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Research on the Current Situation of the Needs and Problems of Urban Elderly Education under the Smart Elderly Care Model

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Abstract: *With the acceleration of China's aging population, the demand for continuing education for the elderly group is growing. With the continuous progress and rapid development of information technology, "smart elderly care model" as a new elderly care model has gradually entered the public eye, and " smart elderly care model " will help the education of the elderly in the city, but it is still facing practical difficulties such as low awareness and acceptance of the elderly, low consumption level and insufficient trust. Based on the hierarchy of needs theory, this paper investigates and analyzes the cognition and acceptance, needs and opinions of the elderly group on the "smart elderly care model" elderly education. And this paper conceives the realization path from four aspects: publicity and promotion, demand docking, operation training, and privacy and security, so as to provide support for the development and improvement of the "smart pension" elderly education-related services.*

Keywords: *Smart Elderly Care; Elderly Education; Digitization; Demand*

1. Research Background

Since China entered the aging society, the aging of the population has shown an accelerating trend. Data released by the National Bureau of Statistics show that, as of the end of 2022, the total population aged 60 and above in China has reached 280 million, accounting for 19.8% of the total population, of which the total population aged 65 and above has reached 210 million, accounting for 14.9% of the total population [1]. China's economic and social development is facing a huge test brought by the large-scale and rapid aging of the population. More actively, scientifically, and effectively addressing the issue of population aging is an important task at the current critical stage of building a modern strong country. The practical demand for continued education among the elderly is growing, and their self-efficacy and value realization are increasingly valued. In-depth understanding of the current situation of elderly education and identifying existing deficiencies and problems in the field of elderly education services is not only related to people's welfare but also to the overall development of the country.

In recent years, in terms of policy supply, the state has accelerated the construction of accessible information, promoted the deep integration of public services with the internet industry, and facilitated the orderly opening of data in public services and government departments in fields such as healthcare and elderly care. In line with the actual conditions of various regions, a large number of policies related to smart elderly care have been tailored and implemented solidly.

In January 2020, Chongqing City issued the "Chongqing Plan for Promoting the Development of Elderly Care Services," which includes policy content such as "building a smart elderly care cloud platform," "implementing Internet + elderly care actions," and "promoting the construction of smart elderly care." In February 2022, Chongqing City provided policy guidance and supporting measures related to smart elderly care in its "14th Five-Year Plan" for elderly care in the region. Focusing on intelligent elderly care, it proposed measures to promote the construction of intelligent facilities and equipment, the supply of elderly products, the construction of intelligent service platforms, and the application of intelligent technological means. These measures aim to improve the demand for elderly care services, continuously build and optimize the smart elderly care service system, and meet the growing multi-level and high-quality health elderly care needs of the elderly population.

At present, the new round of technological revolutions such as big data, artificial intelligence, 5G technology, and the Internet of Things are rising like the sun. There is an abundance of research on

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emerging industries, and scientific and technological development is rapid. As the times develop and technology progresses, facing the ever-changing social environment, elderly care has been endowed with new connotations. Riding the east wind of digitalization, "smart elderly care" empowered by high technology may become a new model for future elderly care.

2. Literature Review

2.1. Research on "Smart Elderly Care"

2.1.1. Research on "Smart Elderly Care" Abroad

Regarding the connotation of "smart elderly care," foreign research is earlier and richer in content. The concept of "smart elderly care" was first proposed by the UK's Life Trust Fund, emphasizing the breaking of temporal and spatial restrictions, and the use of various advanced information technology means to bring together the government, society, institutions, and other entities to jointly provide convenient, efficient, intelligent, high-quality, and enjoyable elderly care services for the elderly, hence also known as the "fully intelligent elderly care system" [2]; Mikalmmonen, an associate professor at Lappeenranta University of Technology in Finland (2013), and others believe that the core concept of smart elderly care is to rely on elderly care service institutions to provide daily nursing, health advice, and safety protection for the elderly at home through household intelligent devices, aiming to provide a more convenient lifestyle for the elderly [3]; Sapci, a professor at Adelphi University in the United States (2019), believes that smart elderly care utilizes cutting-edge information technologies such as cloud computing, the Internet of Things, and the internet to provide remote services for the elderly and medical staff, ensuring that they can experience convenient, efficient, and intelligent one-stop elderly care services at home [4].

Although foreign scholars have different definitions of "smart elderly care," they all basically focus on the application of technology, such as Rasika (2015) who proposed the development of a wireless sensor network (WSN) based smart home system, aiming to help the elderly work more securely and provide them with a safe, healthy, and protected living environment [5]; Saunders (2016) and others designed a robot with autonomous control functions, which can learn independently and automatically respond to the needs of home caregivers, providing support for the elderly in various aspects such as life management, safety protection, remote monitoring, and environmental assistance [6].

In addition, some studies focus on the social and spiritual needs of "smart elderly care," such as Bothorel et al. (2011) who, from the perspective of social needs, built a smart elderly care online platform with social services at its core for elderly people suffering from mental loneliness, effectively reducing the loneliness of the elderly in daily life, thereby meeting emotional needs [7]; Awan (2018) proposed that precise supply emphasizes attention to both physical and mental health of the elderly, and at present, it is more about optimizing the daily care of the elderly at home, medical care, and the transformation of elderly-friendly facilities, and has not yet provided effective and rich social channels for the elderly [8].

2.1.2. Research on "Smart Elderly Care" in China

Domestic research on the connotation of "smart elderly care" can be traced back to the concept of "digital elderly care" proposed by Hu Liming (2007) and others [9], which can be considered the embryonic form of the term "smart elderly care"; Zheng Shibao (2014) believes that smart elderly care combines information technology and intelligent technology, such as the Internet of Things, cloud technology, and mobile Internet, aiming to provide comprehensive, online and offline, multi-functional, and integrated medical and elderly care services [10]; Zuo Meiyun (2014) believes that smart elderly care refers to the use of modern information technology such as the Internet and the Internet of Things to provide the elderly with services in daily life care, safety protection, medical and health care, learning, and entertainment, and to carry out services and management through the process of intelligent interaction with the elderly [11]; Bai Mei (2016) and others believe that smart elderly care adopts advanced technological means to closely integrate the traditional family, community, and institutional elderly care models, aiming to meet the material and spiritual needs of the elderly, and to provide them with a healthier, more comfortable, safer, and more convenient modern elderly care model [12].

From the domestic research results, most of the research on "smart elderly care" focuses on discussing the related service products for the daily life care and medical health of the elderly group,

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which coincides with the mainstream research status abroad, so no further elaboration is needed. There is less mention in the domestic context of the spiritual aspect of "smart elderly care" service provision, but some researchers have pointed out the research gaps and existing industry problems in this area. For example, Chen Li and others (2016) propose that smart elderly care should not only rely on the development of intelligent technology, but more crucially, from basic life care to spiritual pursuits, services with a rich experience should be provided according to the specific needs of the elderly [13]; Zhang Lei (2017) and others believe that domestic elderly care services mainly focus on daily life care, health medical care, and convenient services, but often neglect the psychological and spiritual needs of the elderly. The elderly find it difficult to obtain real solace at the spiritual level, due to the lack of interpersonal communication, emotional interaction, cultural entertainment, and knowledge re-education [14].

2.2. Research on the Educational Needs of the Elderly

2.2.1. Types of Elderly Education Needs

Research on the types of elderly education needs abroad started relatively early. McClusky (1971), known as the father of educational gerontology in the United States, proposed the need spectrum learning theory in his speech at the White House Conference on Aging. He categorized the educational needs of the elderly from low to high into five types: the need to cope, the need to express, the need to contribute, the need to influence, and the need for self-transcendence [15]; Mc Daniel (1993) proposed three types of elderly education needs: leisure, vocational, and transcendence [16]; Purdie (2003) believed that the elderly have learning needs in four areas: science and technology knowledge, physical health, social life, and leisure and entertainment [17].

Domestically, there is also a wealth of research on the types of elderly education needs. Lai Xiuhui (1989) studied and believed that the elderly have learning needs in five aspects: family life, social and political, entertainment and leisure, physical and mental health care, and personal improvement [18]; Huang Fushun (2008) categorized the learning needs of the elderly into: health care needs, leisure life needs, language learning needs, humanities and arts needs, and talent and skill needs [19].

2.2.2. Content of Elderly Education Needs

Foreign research indicates that elderly populations abroad tend to learn "instrumental" or practical knowledge in their daily lives. For instance, a study by Hiemstra (1972) showed that older adults have a preference for engaging in instrumental learning activities, such as those that address the challenges of aging [20]. The research results of Pevoto (1989) found that elderly individuals are quite interested in learning course content with strong practicality, such as drama, literature, government, mathematics, language, and computer skills [21].

Domestic research suggests that elderly populations in China also prefer to learn practical knowledge. For example, a case study by Jiang Manli and others (2015) found that participants place great emphasis on the connection between learning content and life, with a strong demand for courses with strong practicality [22]. Compared to the educational needs of elderly groups abroad, domestic elderly groups are often more interested in courses related to health preservation and leisure entertainment. For instance, a survey of the elderly population in Beijing by Zhang Tiedao and others (2015) found that the majority of the elderly do not have a strong demand for academic education. They are more inclined to focus on learning content that matches their daily lives and personal interests, such as medical care and health, literature, and the arts [23].

2.2.3. Influencing Factors of Elderly Education Needs

Foreign scholar Nelson (1983) and others, from the perspective of social service providers, found that the learning needs of the elderly are related to their level of physical health, the convenience of transportation, the availability of social resources, and the reasonableness of tuition fees [24].

Most domestic research conclusions have found that the demand for elderly education is closely related to demographic variables, including gender, age, and educational attainment. For example, Wang Luping's (2005) study found that elderly people aged 60 to 70 participate more in learning activities, the higher the level of education, the higher the degree of participation in learning, and female elderly people are more enthusiastic about learning compared to males [25]. Lin Lihui's (2006) research showed that the willingness to receive education among younger elderly people is significantly higher than that of those over seventy, and the higher the educational level of the elderly, the greater the likelihood of participating in various lifelong learning activities [26]. Tan Shaohua's

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(2018) survey in Chongqing found differences in elderly education in terms of gender, age, occupation, educational level, income, and urban and rural areas [27].

2.3. Review of Domestic and International Research Status

Overall, most domestic and international research on "smart elderly care" focuses on the technical field, emphasizing the improvement of basic living care for the elderly and meeting their medical service needs. This also corresponds to the two lowest levels of Maslow's hierarchy of needs (i.e., physiological and safety needs). Research both domestically and internationally has pointed out that smart elderly care services have neglected the spiritual and mental health needs of the elderly. On the premise of respecting the laws of needs (i.e., Maslow's hierarchy of needs) and meeting the lower-level needs, we can gradually propose the concept and initial actions for "smart elderly care" spiritual education level products and services.

Both domestic and international elderly groups generally hope to receive practical and skill-based elderly education. Compared with foreign research on the needs of elderly education, our country's related research shows that the elderly group has a special preference for educational products in the fields of health preservation and leisure entertainment. This, to a certain extent, indicates that the concept of active aging in our country is still in the introduction stage, and the exploration and development of elderly care products are facing a broad field. With social development, the continued education needs of the elderly group are developing in a diversified trend. In order to adapt to this technological revolution era of "information explosion", the elderly are also eager to keep up with the pace of The Times, enhance social adaptation and participation ability, learn new knowledge and skills needed by The Times, and strive to achieve the transformation from "being provided for in old age" to "learning in old age" and then to "being productive in old age".

Therefore, this study investigates some elderly people in Chongqing to understand their actual needs for elderly education under smart elderly care and attempts to analyze the factors affecting their needs, in order to explore the existing problems in the field of elderly education, hoping to provide suggestions for the introduction and development of Chongqing's new model of smart elderly care and the supply of elderly care products in Chongqing.

3. Theoretical Foundation

The products and services of elderly education under smart elderly care must be positioned around the needs of the elderly themselves. As shown in Figure 1, Maslow's Hierarchical Theory of Needs is based on the motivation theory in psychology and revolves around the deficiency needs and growth needs of individuals, proposing a five-tier pyramid model of needs. The needs from the foundation to the pinnacle are physiological needs, safety needs, social (love and belonging) needs, esteem needs, and self-actualization needs [28].

Figure 1: Maslow's Hierarchical Theory of Needs Model Diagram.

With the rapid development of China's economy and continuous social progress, the elderly population's needs for elderly care services are no longer limited to the lower levels of physiological and safety needs. Their aspirations have gradually shifted from "enjoying a peaceful old age" to "enjoying an active and fulfilling old age." The emergence and innovation of connected, interconnected, and intelligent elderly care services under the smart elderly care model will also promote the in-depth development of elderly education, gradually meeting the higher-level spiritual and belonging needs of

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the elderly population to the greatest extent possible.

In relation to this study, according to Maslow's Hierarchical Theory of Needs, the needs of the elderly population can be divided into basic living care needs, medical and health care needs, emotional and social needs, and self-actualization needs. First and foremost, it is essential to meet the physiological and safety needs of the elderly, that is, their basic living care and medical health care needs. Ensuring their physical health and creating a good elderly care environment is the prerequisite and foundation for continued elderly education. Spiritual needs beyond this are based on the fulfillment of physiological and safety needs [29]. After retirement, the elderly have more leisure time and are eager to continue to contribute or develop hobbies and interests. Therefore, to meet the elderly's pursuit of higher-level needs, diversified elderly education services are required to satisfy the growing and varied personal needs of the elderly population [30].

3.1. Physiological Needs

Physiological Needs refers to the basic needs for the survival of an individual, including food, water, air, sleep, sex, and other such requirements. These are also the fundamental needs for the survival of the elderly.

3.2. Safety Needs

Safety needs refer to the desire for security, stability, order, and freedom from fear and anxiety. This includes needs for safety, employment, resources, health, and property. The elderly typically have a higher demand for safety compared to younger people, especially in terms of personal safety and life safety (health). This necessitates the provision of health knowledge and personal safety education (anti-fraud and prevention) in elderly education.

3.3. Social (Love and Belonging) Needs

Social (Love and Belonging) Needs refer to the human desire for emotional connections and the longing to be part of a group, which includes various types of affection such as family bonds, friendships, and romantic love, as well as a sense of belonging to families, collectives, and classes. Elderly people also have a high demand for social interactions. In their monotonous old age lives, they enjoy visiting with relatives and neighbors, participating in colorful activities, and hope to make more like-minded friends.

3.4. Esteem Needs

Esteem needs refer to the desire for one's inherent value to be affirmed and one's extrinsic value to be recognized, including self-respect and respect for others. In their later years, what elderly people value most is dignity, with some regarding it as even more important than their own lives. Acknowledging and caring for the elderly, granting them the same social rights as others, and allowing them to live with self-respect and confidence is essential.

3.5. Self-Actualization Needs

Self-actualization needs refer to the desire to fully realize one's potential and achieve personal ideals and ambitions, including the needs for self-reliance, helping others, further education, and innovation and entrepreneurship. Most of the current elderly population in our country have experienced the historical phase of the nation's development from poverty to moderate prosperity. Many were preoccupied with basic needs during their youth and were unable to fulfill their personal aspirations. As they enter old age, their need for self-actualization becomes increasingly strong.

Among the aforementioned five needs, physiological needs and safety needs are deficiency needs, which affect a person's survival; social (love and belonging) needs, esteem needs, and self-actualization needs are growth needs, referring to other needs that arise as basic survival is secured. Lastly, Maslow supplemented the growth needs with three additional levels of needs: cognitive needs, aesthetic needs, and self-transcendence needs, which can be categorized under self-actualization needs.

In the context of smart elderly care models, elderly education service provisions should first address the deficiency needs of the elderly by providing basic elderly care products; then, considering the

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growth needs of the elderly, offer a rich functional hierarchy of elderly education service platforms.

4. Core Concept Definition

4.1. Smart Elderly Care

In many years of practice, we have found that the traditional elderly care model, primarily based on nursing homes and day-care centers, was viable in the past. However, with the intensification of aging, the traditional way of elderly care can no longer meet the actual needs of the modern elderly population. Therefore, how the elderly care industry can break through has become a top priority in exploring its comprehensive and positive development. With the vigorous development of digital technology, smart elderly care has gradually come into view. Smart elderly care refers to the use of new technologies and digital means, such as the Internet, the Internet of Things, big data, cloud computing, and other emerging technologies, to achieve the goal of improving quality, reducing costs, and increasing efficiency in elderly care. Governments, communities, and families can integrate resources to connect home-based elderly care, community elderly care, and institutional elderly care with a big data information platform to provide a more efficient and convenient innovative elderly care service management model.

Today's smart elderly care is not only about building an elderly care platform but also gradually constructing a comprehensive smart elderly care system. Looking at the policy development process of smart elderly care: the process can be divided into five stages: electronic elderly care stage, information elderly care stage, intelligent elderly care pilot stage, smart elderly care demonstration stage, and the mature and explosive stage of smart elderly care. For each stage, the country has also issued a series of regulations to promote smart elderly care to a new level in different periods.

4.2. Elderly Education

In developed countries such as the United States, the United Kingdom, and others, elderly education is referred to as "Third Age Education," also known as "Senior Education" or "Elderly Education." Elderly education plays a significant role in building a learning society. There is no consensus in academia regarding the substantive meaning of "elderly education." The "Dictionary of Demography" defines the meaning of elderly education as follows: "Elderly education is an education based on the physiological and psychological characteristics of the elderly, aimed at enabling them to continue learning. The target audience is elderly people at all levels, with the goal of continuously improving their overall quality." Generally, elderly education is understood to have two meanings: In a broad sense, it refers to all activities that enhance the physical and mental health of the elderly, improve their knowledge and skills, and change their mindset. In a narrow sense, it refers to purposeful, planned, and organized activities carried out by institutions such as senior universities and various levels of elderly schools, targeting the elderly as the audience [31]. The meaning of elderly education in this study is defined as "educational activities imposed on the elderly, aimed at increasing knowledge, enriching life, broadening horizons, and strengthening physical health, which have a positive impact."

5. Research Methods

5.1. Literature Analysis Method

This study, throughout its process, involves searching for, reading, and organizing both domestic and international literature related to smart elderly care education services. It aims to understand the cutting-edge dynamics and the latest societal conditions of smart elderly care education, with a particular focus on the policy service support provided by Chongqing City for smart elderly care. The study conducts an in-depth exploration and analysis of elderly education under the smart elderly care model in Chongqing.

5.2. Questionnaire Survey Method

The questionnaire survey method is a data collection technique that quantifies research questions through controlled measurement directed at the respondents. Based on relevant literature, this study designed a set of questionnaires aimed at elderly individuals in urban communities. The content of the

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questionnaire includes the elderly's awareness and acceptance of "smart elderly care" education, as well as their needs and preferences. Preliminary surveys were conducted initially, and based on the feedback and suggestions from the participating elderly, the content of the questionnaire was revised and improved. The formal questionnaire was then distributed to the elderly in Longshan Sub-district, Yubei District, Chongqing. Most of the elderly completed the self-administered questionnaire, and for those who had difficulty responding, researchers provided guidance and assistance to help them complete the questionnaire. A total of 176 questionnaires were collected, and researchers integrated, analyzed, compared, and summarized the data in conjunction with relevant information.

6. Research Analysis and Issue Identification

6.1. Basic Information of the Surveyed Elderly Participants

A total of 181 questionnaires were distributed in this survey, with 176 valid responses collected, resulting in an effective recovery rate of 97.23%. The basic information of the respondents is shown in Table 1:

Table 1: Basic information of the elderly participants in the survey.

		Number of People	%	Mean	Std. Dev.
Gender	Male	89	50.6	/	/
	Female	87	49.4		
Age	51-60	54	30.7	1.98	.789
	61-70	73	41.5		
	71-80	47	26.7		
	81+	2	1.1		
Education	Elementary School	2	1.1	4.95	1.016
	Junior High School	14	8		
	High School or Technical Secondary School	41	23.3		
	Junior College	53	30.1		
	Bachelor's Degree and Above	66	37.5		
Monthly Income	Under 1000rmb	1	0.6	4.95	1.117
	1001-2000rmb	3	1.7		
	2001-3000rmb	14	8		
	3001-4000rmb	44	25		
	4001-5000rmb	38	21.6		
	5001+rmb	76	43.2		
Residential Status	Living with Spouse	104	59.1	1.54	.747
	Living with Children's Family	52	29.5		
	Living Alone	18	10.2		
	Living with Relatives	1	0.6		
	Other	1	0.6		
Physical Condition	Able to Live Independently	109	61.9	1.41	.548
	Has Chronic Illness, but Basically Self-sufficient	62	35.2		
	Has an Illness, Requires Care	5	2.8		

In terms of choosing elderly care methods, 62.5% of the surveyed elderly opted for home-based care, while 20.45% prefer community care, and 13.64% choose institutional care, as shown in Figure 2. Influenced by traditional filial piety culture and economic conditions, the majority of the elderly do not select institutional care (such as nursing homes) for their elderly care needs. Against the backdrop of an aging population before becoming wealthy, Shanghai was the first to propose the "9073" elderly care model in its "Eleventh Five-Year Plan". This model suggests that 90% of the elderly will adopt family-based home care, with families providing the care; 7% of the elderly will receive daytime care from the community and enjoy community elderly care services; 3% of the elderly will receive elderly care

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services from institutions. The "9073" elderly care model is a rational measure to address issues such as the weak pensions of some elderly, imperfect elderly care systems, and inadequate supporting facilities in China. The survey results show that at the level of the elderly population's preferences, the demand for community care and institutional care exceeds the supply. Faced with increasing pressure from family elderly care, some elderly who require special care and medical services will need supplementary support from social elderly care forces.

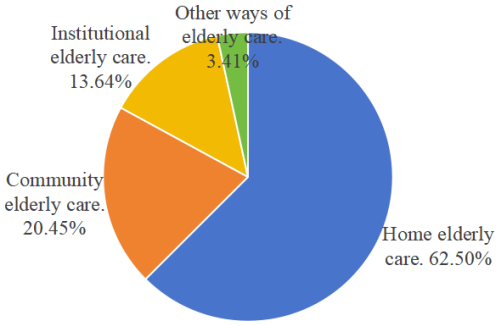

Figure 2: Elderly care method preference statistics chart.

6.2. Elderly People's Cognition and Acceptance of "Smart Elderly Care" in Elderly Education

The survey results are shown in Table 2 that nearly half of the elderly are not familiar with "smart elderly care" in elderly education, and three in ten have only "heard of it slightly". This indicates that the popularity of the "smart elderly care" model among the elderly population is not high, and also suggests that this emerging elderly care model is still in its initial stage of development since its introduction in our country. There is a need to increase publicity while also following up with the development and implementation of related elderly care products.

Table 2: Understanding and experience of "Smart Elderly Care" in elderly education.

		Number of people.	%
Understanding of "Smart Elderly Care" elderly education.	Very familiar.	5	2.8
	Basic understanding.	37	21
	Understand a little.	58	33
	Not very familiar.	66	37.5
	Completely unfamiliar.	10	5.7
Have you received services from "Smart Elderly Care" products?	Have received.	74	42
	Have not received.	102	58

Regarding their awareness of elderly education course resource platforms, the surveyed elderly demonstrate a limited ability to obtain educational resource information, with most of their awareness being focused on more traditional resource platforms such as "the official website of the elderly university." A significant 38.6% of the elderly have little knowledge of course resource platforms.

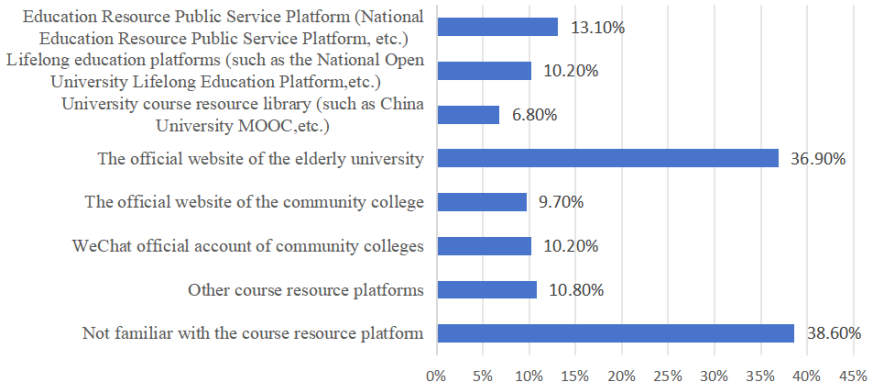

Figure 3: Awareness of elderly education course resource platforms.

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From the perspective of awareness of elderly education course resource platforms, 62.5% of the elderly accept elderly education under the "smart elderly care" model, while 37.5% maintain a neutral or skeptical attitude (depending on the situation or not accepting it). When asked about the reasons, 51.52% of the elderly indicated that they "do not understand what smart elderly care is," 18.18% prefer "traditional care by their children," another 18.18% cited "high costs that are hard to bear," 12.12% expressed "distrust in existing products and services," and 10.61% stated that they "do not know how to use intelligent products." as shown in Figure 3.

Whether the elderly are willing to bear the tuition fees for elderly education and how much they are willing to pay reflects their personal willingness to invest in education. Looking at the payment willingness for monthly "smart elderly care" education services, the majority of the elderly are willing to pay an amount below 300 yuan, with "below 100 yuan" accounting for 29% and "100-200 yuan" accounting for 33.5%, as shown in Figure 4. Along with the progress of the times and the development of technology, the elderly also have a certain desire to explore new things. However, their deeply ingrained concept of "frugality and saving" leads them to prefer economical and affordable products and services. For smart elderly care services, they are primarily concerned with its price and practical application value. Therefore, considering the uniqueness and particularity of the elderly's consumption habits, the survey results indicate that the elderly have a relatively positive willingness to invest in education, but there is room for improvement.

The research indicates, as shown in Table 3, that more than half of the elderly are willing to try new educational services related to "smart elderly care," and society should closely monitor the emergence and increasing demand for "smart elderly care." However, a significant portion of the elderly population still has a low acceptance of it. Studies have shown that some elderly people are unwilling or reject the use of smart elderly care services, and a considerable proportion of them even feel anxious about it [32]. Additionally, although some elderly have a strong demand for smart elderly care services, their acceptance of the service prices is relatively low [33], which means their willingness to use has not been truly translated into effective actual demand.

Table 3: Acceptance of "Smart Elderly Care" education services.

		Frequency	%
Would you be willing to accept "Smart Elderly Care" educational services?	Accept	110	62.5
	Not Accept	10	5.7
	It depends	56	31.8
Reasons for not accepting	Do not understand what "Smart Elderly Care" is.	34	51.52
	Unable to use smart products.	7	10.61
	Do not trust existing products and services.	8	12.12
	Prefer traditional care from children.	12	18.18
	Expensive, difficult to afford.	12	18.18
	Other	15	22.73

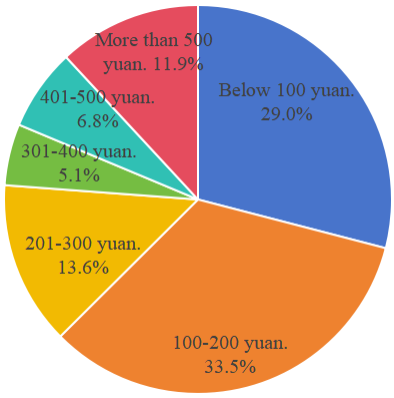

Figure 4: Monthly elderly education payment willingness statistics chart.

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6.3. The Current Status of Demand for "Smart Elderly Care" in Elderly Education Among the Elderly

Overall, 37.5% of the surveyed elderly individuals indicated they have a "need for smart life care," 27.3% have a "need for smart medical care," 27.3% have a "need for smart emotional comfort," and 8% stated they require smart safety monitoring services, as shown in Figure 5.

Smart life care services focus on the daily lives of the elderly, using information technology to provide intelligent services in areas such as daily shopping, household cleaning, dining, bill payments, and daily care. These services aim to meet the most basic living needs of the elderly as part of smart elderly care services. The survey revealed that community-dwelling elderly individuals have the highest demand and calls for smart life care services, which are also the most basic and widespread type of elderly care service.

Smart medical care services are based on the physical health of the elderly, integrating information technology and medical resources to achieve resource and data sharing. Relying on smart medical care service systems and advanced intelligent medical equipment, these services provide a comprehensive type of smart elderly care service specifically for the elderly population. This service covers diagnosis and treatment care, health checks, and rehabilitation, among other aspects. The survey indicated that there is a certain demand for smart medical care services among the elderly. As people age, they may experience difficulties with mobility, declining physical health, and increasing health issues. Cross-analysis revealed that the older the elderly individual, the higher the demand for smart medical care services, and those not living with their children (living with a spouse, living alone, etc.) have a significantly higher demand than those living with their children.

Smart emotional comfort services start from the social and self-actualization needs of the elderly, using internet technology applications. Based on voluntary, confidential, scientific, and respectful service principles, these services aim to adjust emotional disorders, provide comfort for psychological trauma, and cultivate a healthy mindset. They use information technology to comprehensively ensure the elderly's sense of gain, happiness, and security in their later years. The survey showed that there is a certain demand for smart emotional comfort services among the elderly. Cross-analysis revealed that the emotional comfort needs of the elderly not living with their children (living with a spouse, living alone, etc.) are much higher than those living with their children. This group of elderly individuals not only lacks care in daily life but also lacks companionship in their mental state, which can lead to feelings of loss and loneliness. Effectively utilizing the emotional comfort function of smart elderly care services, such as remote visitation services and online psychological counseling, can effectively address the elderly's concerns, alleviate their feelings of loneliness in their later years, and enhance their sense of satisfaction and happiness.

Smart safety monitoring services start from the personal safety of the elderly, based on intelligent elderly safety monitoring systems and wearable smart elderly care intelligent terminals. They use big data technology to obtain real-time data from the elderly. When the elderly encounter emergencies that threaten their safety, the system can obtain the elderly's distress signals immediately, enabling real-time alerts and precise rescue. The study indicates that among the four types of services, the demand for smart safety monitoring services is the lowest, at only 8%. The surveyed elderly group's awareness of personal safety needs strengthening. On one hand, the elderly believe they "do not need" or "do not need it"—mentioning that they are in good physical condition, have clear thinking, do not suffer from language disorders, and will not experience emergencies such as getting lost or fainting; on the other hand, the market price of smart safety monitoring products is high, far exceeding the elderly's investment and consumption budget, and the elderly have suspicions about "leaking personal information" with wearable smart devices and face difficulties with "not knowing how to use" or "using it poorly."

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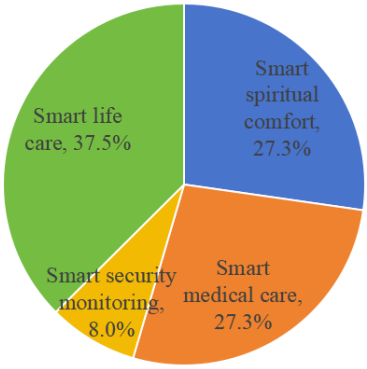

Figure 5: The demand for the four areas of "Smart Elderly Care".

Finally, the suggestions and ideas that the elderly have for "Smart Elderly Care" in elderly education, the most frequently mentioned keywords by the elderly as shown in Figure 6 are "hope for practical implementation," "protect privacy," "simple and easy to operate," "community canteens," etc. This reflects the elderly group's increased attention to elderly education within the model of smart elderly care.

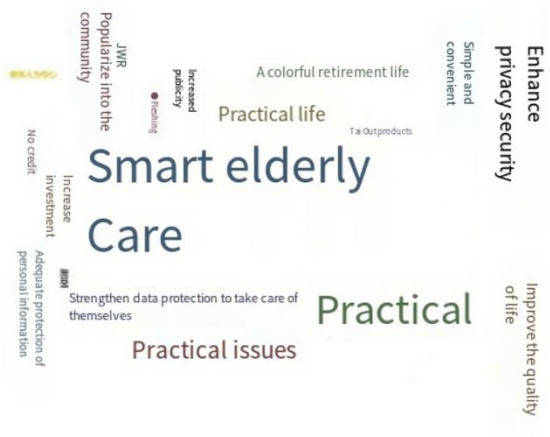

Figure 6: Analysis of the word cloud diagram of the elderly's suggested viewpoints.

7. Conclusions and Recommendations

7.1. Conclusions

Regarding the elderly's understanding and acceptance of "Smart Elderly Care" in elderly education: The elderly group has a low level of awareness of the "Smart Elderly Care" model, with more than half of the group having never received related services; there is a lack of information about elderly education course resource platforms among the elderly group; some elderly individuals have an insufficient understanding of "Smart Elderly Care" services and hold neutral and skeptical attitudes; the elderly group has a positive willingness to invest in education, but this still needs to be strengthened.

The demand for "Smart Elderly Care" in elderly education among the elderly is shown in Figure 7: The elderly have a relatively large overall demand for "Smart Elderly Care" products and services; in terms of content needs, they tend to prefer educational services related to health maintenance, hobbies, and entertainment and leisure.

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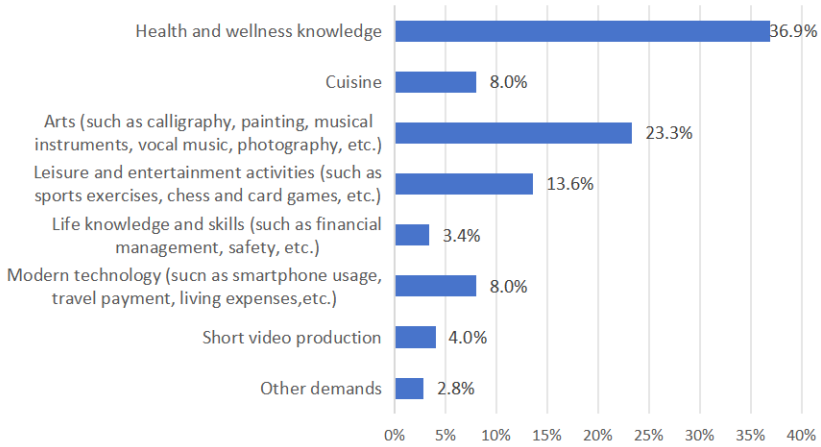

Figure 7: Demand for the content of "Smart Elderly Care" in elderly education.

7.2. Suggestions and Strategies

7.2.1. Expand promotional channels and strengthen popularization and promotion.

As early as 2016, the Yubei District established a district-level home-based elderly care service center and created an "Internet Smart Elderly Care Cloud Platform"; by the end of 2019, the "Smart Elderly Care Cloud Platform" was piloted in the Shuanglong Lake Street. However, the survey found that the elderly group generally has a low level of awareness of "Smart Elderly Care," and their access to information about related elderly education course platforms is limited. This is influenced by the elderly's unique physiological characteristics and inherent ideologies, and some elderly individuals have a sense of distance and resistance towards "Smart Elderly Care" educational services. Therefore, starting with publicity and promotion is essential to enable more elderly people to progress from awareness to understanding and ultimately to choosing "Smart Elderly Care" educational products.

Firstly, the power of the media can be utilized, such as using authoritative media to popularize "Smart Elderly Care" knowledge to the elderly, and also using new media platforms commonly accessed by the elderly (such as WeChat, Douyin, etc.) for promotion. Using vivid digital audio-visual, animation, and textual methods, a 24/7 comprehensive promotion of smart elderly care service products to the elderly can be conducted. Additionally, the characteristics of the community, such as the concentration of the elderly population, rapid interpersonal communication, and low cost, can be fully utilized to create a supportive public opinion environment, such as community cloud loudspeakers, promotional brochures, and promotional stations.

Furthermore, free trials of community "Smart Elderly Care" related products and services can be offered to attract the elderly's interest, thereby enhancing understanding and increasing consumer demand.

7.2.2. Service precision, docking course content.

The survey found that the age, physical condition, living situation, education level, and income level of the elderly all influence the demand for "Smart Elderly Care" educational services and products. For example, older individuals with poorer health may need more smart medical care services, while those with higher incomes may have a greater demand for and purchasing power for expensive elderly education products. Therefore, "Smart Elderly Care" education needs to start from the individual characteristics and diverse needs of the elderly, regularly conduct research and collect data on the needs of the elderly, to ensure services are precisely matched to these needs. Currently, elderly care services in Chongqing are mostly focused on life care and household services. More attention should be paid to the psychological comfort, health care, and self-worth realization of the elderly, expanding the content of elderly care services[34]. Additionally, efforts should be made to develop informational course resources for "Smart Elderly Care" education, improve the digital integration level of the elderly, and better achieve the modernization of elderly education.

7.2.3. Product training demonstration, easy to operate, suitable for elderly use

During the survey, it was found that many elderly individuals have a fear of new things and their application. They have expressed a demand for "guaranteed teaching and mastery" when using "Smart

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Elderly Care" related educational products. Therefore, to bridge the digital divide, teaching and training for the use of products by the elderly is particularly crucial. Communities can organize "Smart Elderly Care" product training activities, mobilizing community workers and young volunteers to provide training means "in-home training") and interactive teaching. Only by truly achieving "guaranteed teaching and mastery" and creating a "human touch in technology" can the broad elderly population be encouraged to use, dare to use, know how to use, and love using "Smart Elderly Care" products. This will enable them to more actively integrate into the smart society and also improve their sense of happiness.

Additionally, in the construction and development of "Smart Elderly Care" digital platforms, the design and operation of the platforms should be "elderly-centered," aligning with the cognitive habits and operational preferences of the elderly. This reduces the difficulties and barriers in learning and using, striving to improve the elderly's satisfaction with the experience of "Smart Elderly Care" related services.

7.2.4. Ensure information security and protect the privacy of the elderly.

During the research, the elderly generally expressed concerns about the new "Smart Elderly Care" model: they worry about the leakage of personal information and being defrauded by criminals. To enhance the elderly group's trust in "Smart Elderly Care" education, it is urgent for the entire society and various channels to collectively protect the elderly's information security. At the national level, legislation should clearly define the permissions for the use of personal information data and strengthen regulatory efforts; at the technical level, blockchain technology should be used reasonably, leveraging its unique advantages in data privacy protection; at the individual level, it is necessary to strengthen information security protection education for the elderly, popularize information protection knowledge, and cultivate and maintain awareness of anti-fraud and data privacy protection.

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