

# Research on Multi-level Needs of Elderly Users and Theoretical Model Construction

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**Abstract:** Based on Maslow's hierarchy of needs theory, this article explores the multi-level needs of elderly users and attempts to establish a theoretical model of their needs, in order to provide reference for future research. The study defined the multi-level needs of elderly users, analyzed and summarized relevant literature through qualitative research methods, formed a theoretical model of multi-level needs of elderly users, and demonstrated the rationality of the model.

**Keywords:** Elderly Users, Multi-Level Demand, Maslow's Theory of Needs, User Experience, Requirement Model

## 1. Introduction

Currently, China is in a period of rapid development with an aging population. According to the *Report on the Development of China's Aging Industry* released in November 2020, as of the end of 2020, the elderly population aged 60 and above in China reached 267 million, accounting for 18.9% of the total population; the elderly population aged 65 and above reached 210 million, accounting for 14.1% of the total population. According to the *Report on the Development of China's Aging Industry*, it is predicted that the market size of China's aging industry will reach 10 trillion yuan by 2030. However, many elderly people in China still face a series of life difficulties such as difficulty in eating, dressing, using the toilet, and bathing. In today's increasingly aging society, how to solve the living problems of the elderly population and improve their quality of life has become an urgent issue to be addressed in China's socio-economic development. At present, research on elderly people both domestically and internationally mainly focuses on healthcare, life care, and leisure and entertainment, but there is relatively little literature on the multi-level needs of elderly users. Elderly users have a high level of consumption and willingness to consume, and the needs of elderly users at different levels are also different. Therefore, how to design products that meet the needs of elderly users is a key factor in improving their satisfaction and quality of life. Based on this, this article attempts to construct a multi-level needs theory model for elderly users, using Maslow's hierarchy of needs theory as the foundation. In the specific construction process, the relevant concepts, contents, and application status of the research on multi-level needs of elderly users in existing research literature were first sorted out; secondly, using qualitative research methods to summarize and analyze existing research literature; finally, a multi-level demand theory model for elderly users was developed based on the aforementioned foundation [1].

## 2. Research Status

As early as the 1970s, Western scholars began to pay attention to the needs of the elderly population and social development issues. In Western society, the needs of the elderly population, represented by the elderly, have become a research hotspot in academia as a special group. Since the 1990s, with the continuous aggravation of the aging problem, scholars have begun to pay attention to the issue of aging. In recent years, with the rapid development of China's economy and the continuous improvement of people's living standards, the elderly population has become an important part of society. With the continuous increase in the number of elderly people, the types of product and service demands of the elderly population have also changed accordingly. In this context, product design and service content targeting the elderly as the main user group are also receiving increasing attention from scholars [2].

At present, some achievements have been made in the research on the needs of elderly users both

domestically and internationally, but these achievements are mainly aimed at product design or user experience. The theoretical basis for the research on the needs of elderly users is still lacking, and most relevant literature explains their needs for product use from the perspectives of physiological and psychological characteristics of the elderly. For example, Sun Jian et al. found that over 80% of elderly individuals in the 60-75 age group have "social needs"; Wang Lei et al. found that over 60% of elderly individuals in the 75-80 age group have "respect needs"; Ma Haixia et al. conducted a survey of the elderly population and discovered that individuals aged 80 and above have varying degrees of needs in terms of physiological, psychological, safety, and social aspects; Lu Xiaohong et al. found that elderly users aged 60-64 possess "physiological needs," "respect needs," and "self-actualization needs. Foreign scholars have also made many achievements in the research of multi-level needs of elderly users. For example, Sara Czaja from the University of Miami is dedicated to studying the interaction between older adults and technology, focusing on the cognitive, social, and health needs of older users; Andrew Sixsmith's research focuses on the living environment, lifestyle, and technological support of the elderly population, exploring how to improve their quality of life and well-being; Wendy Rogers focuses on the technology acceptance and usage of the elderly, as well as how to design products and services that meet the needs of elderly users. In addition, Towers Watson in the UK has conducted research on the consumption needs of elderly consumers and found that there are differences in their consumption needs compared to other age groups [3].

Previous studies have mainly explored the needs of elderly users from physiological, psychological, and social aspects, but lack in-depth analysis from the perspective of multi-level needs of elderly users. Due to the particularity and complexity of elderly users, this article believes that it is necessary to study their multi-level needs and propose a theoretical model of their needs based on this [4].

### 3. Research on the Needs of Elderly Users

#### (1) The main content of demand analysis for elderly users

In the process of analyzing the needs of elderly users, the first step is to define the elderly user group, and then classify the elderly user group into layers from both material and spiritual dimensions. Based on the characteristics of different hierarchical classifications, the needs of elderly users are analyzed separately. Among them, material needs refer to the daily living needs of elderly users, including clothing, food, housing, transportation, and other aspects; the spiritual needs refer to the spiritual life that elderly people need, including social, entertainment, and educational aspects. Through the analysis of different levels of needs, the relationship between different levels of needs and the cognitive situation of elderly users towards the different levels of needs can be clarified, thus better grasping the actual needs of the elderly user group in daily life [5].

It should be noted that when analyzing the needs of elderly users, it is necessary to consider the characteristics of the elderly user group itself and the significant differences in physiological characteristics between the elderly and young people. Therefore, it is necessary to conduct classification and statistical analysis separately for the elderly and young population groups in different hierarchical classifications. In addition, due to the cognitive biases of the elderly population, it is necessary to comprehensively consider the needs of elderly users by taking into account their own characteristics and cognitive biases when conducting needs analysis. This article mainly uses qualitative research methods, with questionnaire surveys and in-depth interviews as the main research methods to analyze the actual needs of elderly users [6].

#### (2) Definition and characteristics of elderly users

In China, according to the "China Elderly Population Development Plan" issued by the State Council, the population aged 60 and above is defined as elderly people. In Europe, according to United Nations standards, the population aged 60 and above is defined as elderly. In the United States, the Social Security Administration defines the population aged 65 and above as elderly. In the World Health Organization, the population aged 60 and above is defined as elderly, while the population aged 75 and above is defined as "advanced age" elderly. In addition to defining age, elderly users may also face a series of problems and challenges, such as decreased physical function, decreased cognitive ability, and changes in living environment. According to different living conditions, elderly people can also be divided into groups such as empty nest elderly, disabled elderly, sick elderly, and dying elderly. Therefore, it is an important responsibility of society to pay attention to and take care of the needs and characteristics of elderly users, and provide social security and welfare that meet their needs [7].

Compared with middle-aged and young users, elderly users have significant physiological differences. According to statistics from the National Bureau of Statistics, the population aged 60 and above in China has reached 240 million, accounting for 17.3% of the total population; the population aged 65 and above reached 144 million, accounting for 9.7% of the total population. Although the aging population in China is increasing year by year (as shown in Figure 1), it is still at a relatively low level compared to developed countries such as Europe and America. In terms of age, elderly users in China still have significant physiological advantages. In addition, elderly users also have the following characteristics: firstly, their economic level is relatively high; secondly, elderly users have a high level of knowledge and cultural literacy; thirdly, the physiological functions of elderly users are relatively poor; fourth, elderly users have a certain degree of autonomy. Meanwhile, elderly users in the information age also have the following characteristics: firstly, they are relatively backward in the application of information technology; second, the application of Internet products is more traditional; third, brand loyalty to Internet products is relatively low.

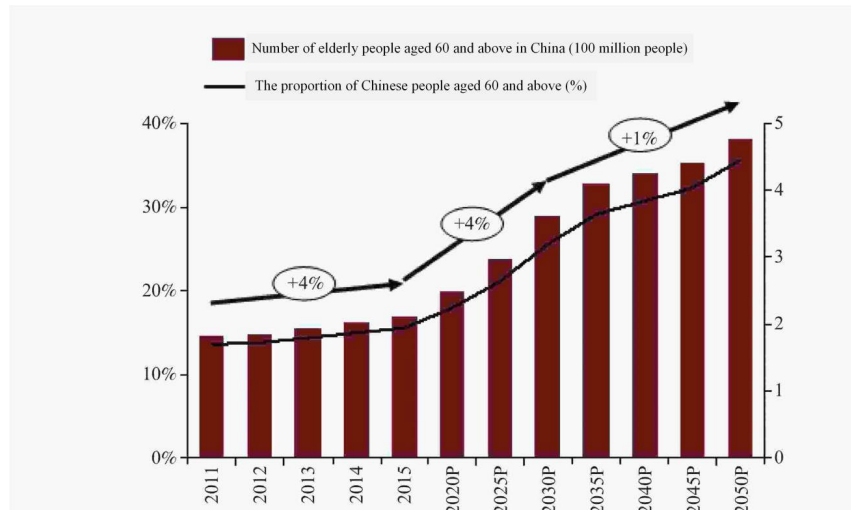


Figure 1: Trend of changes in China's elderly population

### (3) Multi level requirements

The needs of elderly users have different dimensions such as physiological needs, social needs, and cultural needs. The needs of elderly users are closely related to their cultural and social contexts, and there are multiple differences in behavioral purposes and values among elderly people with different lifestyles. As elderly users age, their physiological, psychological, and social needs will undergo significant changes. In terms of physiological needs, the older they are, the higher their requirements for product functionality and performance will be; in terms of safety requirements, the older the age, the higher the demand for product safety will be; in terms of social interaction needs, the older the age, the higher the requirements for the social and emotional functions of the product. As users age, the requirements for products in terms of security needs, social interaction needs, social functionality, and emotional needs will become increasingly high. In terms of respecting needs, as users grow older, the requirements for respecting and emotional functions of products will also increase. Therefore, when designing products for elderly users, on the one hand, it is necessary to consider the satisfaction of different levels of needs during the product usage process; on the other hand, it is necessary to consider the emotional and respectful needs of users in different age groups during the use of the product. In addition, the multi-level needs of elderly users also include the interrelationships between their multi-level needs.

## 4. Construction of Multi level Needs Theory Model for Elderly Users

The demand theory model was proposed by American sociologist, anthropologist, and psychologist Abraham Maslow. It is mainly aimed at solving the problems of human survival and development, exploring human needs and behaviors, and thus constructing a hierarchy of human needs theory. According to Maslow's hierarchy of needs theory, human needs are divided into five levels, from low to high: physiological needs, safety needs, social needs, esteem needs, and self actualization needs. In Maslow's view, all five levels of needs can be satisfied, and it is not only the satisfaction of one need that truly realizes the value of life.

In user research, based on Maslow's hierarchy of needs theory, elderly users can be classified into the following four types. One is young elderly: this type of elderly usually have just entered the old age stage, they are physically healthy, have sufficient self-care ability, and may still be working or participating in social activities. Their needs mainly focus on socializing, entertainment, and maintaining physical and mental health. The second type is empty nest elderly: this type of elderly usually refer to those whose children have grown up and are living alone. They may be financially well-off, but due to a lack of social interaction and companionship from their children, they may feel lonely and lost. Their needs mainly focus on social interaction, spiritual comfort, security, and other aspects. The third type is elderly patients with illnesses: this type of elderly usually have certain diseases or chronic illnesses that require long-term medical care and treatment. Their needs mainly focus on healthcare, rehabilitation services, psychological support, and other aspects. The fourth type is disabled elderly: this type of elderly are usually unable to take care of themselves due to physical illnesses or aging, and require long-term care and nursing. Their needs mainly focus on daily life care, healthcare, psychological support, and other aspects. The above classification and demand categories have constructed a theoretical model of the needs of elderly users. (As shown in Figure 2)

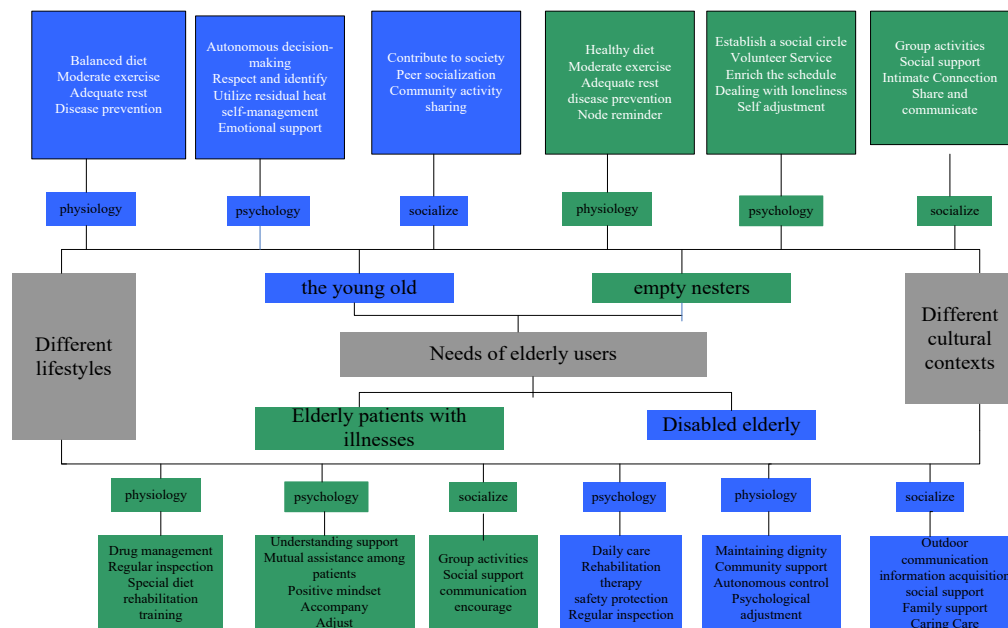


Figure 2: Multi level demand theory model for elderly users

This model mainly includes three dimensions: the first is the physiological dimension, which includes four aspects: physiology, safety, socialization, and respect; from both physiological and safety perspectives, the physiological dimension mainly involves the basic daily needs of the elderly, such as food and water; the safety dimension mainly involves whether the elderly can obtain sufficient material security and social support (such as family and friends, community services, etc.) in their daily lives. The second dimension is psychological, including cognitive ability, perceptual ability, and social support. From the perspectives of cognitive ability, perceptual ability, and social support, elderly users will be affected to varying degrees. The third is the social dimension, which includes three aspects: social interaction, self-expression, and emotional expression; on the social dimension, it mainly involves communication and emotional exchange between elderly people and peers (such as activities, gatherings, etc.) and family relationships (such as friendships, etc.). At the same time, different lifestyles and cultural contexts will also have an impact on specific needs. Therefore, this article takes these three aspects as the first level dimensions of multi-level demand research for elderly users. This model can help us better understand the needs and characteristics of elderly users, thereby providing them with more accurate product and service designs.

## 5. Conclusion and Discussion

By studying the real needs of different elderly groups, paying attention to the differences in needs of elderly groups under different cultural contexts, social contexts, and lifestyles, based on Maslow's hierarchy of needs theory, especially focusing on physiological needs, psychological needs, social

needs, and other dimensions of needs, a differentiated and multi-level needs theory model for segmented elderly groups such as young elderly, empty nest elderly, sick elderly, and disabled elderly is established. Based on this theoretical model, this article proposes the following suggestions for the design of elderly products: the first is to pay attention to physiological needs. In response to the physiological needs of elderly users, it is necessary to strengthen the aging adaptation of products and environments during the design process, and provide product designs that are in line with the physical characteristics of elderly users. The second is to attach importance to security needs. In response to the safety needs of elderly users, product safety design should be strengthened to meet their expectations for personal safety. The third is to pay attention to social needs. In response to the social needs of elderly users, it is necessary to strengthen the interaction between products and social networks, making it easier for elderly users to obtain social satisfaction.

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