban, Middle-old, Empty-nest elderly, China

## 1. Introduction

Empty-nest elderly are elderly couple and the aged who lives alone. The growth rate of the Chinese empty-nest elderly is accelerating and the proportion is increasing. According to the estimation, there will be 487 million elderly people in China around 2050, accounting for 1/4 of the world total [1]. At present in China, elderly care is mainly concentrated in such service scopes as housekeeping and volunteer activities and less developed in the fields of space, products and interaction design, without consideration of the physical and psychological demands of empty-nest elderly. This study surveys the domestic service demands and experiences of the Chinese middle-old empty-nest elderly living in urban area in Shenyang, China. There is a high proportion of urban empty-nest families in China [2], which is higher than 40% in Shenyang. In addition, developed areas have a relatively large proportion of middle-old elderly, who have the highest proportion of empty-nest families.

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This study includes a questionnaire survey on the domestic service demands of middle-old empty-nest elderly in Shenyang with the specific research scope and method are as follows: First, through a theoretical investigation, this study reviews the definition and status quo of middle-old empty-nest elderly and their domestic service experiences. Second, based on the results of previous research, this study summarizes four characteristics of physiological and psychological demands of urban empty-nest elderly in family experiences. Third, from the perspective of service provider, this study proposes two types of services suitable for empty-nest elderly families. Fourth, the questionnaire survey is carried out on the above theoretical basis. Finally, SPSS 21.0 is used for the descriptive statistics of the collected data, t-test of independent samples and One-way ANOVA, then the results are derived.

## **2. Theoretical investigation**

### **2.1 Terms definition**

As the aging population increases and the age gap enlarges, the middle-old elderly will be the main force of the future elderly population in China. In addition, the middle-old elderly account for a large proportion in developed regions as well, so they are of representative significance in urban empty-nest families.

#### **2.1.1 Urban empty-nest elderly and middle-old**

The World Health Organization defines elderly people as those 60 years and older and further divides them into three stages, namely the young-old (60 to 69 years), the middle-old (70 to 79 years) and the very-old (80 years and older) [3]. Empty-nest elderly refer to elderly couple and the elder who live with no or have no children and who live alone or with spouses in terms of the family model [4].

Urban empty-nest elderly families will become the major type of future elderly families in China [5]. The middle-old elderly are in a stage between self-care and slow action, who have been adapted to the elderly life with a strong willingness to be empty-nest elderly [6]. According to ‘China Old Age Social Tracing Survey’, more than half of the elderly in China are under the age of 70 [7]. According to the 2008 data, the group aged 70-74 has the highest proportion of empty-nest elderly, up to 56% [7].

#### **2.1.2 Domestic service experience of empty-nest elderly**

Although services are intangible, service design is suitable for all industries that provide services, which can be tangible or intangible.

Experience economy can be divided into two sectors, namely the primary experience that targets

production of experience and the secondary experience that regards experiences as addons to artefacts or services [8]. In the family experience environment of empty-nest elderly, housekeeping services, nursing services or volunteer condolences belong to the primary experience, while furniture for support and indoor space with control system belong to the secondary experience. With the development of intelligent home and product, there are increasingly diverse secondary experiences.

In the Declaration of Nielsen Norman Group, it is even identified as the main purpose of service design to shape the interest of people in service experience. Some empty-nest elderly people tend to be bored with their home, so the stimulation of their interest in family life will help improve the above phenomenon and improve their passion for life so as to better meet their physical and psychological demands. Therefore, the industries grasping the dividend of empty-nest elderly will increase economic and social value.

## 2.2 Domestic demand factors of urban empty-nest elderly

Holbrook and Hirschmann hold that consumers are sensitive and emotional beings besides rational thinkers, and the physical and psychological demands of empty-nest elderly in term of family services reflect such rationality and sensibility [9]. So further research selects representative literature on the physical and psychological demand elements of empty-nest elderly, as shown in [Table 1] below [4] [10-16].

[Table 1] The main domestic demands of urban empty-nest elderly

No.	Type	Demand content	
		Physiological	Psychological
1	Sociology [4]	life care, medical consultation, disease care	mental comfort
2	Nursing [10]	daily living assistance, medical and nursing care	Psychological support, health education
3	Psychology [11]	life care, health protection	psychological comfort and guidance for family and society, rich cultural life
4	Aging domestic technology [12]	Safety related technology, simplification of domestic duties	perception of safety
5	Architecture [13]	barrier-free design, medical care, life care, sunshine and ventilation	sense of safety and belonging, privacy, love and being loved, communication, self-realization
6	Design survey [14]	self-care, individual life assistance, social services	social, recreational activities
7	Product design [15]	the product is easy to learn and use, helping to improve self-care ability, safety and comfort	emotional comfort needs, increase fun
8	Information Engineering [16]	daily care, safety precautions, health care, medical treatment	entertainment, spiritual comfort

Based on the above content, the following four demand characteristics are summarized.

- 1) 'Physiological safety' refers to the demands of the elderly to avoid physical injury, which is the most important characteristic. According to the Chinese government(Guiding Opinions on Promoting the Construction of Livable Environment for the Elderly), safety is the focus of living environment construction for the elderly, including renovation of elderly houses, installation of protection facilities, barrier-free design, emergency call and salvage gear.
- 2) 'Physiological health function'(referred to as 'function'), reflects the demands for material life in terms of health, which refers to the quantity of domestic services and the convenience of experiences of empty-nest elderly at the physiological level, including the availability and usability of services or products.
- 3) 'Psychological security', namely sense of security, hereinafter referred to as security, means subjective security, which contains the concept of future time, such as the feeling of hidden insecure factors. Some elderly people still feel upset and worried even in a secure family environment.
- 4) 'Psychological pleasure', refers to the enthusiasm of empty-nest elderly for family services, their happiness in experiences and their satisfaction after use, which reflects the demands of empty-nest elderly for emotional and psychological comfort. Patrick Jordan first proposed the concept of product pleasure. Pleasure design gives people pleasant emotional experiences through products or services, which greatly benefits the physical and psychological health of the elderly. He proposed 'four kinds of pleasure', namely physiological pleasure, social pleasure, psychological pleasure and ideological pleasure, which are different ways for people to interact positively with products and services [17]. In addition, the elderly have the demands to contribute their remaining energy to society to achieve their value, which is another way of psychological comfort.

Therefore, the service design for urban empty-nest elderly families should focus on the four demands shown in [Table 2], namely physiological safety and health function (referred to as function), psychological security and pleasure. It should be noted that these demand characteristics are interconnected. For example, some products are beneficial to health and have more functions, so they are more secure.

[Table 2] The domestic demand factors of urban empty-nest elderly

Domestic demand factors		
Physiological	safety	health function (function)
Psychological	security	pleasure

### **2.3 Domestic service classification of empty-nest elderly**

Service workers, service setting, service customers and service process constitute the components required for service experience [4][16]. Service workers are important components of service experience [16].

Domestic services for the elderly often mean public benefit activities such as housekeeping, nursing or condolences, but in China most elderly people are reluctant to accept such services and they prefer independent operation. Therefore, from the perspective of service providers, services can be roughly classified into self-based services and other-based services.

‘Self-based service experience’ include all experiences of empty-nest elderly people as service providers, namely self-care experiences. The elderly in such services are both service providers and customers, such as bathing, cooking and entertainment.

‘Other-based service experience’ represent the services provided by external service providers for the empty-nest elderly, such as housekeeping, maintenance and condolences. Service receivers (the elderly) usually have no blood relation with external service providers, so such services tend to be commercial or public benefit activities. For example, in the Chinese ‘aging-in-place’ strategy, the government and society rely on the community to provide care, housekeeping services, rehabilitation nursing and spiritual consolation to the elderly, including home-based individual services and community day care centers, which have attributes of both business and public benefit [18].

Sundbo classified the experience economy into primary and secondary experience sectors [19]. Corresponding to the domestic services for the empty-nest elderly, other-based services are basically primary experiences, and the production is more focused on experiences; most self-based services belong to the secondary experience sector with products as props and services as the stage [20].

Self-based service prevail in China for most empty-nest families, but there is a real dilemma of inadequate infrastructure construction. The elderly are difficult to accept other-based services, especially the empty-nest elderly who have a stronger sense of insecurity. In addition, with fewer types, small benefits and poor service quality, other-based services are difficult to popularize. Particularly, services provided by children belong to neither of them, for they are not bound by the designer, and to some extent experience attributes cannot and should not be defined.

## **3. Research analysis and results**

### **3.1 Survey respondent and method**

Based on above research, the following questionnaire survey on the domestic service demands of

middle-old empty-nest elderly was conducted.

Shenyang is a representative city with severe aging population. The proportion of elderly people 65 years and older in Shenyang, the largest city in northeast China, ranks second in all Chinese cities. Therefore, the questionnaire survey is carried out for the middle-old elderly living in urban empty-nest families of Shenyang [Table 3]. All of them are fairly autonomous people.

The survey is carried out in the form of electronic questionnaire within a period of 37 days from April 28 to June 3, 2019. In the 383 questionnaires collected, there are 360 valid copies. It includes demographic questions, and the two service types correspond to eight questions of four demands. A general analysis is carried out for the major research variables and a comparative analysis is conducted specific to the demand characteristics of self-based and other-based services.

[Table 3] Scope of the respondent

Type	Content
People	Empty-nest elderly
Ages	From 70s-79s(middle-old)
Area	Elders who live in Shenyang City

### 3.2 Survey analysis

See [Table 4] for the general analysis results of major research variables. Likert Scale is used for measurement, and the lower score shows the higher demand. For the four demand characteristics of self-based services, security gets the lowest score (3.27), followed by function (3.34) and pleasure (3.46), and safety gets the highest score of 3.47. For the four demand characteristics of other-based services, safety gets the lowest score (2.98), followed by security (3.11), function (3.19) and pleasure (3.32).

[Table 4] Analysis of the general characteristics of the main variables

Category	Variable	Minimum	Maximum	Mean	Std. Deviation
Self-based service	Safety	1.00	5.00	3.47	.747
	Security	1.00	5.00	3.27	.860
	Function	1.00	5.00	3.34	.704
	Pleasure	1.00	5.00	3.46	.691
Other-based service	Safety	1.00	5.00	2.98	.724
	Security	1.00	5.00	3.11	.774
	Function	1.00	5.00	3.19	.666
	Pleasure	1.00	5.00	3.32	.700

Note: Lower scores indicating higher demand level

See [Table 5] for the comparison results of self-based services (hereinafter referred to as self-based) according to the differences between demographic characteristic and living characteristics of respondents.

First, the results of safety dimensions of self-based, including gender, education, living alone or not, reason for living status, self-care ability and current problem, all have statistically significant differences. Gender is significant at the level  $p < .001$ , female (3.58) higher than male (3.25). Education is statistically significant at the level  $p < .01$ , master's degree and above (4.00) higher than primary school and below (3.26) and high school (3.43). Living alone or not is statistically significant at the level  $p < .001$ , living with a partner (3.56) and others (3.67) lower than living alone (3.21). Reason for living status is statistically significant at the level  $p < .01$ , without children (2.83) higher than all other groups. Although self-care ability is statistically significant at the level  $p < .05$ , the post hoc analysis shows no significant differences between the groups. Current problem is statistically significant at the level  $p < .001$ , in which other problem gets the highest score (3.91), followed by health problem (3.48) and mental emptiness (3.59), and financial difficulty (3.17) and lack of care (3.17) rank the last.

Second, the results of security dimensions of self-based, including gender, education, living alone or not, reason for living status, self-care ability and current problem, all have statistically significant differences. Gender is significant at the level  $p < .001$ , female (3.37) higher than male (3.07). Education is statistically significant at the level  $p < .001$ , university (3.70) and college and above (3.87) higher than primary school and below (2.95). Living alone or not is statistically significant at the level  $p < .001$ , living with a partner (3.39) and others (3.44) higher than living alone (2.96). Reason for living status is statistically significant at the level  $p < .01$ , differences between personal habits (3.43) and children (3.30) higher than without children (2.71). Although self-care ability is statistically significant at the level  $p < .001$ , the post hoc analysis shows no significant difference between the groups. Current problem is statistically significant at the level  $p < .001$ , in which other problem gets the highest score (3.74), followed by health problem (3.26) and mental emptiness (3.31), and financial difficulty (2.94) ranks the last, but there is no difference between lack of care (3.10) financial difficulty, health problem and mental emptiness.

Third, the results of function dimensions of self-based, including gender, education, interest, living alone or not, reason for living status, self-care ability and current problem, all have statistically significant differences. Gender is significant at the level  $p < .001$ , female (3.40) higher than male (3.21). Education is statistically significant at the level  $p < .001$ , college and above (3.80) higher than primary school and below (3.11), junior high school (3.30) and other (3.24); university (3.70) higher than primary school and below (3.30). Interest is statistically significant at the level  $p < .05$ , exercise (3.51)

and playing mahjong and chess (3.39) higher than others (3.10). Living alone or not is statistically significant at the level  $p<.001$ , living with a partner (3.44) and others (3.48) higher than living alone (3.06). Reason for living status is statistically significant at the level  $p<.05$ , without children (2.79) lower than all other groups. Self-care ability is statistically significant at the level  $p<.01$ , without self-care ability (3.58) higher than frequent sickness and almost without self-care ability (3.04). Current problem is statistically significant at the level  $p<.001$ , other problem (3.65) higher than all other groups, mental emptiness (3.41) higher than financial difficulty (3.07) and lack of care (3.14) and health problem (3.36) higher than financial difficulty.

Finally, the results of pleasure dimensions of self-based, including gender, education, living alone, reason for living status, self-care ability and current problem, all have statistically significant differences. Gender is significant at the level  $p<.001$ , female (3.57) higher than male (3.26). Education is statistically significant at the level  $p<.001$ , college and above (4.07) higher than except for university (3.87), university higher than primary school and below (3.21) and others (3.20). Living alone or not is statistically significant at the level  $p<.001$ , living with a partner (3.58) and others (3.55) higher than living alone (3.17). Reason for living status is statistically significant at the level  $p<.01$ , without children (2.79) lower than all other groups. Although self-care ability is statistically significant at the level  $p<.01$ , the post hoc analysis shows no difference between the groups. Current problem is statistically significant at the level  $p<.001$ , other problem (3.65) higher than all groups except for mental emptiness (3.58), mental emptiness higher than financial difficulty (3.21) and lack of care (3.29) and health problem (3.44).

[Table 5] Comparison of Demand Characteristics of Self-Based Service

Variable	Group	Self-based service			
		Safety	Security	Function	Pleasure
Gender	Male	3.25	3.07	3.21	3.26
	Female	3.58	3.37	3.40	3.57
	t-value	-4.097***	-3.247**	-2.505*	-3.979***
Education	Elementary school and below	3.26A	2.95A	3.11A	3.21A
	Junior high school	3.43A	3.26AB	3.30AB	3.41AB
	High school	3.52AB	3.33AB	3.40ABC	3.56AB
	Undergraduate	3.78AB	3.70B	3.70BC	3.87BC
	Master or PhD	4.00B	3.87B	3.80C	4.07C
	Others	3.55AB	3.39AB	3.24AB	3.30A
	F-value	4.044**	6.353***	5.894***	8.382***
Live alone or not	Live alone	3.21A	2.96A	3.06A	3.17A
	Live with the other half	3.56B	3.39B	3.44B	3.58B
	Others	3.67B	3.44B	3.48B	3.55B
	F-value	9.186***	10.007***	11.512***	13.542***



Reason of live alone or not	Children working in the distance	3.42B	3.20AB	3.29B	3.48B
	Personal habit	3.57B	3.43B	3.41B	3.54B
	No children	2.83A	2.71A	2.79A	2.79A
	Poor relationship with children	3.60B	3.30B	3.33B	3.43B
	Others	3.52B	3.21AB	3.45B	3.42B
	F-value	3.481**	3.147*	3.049*	3.922**
Self-care ability	Good health and self-care	3.56A	3.41A	3.42AB	3.56A
	Suffering from chronic diseases, you can still take care of yourself	3.31A	3.00A	3.21AB	3.33A
	Often sick, barely self-care	3.28A	3.08A	3.04A	3.16A
	Hard to take care of themselves, very dependent on children or service staff	3.61A	3.50A	3.56B	3.28A
	F-value	3.281*	6.250***	3.944**	4.718**
The biggest problem	Economic difficulties	3.17A	2.94A	3.07A	3.21A
	Lack of care	3.17A	3.10AB	3.14AB	3.29A
	Health problem	3.48B	3.26B	3.36BC	3.44AB
	Spiritual emptiness	3.59B	3.31B	3.41C	3.58BC
	Others	3.91C	3.74C	3.65D	3.79C
	F-value	12.086***	8.211***	7.096***	7.478***

\*p<.05, \*\*p<.01, \*\*\*p<.001

Post-hoc: Duncan, A<B<C<D

See [Table 6] for the comparison results of other-based services (hereinafter referred to as other-based). First, the results of safety dimensions of other-based, including education, living alone or not and current problem, all have statistically significant differences. Education is statistically significant at the level  $p<.001$ , college and above (3.80) higher than all other groups except for other (3.32). Living alone or not is statistically significant at the level  $p<.01$ , living with a partner (3.07) higher than living alone (2.79). Current problem is statistically significant at the level  $p<.05$ , financial difficulty (2.72) lower than all other options.

Second, for the results of security dimensions of other-based, only education has statistically significant differences. Education is statistically significant at the level  $p<.001$ , college above (3.80) higher than all other groups except for other (3.32).

Third, for the results of function dimensions of other-based, gender and living or not have statistically significant differences. Gender is significant at the level  $p<.05$ , female (3.13) higher than male (3.09). Living alone or not is statistically significant at the level  $p<.01$ , living with a partner (3.27) higher than living alone (3.01).

Finally, for the results of pleasure dimensions of other-based, gender, education and living or not have statistically significant differences. Gender is significant at the level  $p<.05$ , female (3.38) higher than male (3.21). Education is significant at the level  $p<.001$ , university (3.59) and college and above

(3.60) higher than primary school and below (3.06). Living alone or not is statistically significant at the level  $p<.01$ , living with a partner (3.40) and others (3.43) higher than living alone (3.13).

[Table 6] Comparison of Demand Characteristics of Other-Based Service

Variable	Group	Other-based service			
		Safety	Security	Function	Pleasure
Gender	Male	2.95	3.07	3.09	3.21
	Female	2.99	3.13	3.24	3.38
	t-value	-.463	-.698	-2.080*	-2.139*
Education	Elementary school and below	2.82A	2.87A	3.02	3.06A
	Junior high school	3.00A	3.15A	3.19	3.38AB
	High school	3.01A	3.14A	3.28	3.30AB
	Undergraduate	3.05A	3.25A	3.33	3.59B
	Master or PhD	3.80B	3.80B	3.4	3.60B
	Others	3.09A	3.32AB	3.32	3.50AB
	F-value	2.390*	3.267***	2.161	4.896***
Live alone or not	Live alone	2.79A	3.00	3.01A	3.13A
	Live with the other half	3.07B	3.16	3.27B	3.40B
	Others	2.96AB	3.04	3.21AB	3.43B
	F-value	5.154**	1.588	5.375**	5.612**
Reason of live alone or not	Children working in the distance	2.99	3.12	3.21	3.37
	Personal habit	2.99	3.12	3.19	3.32
	No children	2.57	2.86	2.86	2.96
	Poor relationship with children	2.80	3.10	3.05	3.10
	Others	3.09	3.12	3.26	3.35
	F-value	1.510	.378	1.136	1.348
Self-care ability	Good health and self-care	2.94	3.08	3.19	3.34
	Suffering from chronic diseases, you can still take care of yourself	3.10	3.21	3.25	3.34
	Often sick, barely self-care	2.84	2.96	3.00	3.14
	Hard to take care of themselves, very dependent on children or service staff	2.92	3.17	2.92	3.33
	F-value	1.544	1.001	1.271	.615
The biggest problem	Economic difficulties	2.72A	2.93	3.01	3.16
	Lack of care	2.98B	3.09	3.18	3.33
	Health problem	3.04B	3.08	3.27	3.39
	Spiritual emptiness	3.04B	3.23	3.20	3.32
	Others	3.06B	3.21	3.24	3.37
	F-value	2.500*	1.482	1.615	1.171

\* $p<.05$ , \*\* $p<.01$ , \*\*\* $p<.001$

Post-hoc: Duncan, A<B<C<D

### 3.3 Results

The above questionnaire survey shows the following results.

First, in the analysis data of major research variables, the total average score of other-based services

is lower than that of self-based services.

Second, the four demands for self-based services rank as security, function, pleasure and safety, while the four demands of other-based services rank as security, safety, function and pleasure. There is little difference between the average scores of each factor, and the physiological and psychological factors interact with each other without significant difference, which is consistent with the fact in the literature survey that the physiological and psychological factors of the elderly are closely related. Among them, safety of other-based gets the lowest score in the 8 data values, which is the only factor below the average score.

Third, according to the comparative analysis of the differences in the demand characteristics between self-based and other-based services, male, low education (primary school and below), living alone and financial difficulty are the four major factors causing high demands of middle-old empty-nest elderly for domestic services, and such an effect is particularly significant in self-based services.

#### **4. Conclusion**

According to this study, middle-old elderly people are representative among the urban empty-nest elderly. Therefore, unlike other surveys of empty-nest elderly people, this study proposes the research direction of urban empty-nest elderly centered on the middle-old elderly, which fills the research gap in middle-old empty-nest elderly and has great research significance. Conclusions are drawn as follows:

First, this study proposes four physiological and psychological demand characteristics that service design should meet for empty-nest elderly families, namely physiological safety and health function, psychological security and pleasure.

Second, according to different service providers, this study proposes service design classification methods suitable for empty-nest families, namely self-based and other-based services.

Third, according to the questionnaire survey results, the middle-old empty-nest elderly are more satisfied with the experiences of self-based services and have higher demands for other-based services. The existing other-based services have great deficiencies in the satisfaction of physiological safety, which may be the main reason why empty-nest elderly people are reluctant to accept other-based services.

Therefore, in order to improve the service environment for urban empty-nest elderly families, it is necessary to strengthen the development and improvement of other-based services.

The significance of this study is that it can be used for the evaluation on the domestic service system for the empty-nest elderly and can be used as a reference for domestic service design.

This study lacks a lateral comparison of young-old, very-old and middle-old elderly people. In addition, some respondents with a high age complete the questionnaire with the help of others, which may affect the results.

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